



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

**ΔΟΙΚΗΤΙΚΟ
ΣΥΜΒΟΥΛΙΟ:**

Γ. Φακορέλλης (πρόεδρος),
Ι. Μπασιάκος (αντιπρόεδρος),
Ε. Φιλίππκη (γενική
γραμματέας),
Α. Οικονόμου (ταμίας),
Μ. Παπαγεωργίου (ειδική
γραμματέας),
Μ. Καπαρού (μέλος),
Ε. Κουλουμπή (μέλος)

Πληροφορίες:

Γ. Φακορέλλης (σύνταξη,
επιλογή ύλης)
E-mail: yfacorel@uniwa.gr

Scientific Association, Year
of Establishment 1982,
Headquarters: Kaniggos 27,
106 82 Athens (Association
of Greek Chemists)
<http://archaeometry.org.gr>

BOARD:

Y. Facorellis (president),
I. Bassiakos (vice-president),
E. Philippaki (general
secretary),
A. Oikonomou (treasurer),
M. Papageorgiou (special
secretary),
M. Kaparou (member),
E. Kouloumbi (member)

Information:

Y. Facorellis (editor)
E-mail: yfacorel@uniwa.gr

Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Φεβρουάριος 2021 -

**The mind is not a vessel to be filled, but a fire to
be kindled.**
(Plutarch)

Newsletter of the Hellenic Society of Archaeometry

- February 2021 -

Nr. 239

ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ – TABLE OF CONTENTS

ΣΥΝΕΔΡΙΑ – CONFERENCES/WORKSHOPS

12 th International Congress on the Archaeology of the Ancient Near East, Bologna 6-10 April 2021, Fourth circular	page 5
International Symposium, FORGING VALUES - Metals Technologies and Social Interactions in Greece and the Mediterranean from the 4 th to the 1 st millennium BC, 15-16 April 2021, Université libre de Bruxelles, Campus du Solbosch, Local AY.2.108	page 7
2 nd International Conference on Global Issues of Environment and Culture, 18 th and 19 th of September 2021, European Cultural Centre of Delphi, Delphi, Greece	page 10
12 th International Congress on the Archaeology of the Ancient Near East, Bologna 6-10 April 2021, FOURTH CIRCULAR	page 15
27 th Annual Meeting of the European Association of Archaeologists, The Materiality of Ancient Texts in the Digital Age, Kiel, September 8-11, 2021, Calls for papers	page 17
27 th Annual Meeting of the European Association of Archaeologists, Kiel, 8-11 September 2021, Session #515 "New Realities? A Critical Approach to Recreating Objects for Examining and Presenting the Past", Call for Papers	page 19
8 th Conference in Aegean Archaeology, June 24 th and 25 th , 2021, University of Warsaw, Poland	page 21
SR2A: Hot Topics in Synchrotron Research in Heritage Science	page 23
27 th Annual Meeting of the European Association of Archaeologists, Session: "Earth, Water and Fire: Approaching Living Habitat and Community Landscape Management", Kiel, September 8-11, 2021, Calls for papers	page 24
27 th Annual Meeting of the European Association of Archaeologists, Session #525 "Of The Water: Fish and Molluscs in the ancient Eastern Mediterranean", Kiel, September 8-11, 2021, Calls for papers	page 27
27 th Annual Meeting of the European Association of Archaeologists, Session #179: The Geoarchaeology and Sustainability of Cultivation Terraces and Lynchets in Europe, Theme 1. Widening horizons through human-environment interconnections, Kiel, September 8-11, 2021, Calls for papers/Posters	page 29
3 rd International Radiocarbon in the Environment Conference (RIE III), 5-9 July 2021, Gliwice, Poland	page 31

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ – JOB VACANCIES/FELLOWSHIPS

- 3 years post doc position at the department of Mathematics and Physics
Department of the Campania University “Luigi Vanvitelli” **page 32**
- Funded PhD Studentship Opportunity in Near Eastern Archaeometallurgy **page 33**

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

- 55th Public Lecture Series - Spring Semester 2021: Celebrating 30 Years of
Research at the Archaeological Research Unit, 1991-2021, University of
Cyprus **page 35**
- New master on "Applied sciences to cultural heritage materials and sites"
opens in 2021/2022, University of Padova **page 37**

INTERNET SITES

- The Entire Acropolis Museum is Now Digital, by Duncan Howitt-Marshall **page 38**
- Carmen Gütschow: Archaeological conservation **page 40**
- Digital Atlas of the Roman Empire (DARE) **page 41**

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

- Homeric imagery and the natural environment **page 42**
- The length of a scroll: Quantitative evaluation of material reconstructions **page 47**
- The Gift of the Nile? Ancient Egypt and the Environment. Tucson: Egyptian
Expedition, 2020 **page 49**
- Microstructural and chemical characterization of a purple pigment from a
Faiyum mummy portrait **page 50**
- Archaeological heritage in the age of digital colonialism **page 51**
- Early evidence of royal purple dyed textile from Timna Valley (Israel) **page 52**
- New publication on medieval pewter craft **page 53**

ΕΙΛΗΣΕΙΣ - NEWS RELEASE

- Caligula's Garden of Delights, Unearthed and Restored, by Franz Lidz **page 54**
- 9 magnificent ancient mosaics of Israel, by Naama Barak **page 57**
- Saqqara in 3D: A New Look at an Ancient Site, by Elaine Sullivan **page 60**
- A warty pig painted on a cave wall 45,500 years ago is the world's oldest
depiction of an animal, by Katie Hunt **page 63**
- Egyptian archaeological mission discovers Roman fort remains in Aswan **page 66**

How Old Is This Ancient Vision of the Stars? By Becky Ferreira	page 67
Roman shipwreck filled with ancient treasures discovered off Greek island of Kassos	page 69
Science Notes – Parsing the properties of Egyptian purple pigments, by Kathryn Krakowka	page 70
Weizmann scientists date Santorini eruption with modern olive branch, by Hannah Brown	page 72
How We Discovered the Number Zero, by Nathaniel Scharping	page 75
New findings uncovered at 8,000-year-old Amida mound in Turkey's Diyarbakır	page 78
Ancient Greek statues discovered near Athens Airport	page 80
Ancient marketplace in Tiberias may have been one of Islam's first mosques, by Sarah Ben-Nun	page 81
Egypt announces first major archeological discovery of 2021, by Alaa Omran .	page 83
How Egypt plans to excavate antiquities submerged under Alexandria waters, by Khalid Hassan	page 85
Prehistoric Ashdodites used chopping tools to eat bone marrow – study, by Rossella Tercatin	page 88
What New Science Techniques Tells Us About Ancient Women Warriors – Recent studies show that man was not always the hunter, by Annalee Newitz ...	page 90
Puppy prints and wall illusions found in 1,500-year-old house in Turkey, by Owen Jarus	page 92
Who Invented the Alphabet? By Lydia Wilson	page 94
Minoan Language Linear A Linked to Linear B in Groundbreaking New Research, by Patricia Claus	page 97

ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

12TH INTERNATIONAL CONGRESS ON THE ARCHAEOLOGY OF THE ANCIENT NEAR EAST, BOLOGNA 6-10 APRIL 2021, FOURTH CIRCULAR

The 12th ICAANE will be carried out both in presence and remotely (only for registered participants) during the week from 6th to 10th April 2021. While we have all experienced in these months considerable restrictions to our professional and personal lives, we believe that, keeping safety as our first and foremost concern, it is important to start to reconnect our scientific community and begin to imagine and reflect together, communicating policies and practices within a changed (and ever more challenging, in the context of the current pandemic) landscape.

On top of the funds collected through fees, we are investing also considerable resources on an advanced technological infrastructure that will allow, in addition to live streaming, also Q&A and private chats (during "coffee breaks" and beyond). Besides the live streaming website and equipment, we are also investing on the open access publication of the proceedings with Harrassowitz. 15 rooms functioning in parallel will allow speakers to present, with copyright protection, their papers to both the in-person and virtual audience of registered participants. Discussions moderated by the session chairperson will be possible (remote questions via chat only). All speakers will be required to send also a video of their presentation as a further precaution against their own possible internet connection failures (detailed instructions will be circulated later on).

Workshops are confirmed in the schedule within the main themes of the Congress. Posters will be presented into a virtual room and they will be available for download, with a prior registration into the SocArXiv database for intellectual protection. Poster authors will have the possibility to discuss their work with participants within this digital environment. Printed posters may be exhibited as well in addition to the digital version.

By March 5th 2021 at the latest, all participants are kindly requested to: a) update their title and/or abstract if needed; b) let us know if they wish to attend remotely or in person; c) those living outside of Europe should let us know their time preference (morning or afternoon) for their papers, according to their time zone; d) send us a video recording of their 15-minutes paper for backup (extensions: .wmv, .avi, .mov, .mp4) or send us their poster (extensions: .pdf, .jpg, .tiff).

Check the page for the announcements of cash prizes offered to registered participants (note that one of the Ice Prizes goes to a paper not necessarily signed up in the program and which in fact may be written on purpose drawing on published sources). Additional useful information will be uploaded on the website of the Congress in the coming weeks.

All participants that wish to take part to the conference in person will be subject - in addition to the standard control measures foreseen for international travel at the time of COVID - to further precautionary limitations during the conference itself required by

health regulations as regard social distancing and reduced capacity of conference rooms (we will strictly follow the guidelines which will be in place in April 2021 at the University of Bologna). The use of a face mask will be mandatory at all times and hand sanitizers will be placed on multiple spots (the use of which is mandatory for speakers immediately before their presentation). The welcome cocktail will be held in an open space with the strict observation of social distancing. Individual food bags will be distributed during coffee breaks, while the social dinner has been cancelled.

We look forward to finally welcoming, either remotely or in person, all participants in Bologna next April and we send you our warmest regards

The 12th ICAANE Organizing Committee

Pierfrancesco Callieri, Maurizio Cattani, Enrico Cirelli, Antonio Curci, Anna Chiara Fariselli, Henning Franzmeier, Elisabetta Govi, Mattia Guidetti, Francesco Iacono, Simone Mantellini, Gianni Marchesi, Nicolò Marchetti (Chair), Palmiro Notizia, Adriano V. Rossi, Marco Zecchi

Please visit the site: <https://eventi.unibo.it/12icaane>

**INTERNATIONAL SYMPOSIUM, FORGING
VALUES - METALS TECHNOLOGIES AND
SOCIAL INTERACTIONS IN GREECE AND
THE MEDITERRANEAN FROM THE 4TH TO
THE 1ST MILLENNIUM BC, 15-16 APRIL 2021,
UNIVERSITÉ LIBRE DE BRUXELLES,
CAMPUS DU SOLBOSCH, LOCAL AY.2.108**

THURSDAY 15 APRIL 2021

09.00-09.15 TSINGARIDA A. (ULB)

Welcome remarks

09.15-09.30 NERANTZIS N. (ULB)

Introduction to the Project: Metals Technology in North Aegean Societies

1st session: Early steps and consolidation of metal production technologies in the Late Neolithic-Early Bronze Age

Moderator: A. TSINGARIDA (ULB)

09.30-10.00 FILIPPAKI E., KARAINDROU D. & BASSIAKOS Y. (N.C.S.R. 'Demokritos')

A closer look at the metallurgical activities of the two Early Helladic settlements of Raphina and Askitarion, East Attica, Greece

10.00-10.30 GEORGAKOPOULOU M. (UCL, London)

Different scales of archaeometallurgical research on the site of Daskalio Kavos on Keros: site survey, excavations and island-wide survey

10.30-10.45 coffee break

10.45-11.15 BASSIAKOS Y. & FILIPPAKI E. (N.C.S.R. 'Demokritos')

Crucible: a multipurpose metallurgical utensil and its diachronic trajectory in the Aegean world

11.15-11.45 CHARALAMBOUS A. (University of Cyprus)

The use of copper alloys in Bronze Age Cyprus: the transition from arsenical copper to tin bronze

11.45-12.15 RADEMAKERS F. (KU Leuven)

The production of arsenical copper in early Egypt: new perspectives through analyses of provenance and technology

12.15-12.30 Discussion

12.30-14.30 Lunch

2nd session: Diversification of techniques and introduction of iron in the Early Iron Age-Geometric period

Moderator: I. LEMOS (University of Oxford)

14.30-15.00 PARE CH. (Johannes Gutenberg-Universität Mainz)

The first iron in the Aegean and the Balkans: the state of research

15.00-15.30 VERČÍK M. (Charles University-Prague) & GÜDER Ü. (University of Çanakkale)

Iron and Metalworking in Ionia

15.30-15.45 Coffee break

15.45-16.15 ROGGENBUCKE M. (National and Kapodistrian University of Athens)

Early Iron Age swords, knives and obeloi from the Sanctuary of Zeus Parnessios. Archaeometallurgical study and first results

16.15-16.45 KOSTOGLIOU M. (SOAS University of London)

Stories of swords and spades: iron, autochthony and the making of Ancient Greece

16.45-17.00 Discussion

FRIDAY 16 APRIL 2021

3rd session: Precious metals production and consumption from the Archaic to the Hellenistic period

Moderator: R. DOCTER (Ghent University)

9.00-9.30 VAXEVANOPOULOS M. (École normale supérieure de Lyon)

Ancient mining techniques in Lavrion territory

9.30-10.00 NODIN S. (ULB)

Ore processing techniques in Thasos during Antiquity

10.00-10.30 NERANTZIS N. (ULB), PHOTOS-JONES E. (University of Glasgow), PAPADOPOULOS S. (Hon. Ephor of Antiquities) & NODIN S. (ULB)

Urban metallurgy at Pistyros: investigating the contexts of production

10.30-10.45 coffee break

10.45-11.15 PHOTOS-JONES E. (University of Glasgow) & NERANTZIS N. (ULB)

The chryseia vs argyreia divide: the archaeo-metallurgical perspective in the Classical/Hellenistic periods

11.15-11.45 CHALAZONITIS Y. (ULB)

Metal artifacts and jewellery as grave goods in the Strymon river plain: two Archaic "Thracian" graves from the Amphipolis region

11.45-12.00 Discussion

12.00-14.00 Lunch

4th session: Issues of trade-exchange-circulation of metals
Moderator: F. DE CALLATAÿ (ULB)

14.00-14.30 STOS-GALE Z. (University of Gothenburg)
A periphery? – the role of northern Greece in the development of metallurgy in Bronze Age Greece

14.30-15.00 WOOD J. R. (UCL, London)
How ancient technologies rendered silver invisible: Sources of silver in the Bronze and Iron Age Mediterranean

15.00-15.30 KIDERLEN M. (Humboldt-Universität zu Berlin)
Information on central places and networks in the Mediterranean: the case of the EIA Greek bronze tripod cauldrons

15.30-16.00 VERDAN S. (University of Lausanne) & HEYMANS E. (University of Amsterdam)
Contextualising Euboean interest in northern Aegean gold (c.1000-600 BCE)

16.00-16.30 Final discussion

The symposium is organised in the framework of Marie Skłodowska-Curie funded project: ‘Metals Technology in North Aegean Societies-ME.Tech.NAS’ (Nerantzis Nerantzis - Grant agreement No 840894).

2ND INTERNATIONAL CONFERENCE ON GLOBAL ISSUES OF ENVIRONMENT AND CULTURE, 18TH AND 19TH OF SEPTEMBER 2021, EUROPEAN CULTURAL CENTRE OF DELPHI, DELPHI, GREECE

Organised jointly by Henan University and University of the Aegean

Welcome note

To promote mutual interest in cultural and environmental issues on a global scale, the University of the Aegean, Greece and Henan University, China as part of an MOU agreement since 2017 and 2019, are announcing the SECOND jointly organized conference on Global issues of Environment & Culture.

The Sino-Hellenic International Conference is a series of international conferences hosted in Kaifeng and Rhodes alternatively.

On 30th June 2019, the 1st Conference was held in Kaifeng, Henan University, to inaugurate the newly established Research Centre for Hellenic Civilization. The 1st Sino-Hellenic International Conference in Kaifeng was organized by the Collaborative Innovation Center on Yellow River Civilization & Key Research Institute of Yellow River Civilization (Prof. Miao Changhong) and Sustainable Development, and the University of the Aegean (Prof. Ioannis Liritzis).

The 2nd SHIC on Environment & Culture will take place on **17-19 September 2021**, at the **European Cultural Center of Delphi**.

The 2nd Inter Conference is one of the activities of the Project “Sino-Hellenic Academic Project” of the Research Center of Hellenic Civilization, the Research Center of Yellow River Civilization in Greece, and the Collaborative Innovation Center on Yellow River Civilization and Sustainable Development. Research teams from HENAN and AEGEAN Universities work together to complete this Project. It will be beneficial for both countries, Greece and China, and will create a cradle of global activities in research & education, cooperation on Environment & Cultures interaction in the past. Moreover the Conference aims to Internationalize Henan University, establish Henan University institutions in Greece, and implement Memorandum of Agreement targets and tasks (which exist between Henan University and University of the Aegean) to other public and private sectors of Greece, the Europe and USA.

Last but not least, the Conference is taking place during 2021 - the Year of Politics and Tourism between Greece and China. A Memorandum of Cooperation for the Organization of the Year of Politics and Tourism in 2021 was signed by between the two countries and sustainability through cultural heritage will be one of the major sectors of the Memorandum which is also one of the Conference’s major goals.

The 2nd Sino-Hellenic International Conference welcomes contribution on any topics related to the environment and cultures globally. The scientific program will consist of themes regarding trade networks across Eurasia, comparative research, including periods from prehistory to the 15th century AD, Archaeology & Archaeometry, **Cultural Geography & Geosciences, New technologies & Sustainability, Society & Environment.**

The Conference is officially endorsed by European Academy of Science and Arts, many Greek and foreign universities, Hellenic Pharmaceutical Association and the Institute of Geology and Geophysics, Chinese Academy of Sciences.

We are looking forward to your active participation

Respectfully,

Prof. Ioannis Lirintzis
University of the Aegean
Prof. Miao Changhong
Henan University

Proposed Scientific Program Topics

- Archaeology & Archaeometry
- Archaeological science – Archaeometry
- Disaster Archaeology
- Silk Road (Maritime & Land): Operational Sequences of Artefacts & Diffusion of Ideas
- Environmental Evidence of Human Migration
- Skyscape Impact on Cultural Development
- Cultural Geography & Geosciences
- Geoarchaeological Issues
- Sacred landscapes & Religious Aspects
- Predictive Modelling of Archaeological Sites
- Climate Change & Ancient Culture
- Environmental Reconstruction-GIS
- New technologies & Sustainability
- Cultural Management, Innovation Technologies, Sustainability
- 3D Reconstructions
- Remote-sensing Applications
- Quantitative approaches in archaeoenvironmental modelling
- Conservation of Monuments and Works of Art and Environmental Factors
- Miscellaneous
- Society & Environment
- Environmental-Cultural reports from European and Asian Ancient Sources
- Archaeological Parks
- Geoarchaeological Parks
- Intangible Cultural Heritage Inspired by the Environment
- Enviro-cultural Reports from Ancient Literature Sources

We welcome abstracts from a broad range of subjects. Prospective participants may submit proposals related to any of these themes or other ones too.

For any questions please feel free to contact us.

* The best presentations are to be published as a book indexed in SCOPUS

The Scientific Committee

- Dr. Bassiakos, Yannis (Emer. Research Director, National Center for Scientific Research, N.C.S.R. “Demokritos”)
- Dr. Cai Shuhui (IGG-CAS)
- Dr. Dimitriadis, George (Instituto Terra e Memoria & CGEO-Centre of Geoscience, Group of Quaternary and Prehistory, University of Coimbra, and OBSERVARE – Dept. Geopolitics and International Relations UAL- Autonomous University of Lisbon, Portugal)
- Prof. Efstratiou, Nikolas (Aristotle University of Thessaloniki, Dept. of History & Archaeology, Greece)
- Prof. Evelpidou, Niki (Dept. of Geology and Geoenvironment, University of Athens)
- Prof. Guerri, Antonio (Cattedra UNESCO “Antropologia della Salute e Sistemi di Cura, Università degli Studi di Genova, Italy)
- Prof. Hatzopoulos, John (Emeritus Prof. Dept. of Environment, Uni. of Aegean, Greece)
- Prof. Hou Weidong (Henan University, College of History & Archaeology)
- Prof. Iliopoulos, Ioannis (Uni. of Patras, Dept. of Geology, Greece)
- Prof. Kassianidou, Vasiliki (University of Cyprus, Department of History and Archaeology)
- Prof. Kidder, Tristram R. (Anthropology and Environmental Studies, Washington University in St. Louis, USA)
- Prof. Korka, Eleni (Honorary Ephor of Dept. of Antiquities, Ministry of Culture, Greece, Director of Blue Shield UNESCO Branch, Greece)
- Prof. Liritzis, Ioannis (Archaeometry, co-Coordinator of SHAP)
- Prof. Miao Changhong (Henan University, School of Environment & Planning)
- Prof. Maggidis, Christofilis (Mycenaean Foundation, Greece & Dickinson College, USA)
- Prof. Oosterbeek, Luiz (Instituto Terra e Memoria, UNESCO Chairholder in Humanities and Cultural Integrated Landscape)
- Prof. Papatheodorou, George (Uni. of Patras, Dept. of Geology, Greece)
- Prof. Vitsilaki, Chryssi (Rector, University of the Aegean, Greece)
- Prof. Sarris, Apostolos (University of Cyprus, Chair “Sylvia Ioannou Foundation” for Digital Humanities)
- Dr. Sakellariou, Dimitris (National Center for Marine Research, Athens, Marine Geologist)
- Prof. Seglie, Dario (CeSMAP & Department of Museology, University of Turin, Italy)
- Prof. Stefanakis, Manolis (University of the Aegean, Archaeology)
- Prof. Voutsaki, Sofia (Associate Professor of Greek Prehistory and Theoretical Archaeology (University of Groningen)
- Prof. Tsokas, Gregory (Aristotle University of Thessaloniki, Dept. of Geology, Greece)
- Prof. Wang Wei (CASS, Henan University, Archaeology)
- Prof. Wei Jiyin (Henan University, College of History & Archaeology)
- Prof. Zacharias, Nikolaos (Uni. of Peloponnese, Dept. of History, Archaeology & Management of Cultural Resources, Greece)

- Prof. Zerefos, Christos (Academy of Athens, Academician)
- Prof. Zhang Lidong (Henan University, College of History & Archaeology)
- Prof. Zouros, Nikos (University of the Aegean, Dept. of Geography)

The Organizing Committee

- Prof. Ioannis Liritzis [Coordinator]
- Dr. Asimina Vafiadou [Administrative issues]
- Dr. Pantelis Volonakis [Tech support]
- Maria Bratitsi [Administrative issues]
- Alexander Westra [Chinese issues + web]
- Apostolos Vlachos [Digital Archaeology and Cultural Heritage, tech support]

The Scientific Advisory Committee

- Prof. Niki Evelpidou (Dept. of Geology and Geoenvironment, University of Athens, Greece)
- Prof. Changhong Miao (Henan University, School of Environment & Planning, China)
- Prof. Zhang Lidong (Henan University, College of History & Archaeology, China)
- Dr. Elena Korka (Honorary Ephor of Dept. of Antiquities, Ministry of Culture, Greece, Director of Blue Shield UNESCO Branch, Greece)
- Prof. Christofilis Maggidis (Mycenaean Foundation, Greece & Dickinson College, USA)
- Prof. Gregory Tsokas (Aristotle University of Thessaloniki, Dept. of Geology, Greece)
- Dr. George Dimitriadis (Instituto Terra e Memoria & CGEO-Centre of Geoscience, Group of Quaternary and Prehistory, University of Coimbra and OBSERVARE – Dept. Geopolitics and International Relations UAL – Autonomous University of Lisbon, Portugal)

The Venue

EUROPEAN CULTURAL CENTRE OF DELPHI

The European Cultural Centre of Delphi (E.C.C.D.) was founded in 1977, upon the inspiration and initiative of Konstantinos Karamanlis with the view of setting up a European and worldwide intellectual centre in Delphi. The first thoughts and discussions started in the 1930s when, in the aftermath of the Delphic Festivals (1927 & 1930), the Parliament and the Senate passed a law providing for the establishment and organisation of an International Intellectual Cooperation Centre similar to the "treasures" of the ancient Greek city of Delphi. In 1957, Greece filed a draft proposal to the Council of Europe for the foundation of an Intellectual Centre in Delphi, which was also accepted. The construction of the conference venue began in 1966, based on the architectural plans of architects Kostas Kitsikis and Antonios Lampakis. The construction was completed in 1970. The cost was covered by state funds and funds of the Council of Europe.

In 1977, by an act of the Greek Parliament, the European Cultural Centre of Delphi (E.C.C.D.) was established as a "corporate body under private law", under the supervision of the Hellenic Ministry of Culture and the auspices of the Council of Europe.

According to its founding law, its aim is to "serve international cultural interests" and "develop common cultural principles that will unite the peoples of Europe" through the "publication of studies on European culture, the organisation of cultural meetings and other artistic activities..."

During his meeting with the Secretary General of the Council of Europe Franz Karasek, on 15 April 1980, Konstantinos Karamanlis said: Greece, in my opinion, can become an international cultural centre, with the revival of some institutions of the antiquity such as the European Cultural Centre of Delphi and the Olympic Games.

Delphi was an ancient religious sanctuary dedicated to the Greek god Apollo. Developed in the 8th century B.C., the sanctuary was home to the Oracle of Delphi and the priestess Pythia, who was famed throughout the ancient world for divining the future and was consulted before all major undertakings. It was also home of the Pythian Games, the second most important games in Greece after the Olympics. Delphi declined with the rise of Christianity and was ultimately buried under the site of a new village until the late 1800s.

Delphi, Greece

Located about six miles (10 km) from the Gulf of Corinth in the territory of Phoebos in Greece, Delphi is situated between two towering rocks of Mount Parnassus known as the Phaidriades (Shining) Rocks.

The site contained the sanctuary of Apollo, the sanctuary of Athena Pronaia — meaning, "Athena who is before the temple (of Apollo)" — and various other buildings, most of which were intended for sports, such as the gymnasium used for exercise and learning.

When visitors approached Delphi, the first structure they saw was the sanctuary of Athena Pronaia (hence its name). This sanctuary contained the most characteristic monument at Delphi: the Tholos, a circular building with a conical roof supported by a ring of outer columns.

Visitors would then walk along the Sacred Way, a path to the sanctuary of Apollo that was lined with treasuries and votive monuments. Given that Delphi was a pan-Hellenic sanctuary, it was not controlled by any one Greek city-state and instead was a sanctuary for all Greeks — city-states constructed the treasuries as offerings to Apollo and to show off their power and wealth.

Please visit the site: www.huaxiahellas.com/conference-2021/

ORGANIZATIONAL SUPPORT: ZITA CONGRESS

Contact person: Spyros Sideris, Address: Omirou 29, Peta Saronikou, 19001, E-mail: s.si@zita-congress.gr, www.zita-group.com, Tel.: +30 22994 40964

12TH INTERNATIONAL CONGRESS ON THE ARCHAEOLOGY OF THE ANCIENT NEAR EAST, BOLOGNA 6-10 APRIL 2021, FOURTH CIRCULAR

The 12th ICAANE will be carried out both in presence and remotely (only for registered participants) during the week from 6th to 10th April 2021. While we have all experienced in these months considerable restrictions to our professional and personal lives, we believe that, keeping safety as our first and foremost concern, it is important to start to reconnect our scientific community and begin to imagine and reflect together, communicating policies and practices within a changed (and ever more challenging, in the context of the current pandemic) landscape.

On top of the funds collected through fees, we are investing also considerable resources on an advanced technological infrastructure that will allow, in addition to live streaming, also Q&A and private chats (during "coffee breaks" and beyond). Besides the live streaming website and equipment, we are also investing on the open access publication of the proceedings with Harrassowitz. 15 rooms functioning in parallel will allow speakers to present, with copyright protection, their papers to both the in-person and virtual audience of registered participants. Discussions moderated by the session chairperson will be possible (remote questions via chat only). All speakers will be required to send also a video of their presentation as a further precaution against their own possible internet connection failures (detailed instructions will be circulated later on).

Workshops are confirmed in the schedule within the main themes of the Congress. Posters will be presented into a virtual room and they will be available for download, with a prior registration into the SocArXiv database for intellectual protection. Poster authors will have the possibility to discuss their work with participants within this digital environment. Printed posters may be exhibited as well in addition to the digital version.

By March 5th 2021 at the latest, all participants are kindly requested to: a) update their title and/or abstract if needed; b) let us know if they wish to attend remotely or in person; c) those living outside of Europe should let us know their time preference (morning or afternoon) for their papers, according to their time zone; d) send us a video recording of their 15-minutes paper for backup (extensions: .wmv, .avi, .mov, .mp4) or send us their poster (extensions: .pdf, .jpg, .tiff).

Check the page for the announcements of cash prizes offered to registered participants (note that one of the Ice Prizes goes to a paper not necessarily signed up in the program and which in fact may be written on purpose drawing on published sources). Additional useful information will be uploaded on the website of the Congress in the coming weeks.

All participants that wish to take part to the conference in person will be subject - in addition to the standard control measures foreseen for international travel at the time of COVID - to further precautionary limitations during the conference itself required by health regulations as regard social distancing and reduced capacity of conference rooms (we will strictly follow the guidelines which will be in place in April 2021 at the

University of Bologna). The use of a face mask will be mandatory at all times and hand sanitizers will be placed on multiple spots (the use of which is mandatory for speakers immediately before their presentation). The welcome cocktail will be held in an open space with the strict observation of social distancing. Individual food bags will be distributed during coffee breaks, while the social dinner has been cancelled.

We look forward to finally welcoming, either remotely or in person, all participants in Bologna next April and we send you our warmest regards

The 12th ICAANE Organizing Committee

Pierfrancesco Callieri, Maurizio Cattani, Enrico Cirelli, Antonio Curci, Anna Chiara Fariselli, Henning Franzmeier, Elisabetta Govi, Mattia Guidetti, Francesco Iacono, Simone Mantellini, Gianni Marchesi, Nicolò Marchetti (Chair), Palmiro Notizia, Adriano V. Rossi, Marco Zecchi

Please visit the site: <https://eventi.unibo.it/12icaane>



27TH ANNUAL MEETING OF THE
EUROPEAN ASSOCIATION OF
ARCHAEOLOGISTS, KIEL, 8-11 SEPTEMBER
2021, THE MATERIALITY OF ANCIENT
TEXTS IN THE DIGITAL AGE, KIEL, SEPT 8-
11, CALLS FOR PAPERS

Writ Large: The Materiality of Ancient Texts in the Digital Age.

Workshop at the 27th Annual Meeting of the European Association of Archaeologists,
Kiel, 8-11 September 2021

Studies on text production and consumption in a variety of Old World historical periods, such as the European Middle Ages and Dynastic China (Buringh and van Zanden 2009; Xu 2013) have demonstrated that long-term perspectives on the material signature of writing may yield profound insights on the changing uses of text in human societies through time and space. Data-driven, large-scale investigation of social dynamics across regions and continents has by now become commonplace in archaeology (Bradbury et al. 2015, Finné et al. 2011, Wagner et al. 2013). While such studies have succeeded in bridging previously insulated fields of regional or temporal specialisation (Llobera 2012), similar perspectives on text as an integral element of material culture have remained largely absent in comparative and diachronic analyses, even if the tools requisite for such perspectives are becoming increasingly available. The rise of digital humanities has seen a virtual explosion in the growth of online repositories of ancient texts of every conceivable variety (Hockey 2008; Rossi and De Santis 2019).

This session invites contributions engaging with the materiality of text in the context of digital research frameworks. How do we approach aspects of text production and consumption from the analytical vantage point provided by digital and spatial humanities research tools? How are metadata repositories and primary text catalogues captured, converted, and deployed in the study of social life and organisation vis-a-vis other types of material culture? And how do such integrative perspectives impact upon the traditional opposition of artefact and text?

We invite contributors from a broad variety of archaeological subfields traversing text and material culture studies, e.g. the Middle East, the Mediterranean, and Scandinavia, this session aims to review and discuss current approaches to the integration of text in digital archaeological research environments of the 21st century.

The session is organised by:

Sofie Laurine Albris, University of Bergen, National Museum of Denmark,
(sofie.l.albris@uib.no) Rune Rattenborg, Uppsala University
(rune.rattenborg@lingfil.uu.se)

The session is organized in the context of the TextWorlds research network at Uppsala University

(<https://www.lingfil.uu.se/research/textworlds/>)

Deadline for abstract submission February 11. 2021 at:

<https://www.e-a-a.org/EAA2021/Home/EAA2021/Home.aspx>

27TH ANNUAL MEETING OF THE
EUROPEAN ASSOCIATION OF
ARCHAEOLOGISTS, KIEL, 8-11 SEPTEMBER
2021, SESSION #515 "NEW REALITIES? A
CRITICAL APPROACH TO RECREATING
OBJECTS FOR EXAMINING AND
PRESENTING THE PAST",
CALL FOR PAPERS

We invite submissions of abstracts for papers or posters for the session #515 “New Realities? A Critical Approach to Recreating Objects for Examining and Presenting the Past”, organised in the framework of the EAA (European Association of Archaeologists) annual meeting. It will be held in Kiel (Germany), 8-11 September 2021 hybrid or entirely on-line depending on the situation. Participants must become members of the EAA. Deadline for submissions is 11 February 2021. Please feel free to contact organisers with questions.

Description: The advent of three-D printers, experimental archaeology, cultural heritage parks, community archaeology and even Virtual Reality and Archaeological computer games have created new ways of exploring and thinking about the past. In particular these various processes of replicating, reproducing and recreating provide new ways for archaeologists and students to investigate how people engaged with materials and artefacts across time. While we can make multiple copies of an artefact with a 3-D printer to take the past into the schoolroom we also can attempt to revive the techniques of the past as a way of replicating not just the object but the practice. Reproduction is no longer just about filling museum shops but about extending the life of the object. At the same time all these activities risk taking the object out of its cultural context. If we turn the bust of Nefertiti into a t-shirt design or a piece of street art what are the consequences for the original? How does that prototype now fit into our present? At the same time can such replicas provide ways to remedy colonial appropriations by retaining the replica in the museum where the plunder was housed and returning the original to the descendants of that first crafter. From resources for teaching to tools for analysis this session encourages presenters to take a critical approach to different types of recreated objects in presenting and discussing the past. In papers of no more than six minutes in length and using only six slides participants are invited to reflect on the issues raised by the reproduction of the past and to consider doing so by focusing on a single object.

Organisers: Emily Miller BonneyDean Pollak Library Professor Liberal
Studiasebonney@fullerton.edu Sophia AdamsSUERCUniversity of
Glasgowsophia.adams@glasgow.ac.uk

Submit papers or posters by 11 February 2021

Please visit the site:

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fsubmission.e-a-a.org%2F2021%2F&data=04%7C01%7Caegeanet%40lists.ku.edu%7Ccd6f68ee49a748cb809808d8b72a6441%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637460739981177278%7CUnknown%7CTWfpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=DHCzBOP1OhDe9LUAolYiMnnEgSK3%2Bdkhkys%2Bjkn68A4%3D&reserved=0>

8TH CONFERENCE IN AEGEAN ARCHAEOLOGY, JUNE 24TH AND 25TH, 2021, UNIVERSITY OF WARSAW, POLAND

We would like to invite you to participate in the 8TH CONFERENCE IN AEGEAN ARCHAEOLOGY, which will take place in a hybrid format at the University of Warsaw (Poland) and online on June 24th and 25th, 2021.

Proposals for conference presentations are especially welcomed from early career researchers, such as PhD students or candidates, and scholars who have already completed their doctoral research and recently obtained their title. Please find more details at:

https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.archeologia.uw.edu.pl%2Fwp-content%2Fuploads%2F2021%2F01%2F8AEG_CFP.pdf&data=04%7C01%7Caeeanet%40lists.ku.edu%7Cc710a86454ad4e1ab5ee08d8c1f25c87%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637472593960875106%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCI6Mn0%3D%7C3000&sdata=YjkK8B5TZ1IXuPalOSExIEQF%2BXm8hJWU7PVQlcU4qII%3D&reserved=0.

For further detailed and practical information, as well as updates, you can also visit the conference's webpage on Facebook:

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.facebook.com%2Fevents%2F240224277622765&data=04%7C01%7Caeeanet%40lists.ku.edu%7Cc710a86454ad4e1ab5ee08d8c1f25c87%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637472593960875106%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCI6Mn0%3D%7C3000&sdata=HdTQPNpy9MSHGyD8ylcpsDSLw%2Fq1O4JTZYRWvK8iSik%3D&p;reserved=0>).

If you would like to participate, please submit a title and abstract of c. 250 words in English (using the APPLICATION FORM:

https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.archeologia.uw.edu.pl%2Fwp-content%2Fuploads%2F2021%2F01%2F8AEG_Application-Form.doc&data=04%7C01%7Caeeanet%40lists.ku.edu%7Cc710a86454ad4e1ab5ee08d8c1f25c87%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637472593960875106%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCI6Mn0%3D%7C3000&sdata=fbK3fv4Jq6P1bEPZBRT6N8MjDIUphfChjysJfdWwpy8%3D&reserved=0)

before March 15th, 2021 to egea@uw.edu.pl.

We plan to publish the proceedings of this conference in the next volume of “Symposium Egejskie. Papers in Aegean Archaeology” – a peer-reviewed series edited by the organisers of the conference and published by the University of Warsaw Press publishing house.

Should you have any questions regarding the conference, please feel free to contact us at any time at egea@uw.edu.pl. We have contingency plans in place to hold the entire conference online if this proves necessary and we will contact participants before the end of May to confirm the final details regarding the format. Due to the unusual circumstances, there will be no conference fee this year.

We are looking forward to seeing you in Warsaw or online!

With our kindest regards and best wishes for 2021, The organisers Stephanie Aulsebrook
Katarzyna Żebrowska Agata Ulanowska Kazimierz Lewartowski

SR2A: HOT TOPICS IN SYNCHROTRON RESEARCH IN HERITAGE SCIENCE

Dear Colleagues,

The **SR2A presents: Hot Topics in Synchrotron Research in Heritage Science** is fast approaching.

The **3-day online event** will take place on **February 22-24, 2021**. It will offer **keynote lectures** on **Development in Instrumentation and Analysis**, and **Recent Applications to Cultural Heritage Materials**, and a **workshop** on data analysis.

We kindly remind you that registration for the lectures and panel discussion will remain open until February 15th.

The workshop has already reached capacity, but we are currently accepting registrations for the waiting list.

Please check the official website for the detailed program and registration <https://sr2a2021.org/>.

The Organizing Committee,
Monica Gano, Davide Gulotta | Getty Conservation Institute
Apurva Mehta, Sam Webb | SSRL

Monica Gano
Assistant Scientist
Getty Conservation Institute
Los Angeles CA
(310) 440-6219

**27TH ANNUAL MEETING OF THE
EUROPEAN ASSOCIATION OF
ARCHAEOLOGISTS, SESSION: “EARTH,
WATER AND FIRE: APPROACHING LIVING
HABITAT AND COMMUNITY LANDSCAPE
MANAGEMENT”, KIEL, SEPTEMBER 8-11,
2021, CALLS FOR PAPERS**

Dear colleagues and friends,

Despite the current challenges in social and political life, we would be happy if you would consider a contribution (15 minutes paper) to our EAA 2021 Session entitled “Earth, Water and Fire: Approaching Living Habitat and Community Landscape Management”. /The session has been organized by @Matteo Cantesani, @Constance von Rüden Constance.vonrueden@rub.de and @Gheorghiu Dragos gheorghiu_dragos@yahoo.com and we would be all very pleased if you find time to discuss with us praxitological, sensorial, science-based approaches to appropriation of resources, dwelling and landscape management through case-studies or more theoretically-focused papers. The aim is to develop a fresh understanding of the relationship of humans with the environment through the lens of the archaeological research at the intersection of natural sciences and philosophy.

Deadline for abstract submission: 11 February 2021

*Submission at:

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.e-a-a.org%2FEAA2021%2FHome%2FEAA2021%2FHome.aspx&data=04%7C01%7Caegeanet%40lists.ku.edu%7Cb44ae7c894f84bf2aa1108d8b4a83757%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637457981877815673%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6IkhWwiLCJXVCi6Mn0%3D%7C1000&sdata=Hbet1qGDK8%2FJuBmUhybJvbR5qrTDervZXqwgGLt3vWo%3D&reserved=0>
<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.e-a-a.org%2FEAA2021%2FHome%2FEAA2021%2FHome.aspx&data=04%7C01%7Caegeanet%40lists.ku.edu%7Cb44ae7c894f84bf2aa1108d8b4a83757%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637457981877815673%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6IkhWwiLCJXVCi6Mn0%3D%7C1000&sdata=Hbet1qGDK8%2FJuBmUhybJvbR5qrTDervZXqwgGLt3vWo%3D&reserved=0>*

Looking forward to hearing from you and stay safe!

Best,

Matteo Cantesani, Gheorghiu Dragos, Constance von Rüden

Prof. Dr. Constance von Rueden
Institute for Archaeological Studies / Pre- and Protohistory
Am Bergbaumuseum 31 - 44791 Bochum
Tel: +49 (0)234/32 23893
email: Constance.vonRueden@rub.de

projects:

Making Landscape

<https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.wall-paintings-ted.de%2Findex.html&data=04%7C01%7Caegeanet%40lists.ku.edu%7Cb44ae7c894f84bf2aa1108d8b4a83757%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637457981877815673%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCI6Mn0%3D%7C1000&sdata=WAQ8X%2BZVSIIdWlCFeE%2FzAAIRSORYTG02JX0Dd0GH04tw%3D&reserved=0>

The Wall Paintings from Tell el-Dab'a

<https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.wall-paintings-ted.de%2Findex.html&data=04%7C01%7Caegeanet%40lists.ku.edu%7Cb44ae7c894f84bf2aa1108d8b4a83757%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637457981877815673%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCI6Mn0%3D%7C1000&sdata=WAQ8X%2BZVSIIdWlCFeE%2FzAAIRSORYTG02JX0Dd0GH04tw%3D&reserved=0>

ReSoc - Resources in Societies

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.bergbaumuseum.de%2Fforschung%2Fforschungsprojekte%2Fprojekt-detailseite%2Fresources-in-societies-resoc-leibniz-postdoc-schule&data=04%7C01%7Caegeanet%40lists.ku.edu%7Cb44ae7c894f84bf2aa1108d8b4a83757%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637457981877815673%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCI6Mn0%3D%7C1000&sdata=PmFvJmiXM9oPCIPhxAf2On%2Fp4jlLHnLTNX26C1va7hE%3D&reserved=0>

Social Media - House of Archaeologies:

Blog Unterirdisch

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.unterirdisch.de%2F&data=04%7C01%7Caegeanet%40lists.ku.edu%7Cb44ae7c894f84bf2aa1108d8b4a83757%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637457981877815673%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCI6Mn0%3D%7C1000&sdata=Ga4r9Jxp9xQ%2FTUqEUmHZ8vNehamFDWl6WysoBLa41II%3D&reserved=0>

Unterirdische Twitter

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Ftwitter.com%2Funterirdisch&data=04%7C01%7Caegeanet%40lists.ku.edu%7Cb44ae7c894f84bf2aa1108d8b4a83757%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637457981877825665%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCi6Mn0%3D%7C1000&sdata=deNQIfZDQYcn0%2B8vbNIyrfd8mKwjFdJJQwE6jIHBKU%3D&reserved=0>

Unterirdisch Instagram

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.instagram.com%2Funterirdisch.ch%2F&data=04%7C01%7Caegeanet%40lists.ku.edu%7Cb44ae7c894f84bf2aa1108d8b4a83757%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637457981877825665%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IjEhaWwiLCJXVCi6Mn0%3D%7C1000&sdata=bkN5Y9cVTobLJsuWdieBoOogvjHRuV8Y3enjcQKtUyA%3D&reserved=0>

**27TH ANNUAL MEETING OF THE
EUROPEAN ASSOCIATION OF
ARCHAEOLOGISTS, SESSION #525 "OF THE
WATER: FISH AND MOLLUSCS IN THE
ANCIENT EASTERN MEDITERRANEAN",
KIEL, SEPTEMBER 8-11, 2021, CALLS FOR
PAPERS**

Dear colleagues,

We invite submissions of abstracts for papers or posters for the session #525 “Of the Water: Fish and Molluscs in the ancient Eastern Mediterranean”, organised in the framework of the EAA (European Association of Archaeologists) annual meeting. It will be held in Kiel (Germany), 8-11 September 2021 hybrid or entirely on-line depending on the situation.

Description: This session will examine the role of fish and molluscs in everyday life as well as in terms of their impact on social structures, and as part of ideological and symbolic expression. Given the prevalence of and dependence on water in various forms in all regions of the eastern Mediterranean, it is no wonder that fish and other aquatic species made an impact on human lives, yet this topic remains rather understudied. With this session, we would like to explore questions related to fishing practices and technologies, social status, human fish/ mollusc relations (also any potential over-exploitation), and fish/molluscs in ritual practices (e.g. as temple offerings, festival consumption, burial offerings), and ideology and religion (e.g. associated with supernatural beings or sacred space, as hybrid creatures, and as represented in luxury goods). Another set of questions would revolve around aquatic species as a nonalimentary resource, for example for jewellery, inlays, dyeing and medicinal purposes. Material under investigation can include faunal remains (worked and unworked), fishing gear and related tools, iconography and, where available, written sources. We particularly encourage papers that integrate multiple lines of evidence. The geographical area included here is the eastern Mediterranean broadly defined: papers using material from the Aegean, Cyprus, Anatolia, Levant, Mesopotamia and Egypt of any time period are welcome.

Organisers: Christina Tsouparopoulou (University of Cambridge & Polish Academy of Sciences; ct272@cam.ac.uk) and Laerke Recht (University of Graz; laerke.recht@uni-graz.at)

Submit papers or posters by 11 February 2021

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fsubmissions.e-a-a.org%2Faa2021%2F&data=04%7C01%7Caegeanet%40lists.ku.edu%7C94a279c332ff439bc04a08d8b4702c83%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C>

[637457741180634803%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiL
CJQIjoiV2luMzIiLCJBTiI6Ikk1haWwiLCJXVCI6Mn0%3D%7C1000&data=wymx
SGo1gFI3%2BGxU%2FEnoazwj8l45rELjegRrVvn4NI%3D&reserved=0](https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.spiritedhors
e.wordpress.com%2F&data=04%7C01%7Caeganeet%40lists.ku.edu%7C94a279c3
32ff439bc04a08d8b4702c83%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C
637457741180644794%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiL
CJQIjoiV2luMzIiLCJBTiI6Ikk1haWwiLCJXVCI6Mn0%3D%7C1000&data=wymx
SGo1gFI3%2BGxU%2FEnoazwj8l45rELjegRrVvn4NI%3D&reserved=0)

Laerke Recht

Professor of Early Eastern Mediterranean Archaeology Institut für Antike University of
Graz, Austria Tel +43 316380 2345

[https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.spiritedhors
e.wordpress.com%2F&data=04%7C01%7Caeganeet%40lists.ku.edu%7C94a279c3
32ff439bc04a08d8b4702c83%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C
637457741180644794%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiL
CJQIjoiV2luMzIiLCJBTiI6Ikk1haWwiLCJXVCI6Mn0%3D%7C1000&data=DML
g2aA3Y0ymerwAYvVzbjk8mAyek4ho7WgIrT31Rko%3D&reserved=0](https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.spiritedhors
e.wordpress.com%2F&data=04%7C01%7Caeganeet%40lists.ku.edu%7C94a279c3
32ff439bc04a08d8b4702c83%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C
637457741180644794%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiL
CJQIjoiV2luMzIiLCJBTiI6Ikk1haWwiLCJXVCI6Mn0%3D%7C1000&data=DML
g2aA3Y0ymerwAYvVzbjk8mAyek4ho7WgIrT31Rko%3D&reserved=0)

Research Fellow, The International Institute for Mesopotamian Area Studies

[https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.iimas.org%
2F&data=04%7C01%7Caeganeet%40lists.ku.edu%7C94a279c332ff439bc04a08d8b
4702c83%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C6374577411806447
94%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiL
CJQIjoiV2luMzIiLCJBTiI6Ikk1haWwiLCJXVCI6Mn0%3D%7C1000&data=EmNcpBVXpkaZe6HO
A87gRmNCxSPHOACsiCVSxf%2B5B%2Bw%3D&reserved=0](https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.iimas.org%
2F&data=04%7C01%7Caeganeet%40lists.ku.edu%7C94a279c332ff439bc04a08d8b
4702c83%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C6374577411806447
94%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiL
CJQIjoiV2luMzIiLCJBTiI6Ikk1haWwiLCJXVCI6Mn0%3D%7C1000&data=EmNcpBVXpkaZe6HO
A87gRmNCxSPHOACsiCVSxf%2B5B%2Bw%3D&reserved=0)

[https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.urkesh.org
%2Feditors&data=04%7C01%7Caeganeet%40lists.ku.edu%7C94a279c332ff439bc
04a08d8b4702c83%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C63745774
1180644794%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiL
CJQIjoiV2luMzIiLCJBTiI6Ikk1haWwiLCJXVCI6Mn0%3D%7C1000&data=cZn0jUQKEW
YsWUC68YriJ7NB3wD76zoqtyaPk3zKWIM%3D&reserved=0](https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.urkesh.org
%2Feditors&data=04%7C01%7Caeganeet%40lists.ku.edu%7C94a279c332ff439bc
04a08d8b4702c83%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C63745774
1180644794%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiL
CJQIjoiV2luMzIiLCJBTiI6Ikk1haWwiLCJXVCI6Mn0%3D%7C1000&data=cZn0jUQKEW
YsWUC68YriJ7NB3wD76zoqtyaPk3zKWIM%3D&reserved=0)

27TH ANNUAL MEETING OF THE
EUROPEAN ASSOCIATION OF
ARCHAEOLOGISTS, SESSION # 179: THE
GEOARCHAEOLOGY AND SUSTAINABILITY
OF CULTIVATION TERRACES AND
LYNCHETS IN EUROPE, THEME 1.
WIDENING HORIZONS THROUGH HUMAN-
ENVIRONMENT INTERCONNECTIONS,
KIEL, SEPTEMBER 8-11, 2021, CALLS FOR
PAPERS/POSTERS

Cultivation, or agricultural, terraces (and lynchets) are seen as characteristic land-forming elements in many parts of Europe and worthy of protection under both Global and European Heritage Protection schemes (e.g. UN Sustainability Goals and FAO-GIAHS). This is partly because they are under threat from the refashioning of agriculture on slopes, forestry and rural depopulation. There is a real danger that many will disappear before they have been recorded let alone investigated. Even where they are protected, and being maintained or rebuilt, we rarely know their full use-history, origins and relationship to settlements. This is largely because cultivation terraces have rarely been the focus of archaeological excavation per se – due to problems of dating, a typical lack of finds, and problems of deciphering their past cultivation history from aerobic and biologically active soils. However, there is a suite of new techniques which can overcome some of these problems ranging from Lidar to optically stimulated luminescence (OSL) dating. This session will examine a range of aspects of terrace archaeology from the identification and mapping of terraces, through excavation and geochemical methods, to soil micromorphology and direct-sediment dating techniques (such as OSL). Progress has also been made in the use of phytoliths and, most recently, biomolecular methods, including sedaDNA have been attempted. Knowing the original crops or vegetation on terraces as well as their date of construction can both inform landscape archaeology and the range of possible land uses that they could be restored to.

This session will present papers using these techniques on terrace systems in Europe and also the Heritage and sustainability aspects of terraces in the light of the refocussing of agricultural incentive schemes and support from both the EU and European governments.

Keywords:

Agriculture, Sustainability, Environmental Archaeology, Climate, Geoarchaeology

We welcome submissions concerning all aspects of agricultural terraces, including, but not limited to:

• Dating and Identification

• Mapping and Geophysics

• Paleoecology and Climate Change

• Demography
• Ergonomic Studies
• New Methods

Submission deadline: February 11th, 2021

Organizers:

Daniel Fallu,

Arctic University Museum of Norway

Kevin Walsh,

University of York

Victor Klinkenberg,

Leiden University

www.e-a-a.org/EAA2021/

Contact: Daniel Fallu

daniel.j.fallu@uit.no

www.terrace.no

3RD INTERNATIONAL RADIOCARBON IN THE ENVIRONMENT CONFERENCE (RIE III), 5-9 JULY 2021, GLIWICE, POLAND

The 3rd International Radiocarbon in the Environment Conference (RIE III) will take place in the city of Gliwice, Poland, from Monday 5th to Friday 9th of July 2021.

On behalf of the Organizing Committee and the Gliwice Radiocarbon Laboratory team, we would like to invite you to participate in the Conference.

The Conference will take place mostly in the Internet (zoom.us meetings). In case that the COVID-19 threat subsides, it is planned to organize a hybrid Conference, with possibility of participating in the Conference on site.

The RIE III website (c14env.polsl.pl) is open. All relevant information (deadlines, registration, abstract submission, etc.) will be updated soon on the web site.

RIE III Organizing Committee

Andrzej Z. Rakowski (Conference Chairperson), Sławomira Pawełczyk, Jacek Pawlyta, Konrad Tudyka, Barbara Sensuła, Danuta J. Michczyńska, Grzegorz Kazanowski

Organising committee e-mail: c14env@polsl.pl

Find us on Facebook: <https://fb.com/c14env/>

*Information about the General Data Protection Regulation due to EU law can be found on the conference website.

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

3 YEARS POST DOC POSITION AT THE
DEPARTMENT OF MATHEMATICS AND
PHYSICS DEPARTMENT OF THE CAMPANIA
UNIVERSITY “LUIGI VANVITELLI”

Dear colleagues,

Please feel free to let this message circulate among potentially interested candidates either if not strictly related to radiocarbon dating.

A call for a 3 year post doctoral position is going to be released soon @ the department of Mathematics and Physics Department of the Campania University “Luigi Vanvitelli”.

A brief description of the position can be found here:

"The research activity concerns the development and application of isotope methodologies for the determination of water infiltration rates, in the context of a Quality Assurance procedure, in materials and devices to be used in the framework of the KM3NeT (Cubic Kilometer Neutrino Telescope) experiment. Research activity is mostly focused onto the development and validation of analytical and experimental procedures based on the exposure of materials in a hyperbaric chamber containing isotopically marked water and the indirect measurement of water infiltration rates through measurements of isotope ratios with mass spectrometry for isotope ratios."

For enquiries about this position please contact: fabio.marzaioli@unicampania.it

With the warmest regards

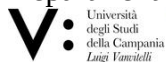
Fabio Marzaioli

Prof. Fabio Marzaioli, Ph.D

Associate Professor in Applied Physics

Università degli Studi della Campania “Luigi Vanvitelli”

Department of Mathematics and Physics



Dipartimento di Matematica e Fisica

Head of Isotope Ratio Mass Spectrometry Services

Tel: +390823274661/4814 int 28

Fax: +390823274605

FUNDED PHD STUDENTSHIP OPPORTUNITY **IN NEAR EASTERN** **ARCHAEOMETALLURGY**

Dear colleagues,

I am advertising for the following funded PhD studentship. Please share with any who might be interested. The deadline for applications is **March 15th, 2021**.

Project Title:

Complex Metallurgy of the Bronze Age-Iron Age Transition in Iran: Archaeomaterials and Forensic Investigations

Project Description:

The Cranfield Forensic Institute and the ISIS Neutron and Muon Source at the Rutherford Appleton Laboratory are offering, in partnership with the British Museum, a fully-funded PhD studentship on the archaeometallurgy of Iran during the Bronze Age-Iron Age transition (c. 1200–800 BCE). The student will investigate an exceptional collection of artefacts that includes substantial quantities of bladed weaponry.

They will develop non-destructive, neutron imaging and compositional analytical techniques at the ISIS Neutron and Muon Source to investigate complex metalworking techniques in use at this time, including bimetallic manufacturing (e.g. objects made of both bronze and iron), casting on, and riveting assembly.

The student will also use state-of-the-art materials analytical facilities at the Cranfield Forensic Institute to analyse the wider assemblage of material (>200 artefacts) and narrow down a subset for investigation at ISIS. The project will address key questions about the relationship between iron- and bronze-working techniques during a period of early iron use, touching on broader questions of how innovations spread and how technological systems transform. Because the materials for study were seized as part of law enforcement investigations pending repatriation, the analyses will also contribute to broader efforts to track, and ultimately prevent, illegal trafficking in antiquities.

The studentship forms part of a broader collaborative effort between the Cranfield Forensic Institute and the British Museum, providing the student with additional professional development opportunities, including a network of scholars working in heritage science. The funding covers tuition, a stipend at the UKRI rate (currently £15,609 for the 2021-2022 academic year), and a travel and subsistence allowance of £2000 pa.

Please see this [link](#) for more information. Interested students are encouraged to contact me with additional questions.

<https://www.cranfield.ac.uk/research/phd/complex-metallurgy-of-the-bronze-age-to-iron-age-transition-in-iran>

Note: the funding covers tuition fees at the home rate; because the start date is in June, EU students are still eligible for this lower tuition band.

Best wishes,

Nathaniel Erb-Satullo

Lecturer in Archaeological Science
Cranfield Forensic Institute, Cranfield University

Research Associate
School of Archaeology, University of Oxford

[Academia Page](#)

Twitter: [@NErbSatullo](#)

[New paper](#) on early iron metallurgy in the Caucasus, and its relationship with the bronze industry.

[New paper](#) on archaeomaterials and the archaeology of innovation

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

55TH PUBLIC LECTURE SERIES - SPRING SEMESTER 2021: CELEBRATING 30 YEARS OF RESEARCH AT THE ARCHAEOLOGICAL RESEARCH UNIT, 1991-2021, UNIVERSITY OF CYPRUS

PROGRAMME

This semester's *Public Lectures Series* celebrates 30 years of research at the Archaeological Research Unit (ARU), since its foundation in 1991. All lectures of the 55th Series will be delivered by the members of the academic staff of the ARU to showcase their ongoing research endeavors. The lectures are held virtually only via Zoom (without physical presence at the ARU) at 7:30 pm (EET), they are free and open to the public, but registration is required for access before each event starts. For registration, please, click here

Ο Κύκλος Δημόσιων Διαλέξεων του εξαμήνου εορτάζει τα 30 χρόνια έρευνας της Ερευνητικής Μονάδας Αρχαιολογίας (EMA), από την ίδρυσή της το 1991. Όλες οι δημόσιες διαλέξεις του 55ου Κύκλου θα δοθούν από τα μέλη του ακαδημαϊκού προσωπικού της EMA με στόχο την παρουσίαση της έρευνάς τους. Οι διαλέξεις πραγματοποιούνται διαδικτυακά και μεταδίδονται ζωντανά μόνο μέσω Zoom (χωρίς φυσική παρουσία στην EMA) στις 7:30 μμ, είναι ανοιχτές για το κοινό αλλά για την παρακολούθησή τους πρέπει προηγουμένως να εγγραφείτε στο σύνδεσμο: <https://ucy.zoom.us/join/joinMeeting/tJUvd-GopjoiHtG0fdJHxFe18F5hm-CXcf8>

Moderator: Dr Athanasios K. Vionis | Director, Archaeological Research Unit

Unit 1: PREHISTORY AND PROTO-HISTORY

1 FEB - Maritime dialogues in the East Aegean Islands and Western Asia Minor during Prehistory

Dr Ourania Kouka | Associate Professor, Archaeology of the Prehistoric Aegean
Prehistoric Heraion on Samos, Greece | *Laboratory for Archiving, Study and Publication of Excavation Projects (L.A.S.P.E.P.)*

8 FEB - Cypriot copper production, consumption and trade in the 12th century BC

Prof. Vasiliki Kassianidou | Professor, Environmental Archaeology and Archaeometry
Interdisciplinary Study of the Skouriotissa Copper Mine, Cyprus | *Laboratory for the Study of Ancient Materials*

15 FEB - Prices and values of metals in the Late Bronze Age Eastern Mediterranean markets

Dr Georgios Papasavvas | Associate Professor, Classical Archaeology
Excavations at the Sanctuary of Aphrodite at Syme Viannou, Crete | *Metalwork from Enkomi, Cyprus*

UNIT 2: IRON AGE - ROMAN

22 FEB - The tumulus of *Laona*:

An 'un-Cypriot' monument in the landscape of Palaepaphos

Prof. Maria Iacovou | Professor, Prehistoric and Protohistoric Archaeology
The Palaepaphos Urban Landscape Project, Cyprus (PULP 2006-2020)

1 MAR - The Mazotos Shipwreck Project, Cyprus: Challenges and perspectives of a holistic approach to shipwreck archaeology in the 21st century

Dr Stella Demesticha | Associate Professor, Maritime Archaeology

The Mazotos Shipwreck Project, Cyprus | Maritime Archaeological Research Laboratory (MARELab)

8 MAR - Hellenistic and Roman funerary wall painting in Cyprus: An overview

Prof. Demetrios Michaelides | Professor Emeritus, Classical Archaeology

Cyprus Academy of Sciences, Letters and Arts

Unit 3: MEDIEVAL - EARLY MODERN

22 MAR - The Byzantine and Historical *Archaeologies* of Greece and Cyprus: Artefact and landscape studies

Dr Athanasios Vionis | Associate Professor, Byzantine Archaeology and Art

Settled and Sacred Landscapes of Cyprus (SeSaLaC) | Artefact and Landscape Studies Laboratory (ArtLandS Lab)

29 MAR - The challenge of depicting cross-dressing female saints in Byzantine art: The case of St Euphrosyne of Alexandria (BHG 625)

Dr Maria Parani | Associate Professor, Byzantine and Post-Byzantine Archaeology and History of Art

Byzantine Realities and Realia

5 APR - 'Hybrid', 'transcultural', 'eclectic'? Some thoughts on conceptualising the art of the Latin East

Dr Michalis Olympos | Associate Professor, History of Western Art

An Ecclesiastical, Social and Architectural History of the Bedestan in Nicosia

12 APR - Το πλοίο στην Κύπρο:

Από την ιστορική πραγματικότητα στη λαϊκή τέχνη

Prof. Euphrosyne Rizopoulou-Egoumenidou | Professor Emerita, Folk Art and Architecture

Cyprus Academy of Sciences, Letters and Arts

Unit 4: DIGITAL HUMANITIES

19 APR - Unfolding the Neolithic landscape of Thessaly: A GeoInformatics perspective

Prof. Apostolos Sarris | Professor, 'Sylvia Ioannou Foundation' Chair for Digital Humanities

Digital Humanities Geoinformatics Laboratory (DigHumanities GeoInfo Lab)

NEW MASTER ON "APPLIED SCIENCES TO CULTURAL HERITAGE MATERIALS AND SITES" OPENS IN 2021/2022, UNIVERSITY OF PADOVA

Dear all,

You may be interested in diffusing the information about a new 2-years international master course starting at the University of Padova in academic year 2021-2022.

Applied sciences to cultural heritage materials and sites

website: <https://elearning.unipd.it/scienzeumane/course/view.php?id=9796>

Registered students may select the full curriculum in Padova, or a double degree program with partner Universities (University of Bordeaux Montaigne, France; University of Haifa, Israel).

Information, contacts, and an introductory brochure can be found in the website.

Cordially

Gilberto

Prof. Gilberto Artioli
Dipartimento di Geoscienze - Centro CIRCE
Università di Padova
Via Gradenigo 6
I-35131 Padova, Italy

tel: +39 049 827 9162
port: +39 3347151241
e-mail: gilberto.artioli@unipd.it
url: geo.geoscienze.unipd.it/personal/artioli-gilberto

INTERNET SITES

THE ENTIRE ACROPOLIS MUSEUM IS NOW DIGITAL, BY DUNCAN HOWITT-MARSHALL

The Acropolis Museum has completed a major digitization program, with all of its exhibits now accessible from anywhere in the world.

The doors of Greece's museums may still be shut to the public due to the countrywide lockdown, but that hasn't stopped the Acropolis Museum from making its collections and research more accessible than ever.

The popular museum has just announced the completion of a sweeping digitization program; now with only an internet connection, anyone in the world can explore the myriad archaeological finds from Athens' Sacred Rock in stunning detail.

The newly unveiled Digital Acropolis Museum showcases exhibits in high definition, alongside a startling array of multimedia applications, including games, videos, and 3D images. It is also the first museum in Greece to go fully digital, leading the way for other Greek institutions that will hopefully soon follow in its footsteps.

The digitization of museum collections and galleries around the world has been a growing trend over the past ten years, with curators and media specialists working together to create engaging content for in-person and online visitors. These efforts usually go hand-in-hand with the creation of tools and open access databases for the scientific community.

The 1.3 million euro project, funded via the Regional Operation Programme "Attica 2014–2020", includes the development of a comprehensive website which is available in both Greek and English, with additional content in French, Italian, German, and Spanish. It has also been specially designed to be accessible to color-blind and visually-impaired visitors.

The new website provides detailed information on 2,156 artifacts in the museum's permanent collection, recovered from archaeological excavations on the Acropolis and its slopes. The digital collection is complete with extensive descriptions (some of which remain to be completed), high-resolution photographs, drawings, and, in some cases, videos. The digital collection will also be further expanded with the inclusion of artifacts currently kept in the museum's storerooms.

23 richly detailed multimedia applications offer a range of interactive experiences, from the excavation of an ancient neighborhood beneath the site of the Acropolis Museum itself, to a short film tracing the scenes of a wedding ritual, splicing in photographs of decorated loutrophoroi – the vessels used to carry water for nuptial baths. These applications cleverly enhance the visitor's understanding of the museum's collection in the context of everyday life in ancient Athens.

There is also plenty to interest younger virtual visitors, thanks to the development of dedicated website for children. The Acropolis Museum Kids, aimed at 6-to-12 year olds, provides an engaging introduction to the history of Athens through a series of fun and interactive games and videos. These include an ancient cooking class, a guided tour through the timeline of the Acropolis and its monuments, and a sci-fi game to “Save the Ancient Monuments’ Memory (SAMM)” and unite the Parthenon’s sculptures.

Alongside the virtual, two new physical spaces have also been created on the second floor of the museum, which will be accessible to visitors when the restrictions on movement are lifted. These new spaces include a Multimedia Center, presenting detailed accounts of important exhibits, and a Kids’ Corner, bringing to life ancient myths and the history of the Acropolis.

The Digital Acropolis Museum offers new potentials for the future management and preservation of museum collections in Greece and abroad. This vast undertaking, which included the digitization and data entry of thousands of photographs, handwritten excavation logs and conservation reports, has not only ensured their long-term preservation as a valuable resource for future research, but enhanced the archival material for open access to the general public – effectively the democratization of archaeological heritage.

While there are now more ways than ever to virtually explore the Acropolis Museum from the comfort of one’s home, it is hoped that this mass digitization project will work to the benefit of the physical museum in the post-COVID 19 world, with in-person visitors keen to re-engage and interact with the museum’s exhibits with fresh eyes and even greater appreciation.

Please visit the site: <https://www.greece-is.com/news/the-entire-acropolis-museum-is-now-digital/> [Go there for pix & linx]

CARMEN GÜTSCHOW: ARCHAEOLOGICAL CONSERVATION

Thin End of the Wedge episode 18 is now available:
<http://www.wedgepod.org/episode-list/>.

Carmen introduces the work of an archaeological conservator. She discusses the issues that arise in different materials, and the range of treatments and tools she uses. What are the pressures of conservation work on an archaeological site? And what does she do differently in Europe and the Middle East. As an expert in treating cuneiform tablets, Carmen explains about firing and salts.

Thin End of the Wedge is working to produce translations into Middle Eastern languages. If you'd like to support that effort, please join the TEW Patron family at <http://Patreon.com/WedgePod>.

DIGITAL ATLAS OF THE ROMAN EMPIRE **(DARE)**

Welcome to the new Digital Atlas of the Roman Empire (DARE), hosted and managed by the Centre for Digital Humanities, University of Gothenburg, Sweden.

License

You can use the tiled background map of the Roman Empire in your own web applications. Tiles are available for zoom levels between 4 and 11. Use this link with your Javascript mapping library (Leaflet, OpenLayers, etc.).

<https://dh.gu.se/tiles/imperium/{z}/{x}/{y}.png>

The map is licenced under a Creative Commons Attribution 4.0 International license (CC BY 4.0)

Next week (9-13 December), DARE will be back with all previous functionality, a fully interactive map and a backend database with data on almost 30.000 ancient places.

Stay tuned on Twitter @johan.ahlfeldt

Please visit the site: <https://dh.gu.se/dare/> [Go there for embedded linx]

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

HOMERIC IMAGERY AND THE NATURAL ENVIRONMENT

BMCR 2021.01.15

William Brockliss,
Hellenic studies series, 82. Cambridge, MA: Harvard University Press, 2019. P. 294.
ISBN 9780674987357 \$28.50 (pb).

Review by Alessandro Bucchini, Center for Hellenic Studies, Harvard University.
abucchini@chs.harvard.edu

William Brockliss' *Homeric imagery and the natural environment* starts from the contention that the botanical images used in the poetry of a given region represent "particular responses to a particular flora with particular characteristics familiar to those who live in that region" (p. 1). Accordingly, Brockliss sets forth to read Homeric floral imagery concerning eros, order, and death as a poetical response to—and an engagement with—the regional characteristics of Archaic Greek flora.

The idea behind the book is clearly stated in the Introduction. The main characteristics of Greek flora depend on long-term climatic factors, which are unlikely to have changed from Archaic Greek times to present day, so that we can still grasp them. First, Greek landscapes harbor a considerable variety of floral species; second, flowers bloom more suddenly and for a shorter period of time than in many other regions of the world. These two features of Greek flora form the basis of the botanical images used within the Homeric tradition, as represented by the *Iliad*, the *Odyssey*, the Homeric Hymns, and fragments of the Cyclic Poems. In particular, the Homeric poets would have used the variety and the sudden blooming of Greek landscapes as way of conveying abstract ideas in a more concrete form, to the benefit of their audience. This contention is grounded in Cognitive Metaphor Theory, briefly evoked; however, Brockliss also marks his distance from it, inasmuch as his work will center on metaphor in various poetic traditions, and on "large scale metaphorical expressions" (p. 11).

The monograph's three parts explore the floral imagery of the eroticized body (Part One), of stability and change in the cosmic and civic orders (Part Two), and of youth and death (Part Three). Each part comprises a preamble summarizing the main findings and three chapters dealing with the relevant images. In each part, Homeric imagery is contrasted with that of a different poetical tradition within ancient Greece.

Focused on the floral description of eroticized bodies, Part One frames the difference between Homeric and lyric poetry in terms of contrasting types of gaze. According to Brockliss, bodies decked with flowers in Ibycus, Anacreon, and Sappho are associated with an objectifying gaze, similar to the one theorized for mainstream movies by feminist media theorist Laura Mulvey (chap. 1). In contrast, Homeric poetry, as Brockliss argues, associates flowers with both seduction and deception (chap. 2): the narcissus described at

the beginning of the Homeric Hymn to Demeter is a lure for Korē; Aphrodite's flowery robe (Cypria fr. 4 Bernabé) misguides Paris' judgment; Odysseus' hyacinthine hair participates in the seduction of Nausicaa and Penelope (Odyssey, 6 and 23). This second kind of gaze is typified according to Jacques Lacan's suggestion that each viewer can also "be viewed by the very things that make up his visual field" so that "his subjective evaluation of them is always matched by their (competing) evaluation of him" (p. 20). Homeric flowery bodies would be as deceptive as the gaze dynamics described by Lacan.[1] By analyzing "the associations of the flowers and those of the root poikil-" (p. 76) with seduction and deception in Homeric poetry, Brockliss concludes that the flowers' poikilia makes them a good candidate for "the early audience ... to conceptualize the deceptive qualities of the erotic bodies described by the Homeric poets" (p. 82). Conversely, the lyric poets would have used the experience of gazing at and judging flowers to express their first-person, evaluative look (chap. 3).

Part Two centers on change and stability at the cosmic and the human level. Here, the Homeric images are weighted against those of Hesiodic poetry. Dealing first with the cosmic level (chap. 4), Brockliss argues that arboreal imagery evokes the stability of the cosmos both in Hesiod and in the Homeric poems; evidence for this, however, seems somewhat limited.[2] By contrast with the arboreal, it is argued that floral images in Homeric poetry are associated with changes in or threats to the cosmic order. Moving from the cosmos to social realities, chap. 5 explores the contrast between cultivated and uncultivated vegetal growth. Brockliss contends that whereas Hesiod's Works and Days associates the stable order of civilization with both spontaneous and cultivated vegetation, Homeric poetry carefully distinguishes them. Thus, wild growth would be associated with the lack of civilization (p. 134), whereas human-managed growth – esp. trees in enclosed orchards—would be indicative of civilization, stability, and order (p. 153). Chap. 6 systematizes the findings of the preceding chapters in terms of the classification of botanical generation in Theophrastus, HP, 2.1.1. In Brockliss' reading, this passage implies a distinction between four modes of generations, two of which are spontaneous, and two managed by human techniques. Flowers and wild trees (reproducing spontaneously) are associated with images of disorder; crops and garden trees (tended by humans) with order.

According to Brockliss, in fact, since the spontaneous growth of flowers departs (in a sense) from nature, ancient authors and their audiences might construe them as outright examples of disorder and monstrosity. This is key to Brockliss' arguments on order in this part of the book, and on death in the next.

Part Three focuses on images of death and beauty. First (chap. 7), Brockliss argues that elegists associate the phrase *anthos hēbēs* with the transience of youth, whereas Homeric poets associate it only with the prime of life—which would also reflect two different conceptions of the "beautiful death". He then goes on to contrast arboreal and floral images within the Iliad (chap. 8): according to Brockliss, in the similes, trees always convey the idea of strength and flowers that of fertility. The Odyssey allows Brockliss to expand the picture: flowers here are interpreted as expressing the decomposition of bodies (the Sirens inhabit a meadow where one could see the scattered bones of the dead), and formlessness (the greyish asphodel meadow of the Underworld suggests the dead souls' insubstantiality). Eventually (chap. 9), Brockliss borrows the idea of the "monstrous otherness of death" from J.-P. Vernant's works to tie together the

interpretations developed in this last part of the book. According to Brockliss, the flowers' spontaneous generation would recall overabundant fecundity, monstrosity, and disorder, three concepts that would encapsulate this ghastly alterity.

In the Conclusions, Brockliss summarizes his main findings and argues that the treatment of vegetal imagery in the Homeric poems expresses a more pessimistic take on eroticism, disorderliness, and the horror of death than the imagery of other Greek poetical traditions. The chapter ends on a discussion of the horrific vs. the heroic nature of the Homeric depictions of death. An Appendix explores the semantics of *anthos* and its cognates in the Homeric poems.

The book is finely produced, typos are virtually absent or trivial in nature,[3] and an Index of subjects and an Index locorum help the reader identify pages of interest.

Brockliss makes his case with clarity, his arguments are signposted and summarized at the main articulations of the book, his views are informed by recent and relevant scholarship—although I note the absence of a classic, Marcel Detienne's *Gardens of Adonis*, which would have been important for the argument developed in Part II.[4] Some of Brockliss' pages offer very perceptive readings of ancient texts.

Particularly stimulating, from this point of view, is for example chap. 5, which develops a subtle assessment of the poetic values of vegetal spaces in Homeric poetry: the pastoral vs. wild landscapes of the Hymn to Aphrodite, the mingling of flowers in the Hymn to Pan (suggestive of the mixed form of the god), or the different gardens and orchards described in the *Odyssey*. More generally, Brockliss is to be praised for his attempt to recover less obvious connotations that the Greek authors would have associated with that imagery (other than “beauty”, “transience”, and the like).

For all that, this reviewer did not find all arguments to be equally compelling. As the summary above hinted, the book proceeds by black-or-white dichotomies, often based on a single criterion.

Although these allow for a neat characterization of the subject matter, more nuance could have been introduced.[5] A broader disagreement with this book lies with the way in which Brockliss links together the botanical images and the “abstract ideas” which they are purported to convey. This is framed in terms of “association” (e.g. p. 91, 110), a mechanism which seems to operate at quite an abstract level and independent of contextual clues. According to Brockliss, a given botanical image may express not only themes or concepts with which a poem deals in that image's immediate context, but also those that the poem tackles elsewhere, or those that may pertain to a (our?) general reading of it. A good instance of this practice is found in Part Two's argument about flowering as an expression of threats to the cosmic order. None of the poems quoted uses floral imagery to directly express the idea of disorder; rather, flowering is mentioned within poems that elsewhere—or at a more general level—might be interpreted as engaging with such a theme.[6] At times, these oblique connections seemed contrived to me. In any case, they would have worked differently—cognitively speaking—from more direct metaphorical expressions such as that of *anthos hēbēs*.

In conclusion, how well does the idea fare that the botanical imagery in the Homeric poems responds to the archaic Greek vegetal environment? Brockliss convincingly

argues that Greek landscapes' poikilia could have helped to express deception. The sudden nature of blooming might have been useful to convey the sense of disorder or monstrosity Brockliss recognizes in some images. On this subject, it could have been interesting to compare the Homeric imagery with that of epic poetry from outside ancient Greece: that would have helped to single out where the Homeric poets responded to characteristics specific to the archaic Greek environment, rather than to the general characteristics of plant life. I have been more uncomfortable with the apparently self-evident nature of other—indeed lesser—points made throughout the book: e.g. when Brockliss explains that ancient audiences would have recognized the artificial nature of the narcissus plucked by Kore, since “no real narcissus would possess such a powerful fragrance as to fill the whole earth, heaven, and the sea” (p. 47), or that they would have perceived the uncanny nature of the asphodel meadows of the gloomy Underworld, since “it seems unlikely that populations of archaic Greece, whose economies were based on agriculture, were unaware that plants needed light to grow” (p. 209-210). The book is at its best elsewhere, most notably where Brockliss tries to recover the lenses through which ancient authors might have explored the botanical realm. This effort, together with Brockliss' dexterity in differentiating botanical images and vegetal spaces all too often lumped together, makes this monograph a welcome and useful addition to the scholarship on archaic poetry, but also to the recent field of vegetal poetics.

Notes

[1] However, according to Brockliss, what Homeric beautiful “floral” bodies do is to seduce, lure, and deceive the viewer, and cause him/her “to misjudge their value” (p. 73). I fail to see how this amounts to Lacan's role reversal between the viewer and the viewed.

[2] The evidence for the arboreal imagery of cosmic stability is limited to Hesiod's description of the roots of the earth and the sea (Th., 727-8); to the same author's mention of the roots of the threshold of Tartarus (Th., 811-3); and to the Homeric evocation of trees and pillars on the Island of Calypso in *Odyssey* (1.50-4).

[3] E.g. p. 11, n. 39 “they are broadly agreement with”.

[4] Marcel Detienne, *The gardens of Adonis: spices in Greek mythology*, translated from the French by Janet Lloyd ; with an introd. by J.-P. Vernant. Atlantic Highlands, N.J. : Humanities Press, 1977.

[5] E.g. in chap. 7, where floral images in elegy and in Homeric poetry are contrasted according to whether or not the phrase *anthos hēbēs* correlates with the explicit mention of death. On this basis, Brockliss claims elegists associated flowers only with the brevity of life, whereas Homeric poets associated them only with the prime of youth. Actually, elegists do associate the phrase *anthos hēbēs* with both (and also with other themes, such as beauty, eros, and charis).

On the other hand, floral images in Homer do participate in the picture of the brevity of life (although the phrase *anthos hēbēs* is not used in the context): one could think of the simile comparing Euphorbos to a blooming young plant, ripe with gleaming flowers, and suddenly uprooted by a gust of wind (Il. 17, 50-60).

[6] Consider e.g. the scene of the Dios Apatē in Iliad 14. Famously, Gaia produces a layer of flowers underneath Zeus and Hera at the moment of their union (Il., 14, 347-9): the immediate context, of course, is an erotic one, and flowery meadows are a common setting for such a situation, as Brockliss duly points out (p. 118). However, Hera's wiles constitute a challenge to Zeus' authority and her allusion to the reconciliation of Okeanos and Tethys at Il. 14, 198-210 might be construed as a threat to Zeus' cosmic order. Thus, Brockliss interprets the imagery of the flowers as expressing Hera's (unrealized) threat to the cosmic order of Zeus – although nothing contextually points in that direction and the idea of cosmic disorder is to be derived from (a reading of) 14, 198-210, that is, from a scene occurring some 150 lines before.

Please visit the site: <https://bmcr.brynmawr.edu/2021/2021.01.15/>

THE LENGTH OF A SCROLL: **QUANTITATIVE EVALUATION OF** **MATERIAL RECONSTRUCTIONS**

Eshbal Ratzon, Nachum Dershowitz

<https://doi.org/10.1371/journal.pone.0239831>

Abstract

Scholars have used mathematical models to estimate the missing length of deteriorated scrolls from ancient Egypt, Qumran, Herculaneum, and elsewhere. Based on such estimations, the content of ancient literature as well as the process of its composition is deduced.

Though theoretically reasonable, many practical problems interfere with the method. In the current study, the empirical validity of these mathematical models is examined, showing that highly significant errors are quite frequent. When applied to comparatively intact scrolls, the largest contribution to errors is the subjectivity inherent in measuring patterns of damaged areas. In less well preserved scrolls, deterioration and deformation are more central causes of errors. Another factor is the quality of imaging. Hence, even after maximal reduction of interfering factors, one should only use these estimation methods in conjunction with other supporting considerations. Accordingly, past uses of this approach should be reevaluated, which may have substantial implications for the study of antiquity.

Introduction

"The length of a scroll ... should not exceed the circumference, nor should the circumference exceed the length. What is a suitable length?"

—Maimonides, Mishneh Torah (1180)

Many documents from the ancient world have been preserved in the form of a scroll, the most famous collections being the Dead Sea Scrolls and the Herculaneum papyri. The importance of such ancient scrolls for the study of the past cannot be overstated. Over time most of these important artifacts have suffered significant damage and require reconstruction. Thus, throughout the various fields of Egyptology, classics, and Judaic studies, scholars have endeavored to estimate the missing length of deteriorated scrolls.

Papyrus was invented in Egypt during the fourth millennium BCE.

Numerous papyrus and some leather scrolls were found in Egypt originating from that time until the early centuries CE. These writings are significant witnesses for the history, literature, and religion of several cultures from the very beginning of antiquity.

[...]

Please visit the site:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0239831> [Go there for complete article]

THE GIFT OF THE NILE? ANCIENT EGYPT AND THE ENVIRONMENT. TUCSON: EGYPTIAN EXPEDITION, 2020

Thomas Schneider and Christine Johnston (eds.):
Paperback, \$65.00

Amazon link for the book:

<https://www.amazon.com/Gift-Nile-Ancient-Egypt-Environment/dp/0964995875>

Link on the JAEI page (requires a subscription):

<https://egyptianexpedition.org/volumes/gift-of-the-nile-ancient-egypt-and-the-environment/>

Abstract (from the Amazon page):

This volume presents the proceedings of the symposium and workshop on ancient Egypt and the Environment held at Quest University and the University of British Columbia (Canada), April 2-3, 2017. The contributions in this volume include studies on the cultural and environmental impact of the Nile on the people of Egypt. The chapter authors use palaeoclimatic and geomorphological data to examine and challenge traditional approaches to the study of the Egyptian environment, demonstrating the value of ecologically focused forms of Egyptological research.

The publication also includes a manifesto by the authors outlining practical strategies to incorporate environmental data in the study of Egypt, as well as an appendix providing sources relating to the ancient Egyptian environment. Contributing authors are: Thomas Schneider, Pearce Paul Creasman, Judith Bunbury, Joanne Rowland, Nadine Moeller, Angus Graham, Juan Carlos Moreno García, Leslie Anne Warden, Christine L. Johnson, Leesha Cessna, and Willike Wendrich.

The volume is dedicated to Prof. Manfred Bietak.

MICROSTRUCTURAL AND CHEMICAL CHARACTERIZATION OF A PURPLE PIGMENT FROM A FAIYUM MUMMY PORTRAIT

Glenn Gates, Yaqiao Wu, Jatuporn Burns, Jennifer Watkins, Darryl P. Butt

Abstract

Results are presented from analyses that were conducted to explain the presence of chromium, detected noninvasively using energy-dispersive X-ray fluorescence (XRF), in the unusually large (2-3mm diameter) rough gem-like purple pigment particles in the paint used for a Faiyum mummy portrait. An approximately 50 μm diameter particle of the chromium-containing purple pigment was extracted from the Portrait of a Bearded Man, dated to Roman Imperial Egypt in the second century, circa 170-180 CE, accession #32.6 in the Walters Art Museum collection. The particle was characterized using energy-dispersive X-ray fluorescence analysis, electron microscopy, diffraction, and atom probe tomography. It is demonstrated that the purple pigment particle is a heterogeneous organic pigment, specifically, a lake pigment likely derived from either plant or insect matter, which contains minor percentages of both transition metals and alkali / alkali earth metals, with nanometer-scale crystallites of lead carbonates and sulfates.

The analyses revealed for the first time the nanoscale microstructure and stratigraphy in an ancient lake pigment. Results suggest that similarities with respect to time period and place of production may be developed among unprovenanced Faiyum mummy portraits to help localize workshops or artists, using analyses focused on lake pigments to characterize specifically metal-based mordants.

Please visit the site: <https://ceramics.onlinelibrary.wiley.com/doi/10.1002/ces2.10075> is posted this article: [Go there for download of full article] [See also <https://www.archaeology.co.uk/articles/news/science-notes-parsing-the-properties-of-egyptian-purple-pigments.htm>]

ARCHAEOLOGICAL HERITAGE IN THE AGE OF DIGITAL COLONIALISM

Discussion article by Monica Stobiecka, and responses by Lynn Meskell and Trinidad Rico.

Archaeological Dialogues 27.2 (Dec 2020) 113-134.

Published online by Cambridge University Press: 13 November 2020

Digital archaeologists claim that their practices have proven to be an important tool for mediating conflict, ensuring that the digital turn in archaeology entails engaging in current political issues. This can be questioned by analysing a copy of the Syrian Arch of Triumph.

The original was destroyed in 2015. A year later, a copy was carved out of Egyptian marble; the replica was constructed thanks to digital documentation, which allowed archaeologists to create a 3D model. The arch was placed in various Western locations; however, it never reached Syria. Hybridity, the cultural and political significance of the arch's replica and its 'Grand Tour' invite us to think about different interpretive layers of this artefact of ideological discourse (ontological, epistemological, ethical). In this paper, the replica of the Syrian arch will be analysed through the frameworks of post-colonial theory and technology studies. Both perspectives provide an insight into promising advantages and alarming drawbacks of such digital practices.

This paper argues that the case of a copy of the Syrian Arch of Triumph on the one hand reflects the contemporary colonial technocracy in heritage politics (an ethical dimension), and on the other demonstrates that an ideological aspect of its digital reconstruction emerges from a speculative anticipation of what might constitute the universal value of world heritage in the future (an onto-epistemological dimension)."

Please visit the site: <https://tinyurl.com/y2sertez>

EARLY EVIDENCE OF ROYAL PURPLE DYED TEXTILE FROM TIMNA VALLEY (ISRAEL)

Naama Sukenik, David Iluz, Zohar Amar, Alexander Varvak, Orit Shamir, Erez Ben-Yosef

Published: January 28, 2021

<https://doi.org/10.1371/journal.pone.0245897>

Abstract

In the context of a broad study aimed at examining dyeing technologies in the Timna textiles collection, three samples of prestigious fibers dyed with murex sea snail were identified. Our identification is based on the presence of 6-monobromoindigotin and 6,6-dibromoindigotin components (detected using HPLC analysis), which is considered unequivocal evidence for the use of murex-derived purple dyestuff.

Furthermore, by comparing the analytical results with those obtained in a series of controlled dyeing experiments we were able to shed more light on the specific species used in the dyeing process and glean insights into the ancient dyeing technology. The samples originated from excavations at the extensive Iron Age copper smelting site of “Slaves’ Hill” (Site 34), which is tightly dated by radiocarbon to the late 11th–early 10th centuries BCE. While evidence for the important role of purple dyes in the ancient Mediterranean goes back to the Middle Bronze Age (early 2nd millennium BCE), finds of dyed textiles are extremely rare, and those from Timna are the oldest currently known in the Southern Levant. In conjunction with other observations of the very high quality of the Timna textiles, this provides an exceptional opportunity to address questions related to social stratification and organization of the nomadic society operating the mines (early Edom), the “fashion” of elite in the region during the early Iron Age, trade connections, technological capabilities, and more.

Please visit the site:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0245897> [Go there for full article download] [See also <https://phys.org/news/2021-01-glimpse-wardrobe-king-david-solomon.html>]

NEW PUBLICATION ON MEDIEVAL PEWTER CRAFT

Dear all,

I would like to announce a newly published book to all those of you who are interested in medieval pewter craft. It deals with the large find of 450 stone casting moulds, which were excavated in the old town of Magdeburg, Germany. The two volumes give a detailed insight into the archaeological and archaeometallurgical investigations on the moulds, and also shows how specialized and internationally interconnected the craft already was in the 13th c. AD. The only downer is that the book is written in German....

The book is now available in bookshops.

Der Magdeburger Gießformenfund: Herausragendes Zeugnis handwerklicher Zinngießer in einer mittelalterlichen Metropole, by Daniel Berger, Gösta Ditmar-Trauth and Christian-Heinrich Wunderlich (Veröffentlichungen des Landesamtes für Denkmalpflege und Archäologie 76/I–II, Halle (Saale)).

Best wishes

Daniel

EΙΔΗΣΕΙΣ - NEWS RELEASE

CALIGULA’S GARDEN OF DELIGHTS, UNEARTHED AND RESTORED, BY FRANZ LIDZ

Relics from the favorite hideaway of ancient Rome’s most infamous tyrant have been recovered and put on display by archaeologists.

The fourth of the 12 Caesars, Caligula — officially, Gaius Julius Caesar Germanicus — was a capricious, combustible first-century populist remembered, perhaps unfairly, as the empire’s most tyrannical ruler. As reported by Suetonius, the Michael Wolff of ancient Rome, he never forgot a slight, slept only a few hours a night and married several times, lastly to a woman named Milonia.

During the four years that Caligula occupied the Roman throne, his favorite hideaway was an imperial pleasure garden called Horti Lamiani, the Mar-a-Lago of its day. The vast residential compound spread out on the Esquiline Hill, one of the seven hills on which the city was originally built, in the area around the current Piazza Vittorio Emanuele II.

There, just on the edge of the city, villas, shrines and banquet halls were set in carefully constructed “natural” landscapes. An early version of a wildlife park, the Horti Lamiani featured orchards, fountains, terraces, a bath house adorned with precious colored marble from all over the Mediterranean, and exotic animals, some of which were used, as in the Colosseum, for private circus games.

When Caligula was assassinated in his palace on the Palatine Hill in 41 A.D., his body was carried to the Horti Lamiani, where he was cremated and hastily buried before being moved to the Mausoleum of Augustus on the Campus Martius, north of the Capitoline Hill. According to Suetonius, the elite garden was haunted by Caligula’s ghost.

Historians have long believed that the remains of the lavish houses and parkland would never be recovered. But this spring, Italy’s Ministry of Cultural Heritage, Cultural Activities and Tourism will open the Nymphaeum Museum of Piazza Vittorio, a subterranean gallery that will showcase a section of the imperial garden that was unearthed during an excavation from 2006 to 2015. The dig, carried out beneath the rubble of a condemned 19th-century apartment complex, yielded gems, coins, ceramics, jewelry, pottery, cameo glass, a theater mask, seeds of plants such as citron, apricot and acacia that had been imported from Asia, and bones of peacocks, deer, lions, bears and ostriches.

“The ruins tell extraordinary stories, starting with the animals,” said Mirella Serlorenzi, the culture ministry’s director of excavations. “It is not hard to imagine animals, some caged and some running wild, in this enchanted setting.” The science of antiquities department of the Sapienza University of Rome collaborated on the project.

The objects and structural remnants on display in the museum paint a vivid picture of wealth, power and opulence. Among the stunning examples of ancient Roman artistry are elaborate mosaics and frescoes, a marble staircase, capitals of colored marble and limestone, and an imperial guard's bronze brooch inset with gold and mother-of-pearl. "All the most refined objects and art produced in the Imperial Age turned up," Dr. Serlorenzi said.

The classicist Daisy Dunn said the finds were even more extravagant than scholars had anticipated. "The frescoes are incredibly ornate and of a very high decorative standard," noted Dr. Dunn, whose book "In The Shadow of Vesuvius" is a dual biography of Pliny the Elder — a contemporary of Caligula's — and his nephew Pliny the Younger. "Given the descriptions of Caligula's licentious lifestyle and appetite for luxury, we might have expected the designs to be quite gauche."

The Horti Lamiani were commissioned by Lucius Aelius Lamia, a wealthy senator and consul who bequeathed his property to the emperor, most likely during the reign of his friend Tiberius from A.D. 14 to 37. When Caligula succeeded him — it is rumored that Caligula and the Praetorian Guard prefect Macro hastened the death of Tiberius by smothering him with a pillow — he moved into the main house.

In an evocative eyewitness account, the philosopher Philo, who visited the estate in A.D. 40 on behalf of the Jews of Alexandria, and his fellow emissaries had to trail behind Caligula as he inspected the sumptuous residences "examining the men's rooms and the women's rooms ... and giving orders to make them more costly." The emperor, wrote Philo, "ordered the windows to be filled up with transparent stones resembling white crystal that do not hinder the light, but which keep out the wind and the heat of the sun."

Evidence suggests that after Caligula's violent death — he was hacked to bits by his bodyguards — the house and garden survived at least until the Severan dynasty, which ruled from A.D. 193 to 235. By the fourth century, the gardens had apparently fallen into desuetude, and statuary in the abandoned pavilions was broken into pieces to build the foundations of a series of spas. The statues were not discovered until 1874, three years after Rome was made the capital of the newly unified Kingdom of Italy. With the Esquiline Hill in the midst of a building boom, the Italian archaeologist Rodolfo Lanciani nosed around freshly excavated construction sites and uncovered an immense gallery with an alabaster floor and fluted columns of giallo antico, considered the finest of the yellow marbles.

He later stumbled upon a rich deposit of classical sculptures that, at some point in the horti's history, had been deliberately hidden to protect them. The treasures included the Lancellotti Discobolus, now housed at the National Museum of Rome; the Esquiline Venus and a bust of Commodus depicted as Hercules, now at the Capitoline Museums. In short time, the sculptures were carted off, the foundation of an apartment building was laid, and the ancient ruins were reburied.

The latest excavation of the horti unfolded under the detritus of the residences, which had been evacuated in the 1970s in the wake of a building collapse. Much like the 2012 exhumation of Richard III in Leicester, England, the unburying involved a modern parking site.

Sixteen years ago, the three-and-a-half-acre property was purchased by Enpam, a private foundation that manages pensions for Italian doctors and dentists. Exploratory core drilling for a new headquarters and a six-level underground garage brought forth a wealth of first-century relics, from the type of window glass described by Philo to lead pipes stamped with the name of Claudius, Caligula's uncle and successor.

As construction crews erected the five-story office building, archaeologists in a trench 18 feet below street level gingerly screened and scraped away soil. In a study lab across town, paleobotanists and archaeozoologists analyzed fragments, and researchers painstakingly repaired a 10-foot-high wall fresco painted with pigment made from ground cinnabar. The entire \$3.5 million conservation and restoration project was underwritten by Enpam.

Ground was broken for the Nymphaeum Museum in 2017. "The new space, in the basement of Enpam, brings to light one of the mythical places of the empire's capital, one of the garden residences loved by the emperors," said Daniela Porro, the museum director.

What all of this does for Caligula's seemingly irredeemable reputation is an open question. He emerges from Suetonius's "The Twelve Caesars," written 80 years after the emperor was bumped off, as utterly depraved: having incestuous relationships with his sisters, sleeping with anyone he liked the look of, using criminals as food for his wild beasts when beef became too pricey and insisting that a loyal subject who had vowed to give his own life if the emperor survived an illness should carry through on his promise and die.

Mary Beard, a professor of classics at Cambridge University, posited that while Caligula might have been assassinated because he was a monster, it is equally possible that he was made into a monster because he was assassinated. In "SPQR," her rich history of ancient Rome, she argues that "it is hard to resist the conclusion that, whatever kernel of truth they might have, the stories told about him are an inextricable mixture of fact, exaggeration, willful misinterpretation and outright invention — largely constructed after his death, and largely for the benefit of the new emperor, Claudius."

Whether Caligula got a raw deal from history is a subject of hot and unyielding debate. "There is clearly some bias in the sources," Dr. Dunn allowed. "But even without that, it is difficult to envision him as a good emperor. I doubt these new discoveries will do much to rehabilitate his character. But they should open up new vistas onto his world, and reveal it to be every bit as paradisiacal as he desired it to be."

Please visit the site: <https://www.nytimes.com/2021/01/12/science/caligula-archaeology-rome-horti-lamiani.html?fbclid=IwAR1K3DwNyyIgs3hUhaWeLh0iVfxbFJPVvh2g2cT86t6qMDy87KJ6xd8CJz0>

9 MAGNIFICENT ANCIENT MOSAICS OF ISRAEL, BY NAAMA BARAK

In Roman times, a mosaic team manager earned 150 dinars a day, while a ship's carpenter earned only 60. But the work was backbreaking.

For such a small country, Israel sure boasts a huge number of ancient mosaics – some 7,000 of them, to be precise.

And those are just the ones that have been discovered and registered, with new archaeological digs or happy accidents regularly unearthing more ancient treasures.

The art of mosaics arrived in the Land of Israel from Rome around the time of Herod the Great 2,000 years ago. They were continuously created here through the 11th century, leaving us with documentation of Roman, Byzantine and early Arab culture in the area.

“Mosaics have an artistic component that tells of life during a certain period, about the mythology of the time, and there's also a very strong element of aesthetics,” explains Jacques Neguer, the head of the Israel Antiquities Authority's art conservation department.

“In addition, there's also the information that appears in the inscriptions,” he says. “For example, the mosaic discovered at Megiddo Prison is probably the floor of the earliest church to have been found in the world and is a very rich source of information, both technological and artistic, as well as relaying information about the way people lived in that time period.”

The Megiddo mosaic bears many inscriptions, including the name of a lady who dedicated the altar to Jesus Christ, one of the earliest mentions of the name. The mosaic also features geometric shapes and a medallion with fish swimming at its center.

How old is it?

Neguer explains that the mosaics of the Land of Israel were influenced by the cultures surrounding it and the art coming from Egypt, Rome and Byzantium. Distinct styles emerged in different locations across the land.

Despite this great variety, many of the mosaics shared similar qualities, patterns and styles over the centuries – so much so that in many cases it's not possible to date the mosaics based only on the artwork. Archeologists must make use of the surrounding digs and inscriptions to determine their age.

“There are many mosaics with geometrical patterns that get repeated for hundreds of years. You can recognize the same style of mosaic that moves on from a synagogue to a church and then to a public building.

It's the same sort of composition that transfers to different buildings,” Neguer says.

This repetition and transfer of style makes sense, he notes, since mosaic artistry was probably a profession passed down generations in a family.

Being a mosaic artist paid pretty well: in Roman times, a mosaic team manager earned 150 dinars a day, while a carpenter on a Roman navy ship earned only 60. The price of a chicken at the time was 30 dinars.

“They made a lot of money. They were free men and not slaves and their status in society was quite high,” Neguer says.

“But you have to take into account that making mosaics was very hard work. It included creating the materials, building the necessary infrastructure, cutting the stones, making a scale project and then the mosaic on site. By the end of the day your back would hurt.”

Another 200 years?

Fast forward 2,000 years, and the workload is now focused on preserving the endeavors of those ancient artisans.

Neguer notes that the mosaics that have been uncovered in Israel will probably last another 200 or so years until being ruined by wear and tear. Somewhat surprisingly, that’s not the end of the world as far as he’s concerned.

“First of all, you don’t preserve material, you preserve values,” he explains. “The conservation of the mosaics preserves the values and information that constitutes the mosaic and its archeological context.”

Originally, the mosaics’ condition began to deteriorate once they were put into use, for example as floors of buildings that were continuously stepped on and eroded. That ancient condition was preserved for as long as they were covered in earth. The real deterioration begins the moment they are discovered and exposed to people, climate change, vandalism, pesticides and natural erosion.

Neguer says, “Neglect is something that’s very typical to digs across the word. The right thing to do is to cover the mosaics inside the earth once again after the digs.”

Endangered by time

Back in 1994, Neguer and the Israel Antiquities Authority carried out a survey on 100 sites out of the 7,000 (encompassing around 30,000 square meters of mosaics) and determined that over 50 percent of them were in danger.

Conservation efforts since then have reduced that number to around 35%, with an additional 35% determined to be in good condition and the remaining 30% in moderate condition.

“We’ve worked very hard, for some 25 years, to reach this stage,” Neguer says.

The 50 or so mosaics that are situated in national parks are being looked after and enjoy maintenance and conservation work. The less famous mosaics and the ones in moderate condition can very quickly take a turn for the worse if they're not cared for.

"There are less budgets for saving sites that have mosaics but that aren't in tourist areas. Nobody's interested in them," he laments.

And while work is being carried out to preserve and even save sites of this kind, it requires continuous conservation work, maintenance and recovering in earth.

"The key for conservation is maintenance, it's not only a one-time job," he says. "You need to take care the whole time."

Having worked on countless mosaics throughout the country, Neguer has a personal favorite. Situated in Caesarea, it's called the "golden table" or the "golden panel."

The D-shaped mosaic did not serve as a mosaic floor but rather as an ornate tabletop. Its little squares and rectangles are made of thin layers of gold sandwiched between two layers of glass.

According to the experts, the glass-and-gold tabletop survived a fire that burned down the wooden table that it decorated. It was discovered lying face down on a mosaic floor at the villa.

"It's not a big mosaic, just one meter by one meter, but it's of such high quality. There's simply nothing like it in the world. I enjoy being able to visit it at the Israel Museum," he says.

Please visit the site: <https://www.israel21c.org/9-magnificent-ancient-mosaics-of-israel/> [Go there for pix]

SAQQARA IN 3D: A NEW LOOK AT AN ANCIENT SITE, BY ELAINE SULLIVAN

The Saqqara cemetery, located about 15 kilometers south of the Giza pyramids, is one of Egypt's most spectacular tourist sites. Modern visitors can explore the catacombs of the Serapeum, the ritual burial place of the Apis bull, wander through beautifully carved and painted tomb chapels more than 4000 years old, and stand before Egypt's first monumental stone pyramid—the one that started it all—the step pyramid of the king Netjerykhet (later called Djoser). But what did it look like in antiquity?

Located in the desert hills west of Egypt's administrative capital, Memphis, Saqqara was used as the final resting place for royal and elite Egyptians (and sometimes non-elites) from the very start of the Pharaonic Period, in Egypt's Dynasty 1 (~2950 BCE). The site continued to be used intensely for more than three millennia.

But while Saqqara's long history of occupation thrills archaeologists, it also provides many challenges, especially for understanding the site's form and appearance at any given moment in the ancient past; changes were constant at the cemetery. Egyptians built new constructions while disassembling and reusing blocks from older monuments, and kings pulled down structures in the way of their new pyramid complexes. Mud-brick structures melted after centuries of rain and wind, and sands from the Sahara blew in and covered older tombs with meters of sand. It is difficult for modern scholars to reimagine so many stages of change concurrently. How can archaeologists better comprehend such multi-layered spaces?

In my recently published study of the site, *Constructing the Sacred:*

Visibility and Ritual Landscape at the Egyptian Necropolis of Saqqara, I combine 3D Geographic Information Systems (GIS) visualization technologies with a time-slider to offer a fresh way to consider the necropolis through space and time. Using the time-slider, we can jump forward and backward, exploring the cemetery at distinct moments, tracing how monuments appeared (or were obscured) on the landscape.

Such 3D technologies are being used by archaeologists studying cultures all over the world, as they provide us new opportunities to examine places that were altered in ancient times — or in the intervening centuries— in ways that hinder our understanding today.

View of the interactive 3D GIS model visualizing the mud-brick tombs of Dynasty 1 elites at Saqqara, the first monumental tomb structures documented at the site.

View of the interactive 3D GIS model visualizing the later monumental constructions of the kings of Dynasty 2-3, including the step pyramid of Djoser.

View of the interactive 3D GIS model visualizing new constructions at the site present by Dynasty 6, including more elite tombs and royal pyramids.

3D reconstruction is especially helpful for aiding us with investigations of the visual aspects of ancient spaces, as the height, shape, color, or texture of many monuments that were originally carefully designed to impact the ancient viewer. But many of these features have been lost due to monument deflation or degradation because of human or environmental actions. In 3D GIS models, we can virtually “reconstruct” aspects of the

ancient landscape to hypothesize on their appearance at their time of completion or use, assess whether structures were intentionally placed in locations to be visible (or invisible) from important locations, and reconstruct routes of movement through the site. We can incorporate the many aspects of human perception, including perspective, contrast, color, reflection, and light and shadow, in our consideration of human experience in ancient places.

A render of the 3D GIS model showing a visualization of the Dynasty 5 valley temple of King Unas (foreground), with photographic textures replicating the original colors and the materials of the building; the connected pyramid is uphill on the image left; the neighboring step pyramid of Djoser is on the image right.

Calculating visibility from a single observer point in the GIS, with green signaling areas that would be visible from adult human eye level; the program is able to incorporate the size, form, and position of the variously shaped monuments in the visibility analysis.

While archaeologists have used 2D GIS mapping technologies for many decades to analyze ancient landscape features, they have long acknowledged the many limitations of the overhead, ‘birds-eye-view’ that traditional 2D GIS offers. Indeed, human lives are not lived on a flat surface or plane but are embedded within a three-dimensional world. Expanding GIS into a third dimension allows us to examine cultural issues in new ways, better replicating the perspective and aspects of the visual and physical experience of a real person walking through a multi-dimensional landscape. By shifting our digital maps from “top-down” to an explicitly human point-of-view, we can consider how cultural symbolism or meaning was embedded within the lived landscape.

A render of the 3D GIS model showing a visualization of a New Kingdom tomb (with white-plastered pyramid in the rear) from the point-of-view of an adult human standing inside the tomb courtyard.

Constructing the Sacred is published fully online, a new type of “born-digital” monograph that is meant to replace the traditional printed book format, allowing for new opportunities for the reader and author. Because the digital publishing platform seamlessly integrates the narrative text with the 3D content, I can explain the reconstructions, as well as discuss the many gaps in the archaeological record that must leave any model with varying degrees of uncertainty. In Section 2 of the volume, readers can interact dynamically with the 3D GIS model of Saqqara, and explore the site alongside the author’s commentary, or on their own, following their own interests. The interactive model includes basic information on each monument at the site (accessed by clicking on the selected structure in the model), so that readers can find out the history of the monument and its excavation quickly and easily. It acts as a type of “3D tour” of the site and could be used by those less interested in the academic arguments in other sections of the volume.

View of the interactive 3D GIS model with one of the 3D monuments selected, showing the basic history and measurements of the pyramid of Dynasty 5 King Userkaf.

A full section of the work is devoted to documenting the model construction, and it provides the reader with information on the many choices made in the visualization of each monument. A lack of “metadata,” or the base information on which 3D models are

created, is one of the most common critiques of 3D projects, and this detailed material is thus included in the volume to address such concerns.

Citations to primary and secondary sources in the text (as pop-ups) contain persistent links to those publications (when available), sending the reader to the sources in a single click. Perhaps most exciting, readers can download the individual 3D models of the monuments (posted with a Creative Commons license) and reuse them for learning, games, or teaching. I hope that such online publishing platforms will be used by other scholars to make the archaeology of sites like Saqqara more accessible, understandable, and relevant to the interested public.

Elaine Sullivan is Associate Professor of History at the University of California at Santa Cruz.

Please visit the site: <http://www.asor.org/anetoday/2021/01/saqqara-3d> [Go there for nice pix]



A WARTY PIG PAINTED ON A CAVE WALL **45,500 YEARS AGO IS THE WORLD'S** **OLDEST DEPICTION OF AN ANIMAL,** **BY KATIE HUNT**

The world's oldest known figurative artwork has been discovered in a cave in Indonesia - an endearing image of a warty pig.

Archaeologists working on the site on the island of Sulawesi said the cave art was at least 45,500 years old. It is also thought to be the oldest surviving image of an animal. Painted using red ochre pigment, the animal appears to be observing a fight or social interaction between two other warty pigs.

This region is home to many intriguing limestone caves where other discoveries have been made. Cave art depicting a hunting scene dating to 43,900 years ago was also found in Sulawesi in late 2019. The same team of archaeologists in 2014 found human hand stencils, which were dated to 40,000 years ago.

Previously, the oldest known cave art was thought to have first appeared in Europe 40,000 years ago, showcasing abstract symbols. By 35,000 years ago, the art became more sophisticated, showing horses and other animals.

These latest finds in Indonesia have challenged a long-standing belief that artistic expression -- and the cognitive leap that may have accompanied it -- began in Europe. The cave paintings in Indonesia are shedding new light on the early story of humanity. Study coauthor Maxime Aubert, an archaeologist and associate professor at Griffith University in Australia who specializes in the dating of rock art, said that view was "Eurocentric."

It's now thought that the capability to create figurative art -- that references the real world -- either emerged before Homo sapiens migrated out of Africa and headed for Europe and Asia more than 60,000 years ago or that it emerged more than once as humans spread around the globe.

Dating cave art

While abstract art has been found in Africa dating back to [77,000 years ago](#), no figurative art older than those found on sites in Europe and Indonesia has been discovered on the African continent, Aubert said.

One reason for that could be because it's particularly difficult to date cave art, Aubert explained. However, rock art made in limestone caves can sometimes be dated by measuring the radioactive decay of elements like uranium within the calcium carbonate deposits -- sometime called cave popcorn -- that form naturally on the cave surface.

This was the case at the Leang Tedongnge site in southern Sulawesi, where a small cave popcorn had formed on the rear foot of the pig figure after it had been painted. The date

indicates the scene had been painted prior to 45,500 years ago, Aubert said, and the cave art could be much older.

A second Sulawesi warty pig image, from another cave in the region, was dated to at least 32,000 years ago using the same method in the study that published in the journal *Science Advances* on Wednesday.

The team expects future research in eastern Indonesia will lead to the discovery of much older rock art and other archaeological evidence, dating back at least 65,000 years.

"We have found and documented many rock art images in Sulawesi that still await scientific dating. We expect the early rock art of this island to yield even more significant discoveries," said study coauthor and Indonesian rock art expert Adhi Agus Oktaviana, a doctoral student at Griffith University.

Prehistoric Picassos

The researchers were confident the image was of a warty pig, which is shown in profile and filled in with irregular patterns of painted lines and dashes, because of the presence of spiky head crests and facial warts -- the two conspicuous, hornlike protusions in the upper snout area.

The pig painted on the ceiling of the cave measures 187 centimeters (6 feet) in length and 110 centimeters (3.6 feet) in height and is a red or mulberry color -- the prehistoric artists used iron-rich rock as a pigment and could have used two colors. The researchers said there are three other pigs in the scene.

Warty pigs are still common in Indonesia and have since been domesticated. Not much is known about the people who made the art, Aubert said.

Research has indicated that *Homo sapiens* arrived in Southeast Asia between 60,000 and 70,000 years ago. While the researchers said they are unable to definitively conclude that the artwork is the handiwork of cognitively modern humans, that was the most likely explanation.

"Our species must have crossed through Wallacea by watercraft in order to reach Australia by at least 65,000 years ago," said Aubert, referring to the region between continental Asia and Australia.

"However, the Wallacean islands are poorly explored, and presently the earliest excavated archaeological evidence from this region is much younger in age."

Nonfigurative artwork has been attributed to other early humans, with rock art found in Spain believed to be the handiwork of Neanderthals -- who overlapped with *Homo sapiens* for about 30,000 years before disappearing 40,000 years ago. However, this finding has been contested.

The depiction of the warty pig is also older than other types of prehistoric artwork found in Europe such as the "Lion-man," a figurine of a lion-headed human, and a "Venus figurine" carved from mammoth ivory, both found in Germany and thought to be around 40,000 years old.

It's also more ancient than a recent find on another Indonesian island -- an image of cattle that was found in a cave in Borneo.

"This discovery underlines the remarkable antiquity of Indonesia's rock art and its great significance for understanding the deep-time history of art and its role in humanity's early story," said study coauthor Adam Brumm, a professor at Griffith's Australian Research Centre for Human Evolution.

Please visit the site: <https://edition.cnn.com/style/article/cave-art-indonesia-oldest-figurative-art-animal-image-science-trnd/index.html>

EGYPTIAN ARCHAEOLOGICAL MISSION DISCOVERS ROMAN FORT REMAINS IN ASWAN

An archaeological mission from Egypt's Supreme Council of Antiquities has discovered the remains of a Roman fort at the Shiha archaeological site in Aswan.

A press release from the council stated that the remains include a church from the early Coptic era, and the remains of a temple from the Ptolemaic period.

Mustafa Waziri, Secretary-General of the council, explained that the mission discovered inside the fort a group of architectural elements from the temple of Ptolemy, and an incomplete sandstone panel, on which was depicted a model of the entrance to the temple and a man who appears to be a Roman emperor, standing next to an altar.

Additionally, the team found four blocks of sandstone with palm fronds engraved on them and cartouches of the Ptolemaic kings and the Greek emperors. A clay vase and part of a red brick vault dating back to the Coptic era were also found.

Mohamed Abdel Badi, head of the Central Administration for Antiquities of Upper Egypt, said that the mission has completed its work of uncovering the remains of the monastery and the church that were built on the ruins of this fort.

The mission was able to reveal the remnants of a mud brick wall surrounding the Shiha church from the western side, reaching a width of approximately 2.10 meters. On the north side of the church there are four rooms, a transverse hall, and an ascending staircase. Pottery ovens were found on the south side.

Previously, the German archaeologist Hermann Junker was able to uncover a part of the fort between 1920 and 1922.

Please visit the site: <https://www.egyptindependent.com/egyptian-archaeological-mission-discovers-roman-fort-remains-in-aswan/>

HOW OLD IS THIS ANCIENT VISION OF THE STARS? BY BECKY FERREIRA

It's a tale of bronze, iron, looting and archaeological conflict.

The Nebra sky disk, an ancient ornament discovered near Nebra, Germany, which two scientists have proposed is 1,000 years younger than originally believed.

The Nebra sky disk has been hailed as the oldest known representation of the cosmos. Uncovered by looters in 1999 and then recovered in a sting by archaeologists and law enforcement a few years later, the ancient bronze artifact, inlaid with gold decorations of the night sky, has provoked heated debates.

Now, a pair of German archaeologists are calling into question the age and origin of the disk, adding another chapter to the complex saga of the enchanting object.

The disk is currently judged to be about 3,600 years old, dating it to the Bronze Age. The looters who initially uncovered it said it was buried on a hilltop near the town of Nebra in Germany, next to weapons from the same era.

Rupert Gebhard, director of the Bavarian State Archaeological Collection in Munich, and Rüdiger Krause, a professor of early European history at Goethe University Frankfurt, now propose that the disk is a product of the Iron Age, which would make it about 1,000 years younger.

The researchers also argue that the disk was most likely moved by looters to the Nebra site from another location, meaning it may not be associated with the other artifacts, or Nebra itself, according to a study published this month in the journal *Archäologische Informationen*.

The State Museum of Prehistory in Halle, Germany, which exhibits the Nebra sky disk, issued a statement calling the team's conclusions "demonstrably incorrect" and "easily refuted."

"The biggest mistake in science is if you don't refer to the whole data," said Harald Meller, the museum's director. "What these colleagues do is refer only to very limited data that seems to fit their system."

Dr. Gebhard and Dr. Krause raised doubts about several earlier assumptions concerning the disk.

The artifact is thought to be affiliated with the Bronze Age items in part because soil on the objects indicated a common period, but the study points to conflicting court documents about those assessments.

Some of the weapons associated with the disk may not date to the Bronze Age, or come from the same deposit, according to Dr. Gebhard and Dr. Krause.

The researchers suspect that the original looters may have moved the artifacts to the Nebra location to keep their site a secret from professional archaeologists.

“They never tell you the place where they excavated because it is like a treasure box for them,” Dr. Gebhard said. “They just go back to the same place to get, and sell, new material.”

Disputes about the authenticity of the Nebra sky disk are not uncommon. Its spectacular design has awed both experts and the public, but it has also provoked concerns that it could be a forgery.

“The problem here is that it’s such a one-off,” said Alison Sheridan, former president of the Prehistoric Society, who is not involved with either team. “That’s why people have said, Maybe it’s a fake.”

Emilia Pásztor, an archaeologist at the Türr István museum in Hungary who has studied the disk, noted that its black market background amplifies these uncertainties.

“The Nebra disk, due to the circumstances of the discovery,” she said, “belongs to those archaeological finds that can be debated forever until some very accurate absolute dating method can be found for metals.”

Still, there is now a strong consensus that the Nebra sky disk is a bona fide ancient artifact.

“It’s original. It’s not a fake,” Dr. Krause said of the disk. “What you can make out of it is a very interesting scientific discussion that shows the various different sides, or objectives, of how to judge this object, either in the Bronze or in the Iron Age.”

To that end, Dr. Meller’s team intends to publish a rebuttal of the new study. Other archaeologists think they will have plenty to work with.

“What’s been presented here certainly does not blow out of the water the argument that it’s from Bronze Age,” Dr. Sheridan of the new study

Please visit the site: <https://www.nytimes.com/2020/09/13/science/nebra-sky-disk.html> [Go there for pix]

ROMAN SHIPWRECK FILLED WITH ANCIENT TREASURES DISCOVERED OFF GREEK ISLAND OF KASSOS

Impressive archaeological finds, including amphorae and pottery of various styles and eras, were discovered in shipwrecks located in the sea area of Kassos, the southernmost island in the Aegean Sea. One of them, which is considered the most significant, is placed in the Roman period and dates between the 2nd and 3rd century AD.

The trove of treasures was found during the second underwater research mission carried out in September and October by the Ephorate of Underwater Antiquities of the Ministry of Culture and Sports in collaboration with the Institute of Historical Research of the National Research Foundation.

As Greece's Ministry of Culture and Sports noted in a relevant announcement, “In the remote Kassos, which was a crossroads of civilizations, but also an important navigation center from antiquity to recent years, underwater archaeological research has brought to light important new findings.”

Twenty-three specialized scientists and technicians of various fields performed over one hundred group dives, exploring the sea bed for more than 200 hours and inspecting most of the area which is part of the three-year research project (2019 – 2021) carried out for the first time in the sea area of Kasos. It is an area of particular interest as it was a crossroads of cultures and an important navigation center from antiquity to modern times.

The most significant find is the Roman-era shipwreck, which carried amphorae (Dressel 20) containing oil constructed in Spain in the area of Guadalquivir (1st to 3rd century AD), as well as Africana I amphorae made at the ceramic workshops of Africa Proconsularis and specifically in the region of present-day Tunisia, dating between the 2nd and 3rd centuries AD.

Please visit the site: <https://www.tornosnews.gr/en/greek-news/culture/42972-roman-shipwreck-filled-with-ancient-treasures-discovered-off-greek-island-of-kassos.html> [Go there for pix]

SCIENCE NOTES – PARSING THE PROPERTIES OF EGYPTIAN PURPLE PIGMENTS, BY KATHRYN KRAKOWKA

Between 30 BC and the 3rd century AD, during which period Egypt was a province of the Roman Empire, a practice developed of attaching a portrait of a mummified individual to their mummy wrappings. Approximately 1,100 of these paintings have been collected over the centuries, the majority during the 19th and early 20th century – but, as many were bought and sold as works of art instead of archaeological artefacts, information about their context and provenance has disappeared.

In 2013, to mitigate this loss and try to reconnect these mummy portraits once more, the Ancient Panel Paintings: Examination Analysis and Research (APPEAR) project and database was created, through the collaboration of more than 40 institutions. As part of this project, one team of researchers, from the University of Utah and Boise State University, recently analysed a microscopic sample of purple pigment taken from one painting – a 2nd-century AD example known as *Portrait of a Bearded Man*, which was originally from Faiyum in Egypt but now resides in the Walters Art Museum in Baltimore, Maryland. Could a sample of paint, no bigger than the width of a hair, provide any clues about this painting's origins? In this month's 'Science Notes', we examine the project's findings.

The paint sample was removed from the *clavus* – a stripe on the shoulder of the bearded man's tunic. In ancient Egypt, purple dyes were often reserved for royalty or those of high status, especially the highly valued Tyrian purple made from molluscs. But, by the time the portrait in question was painted, purple had been democratised and was used by all social strata. To examine the paint's make-up, and to learn more about which type of purple this may be, the team broke up this already minuscule sample into even smaller parts to be analysed using multiple techniques.

First, based on the fact that the *clavi* glowed a pinkish-orange under ultraviolet radiation, it was thought that the purple paint was probably made from an organic lake pigment, which has nothing to do with a body of water but instead with how it is made: by mixing an organic dye with an inert binder, such as a metallic salt, in order to make it insoluble in water. This was confirmed using techniques such as XRF and SEM-EDS (see CA 366 and 367), which detected the individual elements that make up the sample: aluminium, titanium, silicon, potassium, iron, and sulphur – elements expected from a lake pigment – were all detected. The lack of bromine, however, confirmed that it was probably not made of Tyrian purple.

Interestingly, chromium and lead were also detected. The reason for their presence was not immediately clear – though the presence of the lead could be due to the crucibles in which the pigment was made. Descriptions of the dyeing vats discovered during Petrie's 1908 excavations of the Ptolemaic Egyptian dyers' workshops of Athribis suggest that they were lead-lined, so it is very possible that some of this lead would have been transferred to the pigment during production. The chromium remains unaccounted for, but another institution participating in the APPEAR programme also detected chromium

in another mummy painting, *Portrait of a Young Girl*. While the two had not been connected before stylistically, re-examination does suggest similarities, including the panel shape and background tone.

Another way the paint was analysed was through atom probe tomography (APT), which uses a microscopic needle inserted into the sample to examine the distribution of elements within it. To the researchers' knowledge, this technique had never before been used on a paint sample, and this study represents the first successful analysis of organic pigment in this way. This analysis, along with the assessment of a cross-section of the sample using transmission electron microscopy (TEM), showed three distinct 'layers' to the pigment. The outer layer was characterised by large crystals, in contrast to the inner layers which were made up of many small crystallites. This heterogeneity is unusual for a lake pigment, which before were thought to always be homogenous.

This layering suggests that the purple pigment may have actually been 'upcycled' using the dye sludge that remains at the bottom of dye vats. This would be in keeping with other apparent recycling efforts during the Roman period, such as the red dye used in the 'red-shroud mummies' from the Río Tinto site in Spain, which was shown to have been made using the lead oxides that remain after silver has been refined.

The full results of the study were recently published in the *International Journal of Ceramic Engineering and Science* and can be read for free at <https://doi.org/10.1002/ces2.10075>.

Please visit the site: https://www.archaeology.co.uk/articles/news/science-notes-parsing-the-properties-of-egyptian-purple-pigments.htm?fbclid=IwAR0HXGXuXuhRPYr-ys5T241cRvPGRLGbcgTG5X_3-eBFDtR3rkVDV43rAHA

WEIZMANN SCIENTISTS DATE SANTORINI ERUPTION WITH MODERN OLIVE BRANCH, BY HANNAH BROWN

The annual growth of the olive tree is not a simple story.

When the volcano on the Mediterranean island of Santorini erupted over three thousand years ago – give or take a few hundred – it spewed lava, rocks and ash over a huge region. The ash from that eruption is so prevalent in the archaeological record that it is used to date the strata above and below.

But few agree on the chronological date of the eruption itself. That is why a single olive branch discovered in the ashes on Santorini has become the center of a recent controversy between archaeologists and chronologists.

Whereas some archaeologists place that date in the second part of the 16th century BCE, a study using radiocarbon dating and an analysis of the olive branch's growth rings place this volcanic eruption at around 1630-1620 BCE, a difference of nearly a 100 years.

Now, researchers in the lab of Prof. Elisabetta Boaretto, of the Weizmann Institute of Science in Rehovot's Scientific Archaeology Department, have shown how different methods could produce dates that agree after all.

The Weizmann scientists focused on the fact that the annual growth of the olive tree is not a simple story. Although a cross section of olive wood does show somewhat concentric rings, the light and dark circles visible to the naked eye do not represent single years of growth. The darker rings may be a sort of staining, rather than signs of annual cycles.

To get around this, the archaeological team studying the Santorini branch made use of microcomputer tomography (microCT), finding slight variations in density that logically seemed to represent yearly growth.

But Boaretto, Dr. Yael Ehrlich and Dr. Lior Regev decided to go back to basics and ask: Do the variations noted in the microCT studies truly represent yearly growth rings – and if so, would the last ring (and thus, its date) in the Santorini branch reveal the true date of the eruption?

THE RESEARCHERS took a branch from a modern olive tree that was about 70 years old and dated its wood using several independent methods, to study and date the growth of the rings. They applied microCT and high-resolution radiocarbon dating on various segments of a cross section. They were looking to identify the “bomb peak” – a doubling of radiocarbon concentration in the atmosphere that occurred in the 1960s due to the atmospheric nuclear weapons testing of those years.

With the Dangoor research accelerator in her lab, Boaretto and her team conducted 100 radiocarbon determinations in segments of 20 mg. of wood along the growth radius of the

branch. With these high-resolution measurements, the Weizmann researchers mapped the inclusion in the wood of the nuclear-testing radiocarbon to the level of single months in Israel, and they compared it with the global radiocarbon distribution from that period. On the same material, the team measured two other isotopes of carbon (^{12}C and ^{13}C), which revealed seasonal changes in growth.

The highlight of the experiment, says Boaretto, was that their method was so precise that they could even identify parts of the year when the trees add their new mass. Olive trees undergo seasonal growth through the spring and into the summer, a process that tends to contribute to the forming of rings that are deposited annually.

Moreover, they found that the boundaries between years can generally be observed with microCT. Even when the wood was charred (which is how wood material is usually found in archaeology), the dividing lines could be made out.

IN A second highlight of the group's high-resolution method, however, they found that in the outermost layers, just beneath the bark, the growth that comprised something like the last 30 years in their samples had run together a bit into a single band. That could call ring-counting methods into question, as the ring boundaries telling them exactly how many years the tree had grown in that period were missing.

On top of that, they found that olive trees, as they get older, can stop adding wood to some or parts of their branches even as they continue to add new growth elsewhere. The boundaries between the still-active and the dead parts are invisible to the eye, but the radiocarbon method revealed a difference of 40 years in the apparent age between two different samples, both taken around the circumference of the branch.

In other words, a sample taken from the outermost area of a cross section of a branch, which might be thought to represent the age of the tree at the time of sampling, could actually appear to be 40 or more years younger than the tree's true age. This insight suggested to Boaretto and her team a new interpretation for the absolute date given for the "last" ring in the Santorini branch.

The Weizmann team suggested that, while the original microCT study of the Santorini branch may have been counting real growth rings, there is a distinct possibility that the radiocarbon date obtained from the branch does not represent the date of the eruption but, rather, an older date. The area the sample was taken from may have stopped growing decades before the eruption.

Modeling different possible scenarios, such as non-ring-forming growth – and supposing a premature end to growth in the branch – the team showed that the resulting new date ranges overlap with that of the archaeological evidence.

DETERMINING THE date of the eruption is important to archaeological research. Whether it occurred before or after 1570 BCE would have serious implications for other studies. This date is indeed related to the beginning of the so-called New Kingdom of Egypt – the period of extensive colonization and large pyramid building – and another significant signpost in the archaeological record.

The original archaeological dating of the Santorini olive branch had put the eruption within the New Kingdom era; this chronological connection, or lack of connection, has significance for dating other findings in the Mediterranean region from this period.

“This is not the last word on the Santorini dating,” says Boaretto, “but it has highlighted, among other things, how we can use modern artifacts to check our dating methods, and why we need to continually return to the most basic questions. After setting the biological clock of an olive tree with radiocarbon, it is possible to better interpret a study in which the data comes from counting ancient olive tree rings.”

Boaretto’s research is supported by the head of the Helen and Martin Kimmel Center for Archaeological Science; the Dangoor Research Accelerator Mass Spectrometry Laboratory; Brazil’s Instituto Serrapilheira; and Dana and Yossie Hollander. Boaretto is the first incumbent of the Dangoor Chair of Archaeological Sciences, endowed by Dr. Judy and David Dangoor of the United Kingdom.

Please visit the site: <https://www.jpost.com/archaeology/weizmann-scientists-date-santorini-eruption-with-modern-olive-branch-655162> [Go there for pix]

HOW WE DISCOVERED THE NUMBER ZERO, BY NATHANIEL SCHARPING

Zero as a concept was something that didn't always exist in human cultures. We had to find it for ourselves — more than once.

Of all the numbers that exist, there's something special about zero.

We can find real-world examples of other numbers, be it \$1, 99 red balloons, 100 years of solitude or any other thing we care to tabulate. But it's difficult to find examples of nothingness — even the supposed vacuum of space is disturbed by faint gusts of hydrogen atoms.

Perhaps that's why zero is a fairly recent invention. While it popped up in different forms in various places, the concept of nothing as a number is just a few thousand years old, at the most. And sometimes it never seems to have existed at all. Both the Egyptians and Romans didn't appear to use zero.

Nonetheless, zero is quite important to us today. The concept plays a foundational role in calculus, as we calculate derivatives converging upon zero. It's also used in coordinate systems on graphs, which begin at the point (0, 0).

Ancient civilizations found use in zero as well, first as a component of numerical systems and later as a mathematical tool. The Sumerians are thought to be the first to have recognized the idea of nothing (although not until later did they come up with a symbol for zero).

The Maya, likewise, developed the idea of zero independently. The concept of nothingness later traveled from the Middle East to India, China and elsewhere.

European civilizations were fairly late to the nothing game, incorporating zero into their cultures only after the mathematician Fibonacci brought the Indo-Arabic numeral system to Europe after travels in the Middle East and Africa. There, as elsewhere, zero would prove to be a revolutionary concept, inspiring thinkers of the Middle Ages and Renaissance to fundamental insights about mathematics and the world.

Counting to Nothing

The discovery of zero doesn't seem to have come all at once, but rather in stages. Scholars think it began with the concept of nothing as a placeholder while counting. This is how the Babylonians employed zeros some 4,000 years ago. When counting, they divided their numbers into columns, much as we do today, a concept called positional notation. For us, the number 115 has three columns with place values — ones, tens and hundreds. There's a five in the ones column, a 10 in the tens column and a one in the hundreds column. To write, say, 105, we need to show that there's nothing in the tens column, something accomplished with a zero today.

Though the Babylonians used a different number system than we did, they counted in much the same way using positional notation. When they needed to show that a column had nothing in it, the Babylonians came up with the idea of simply leaving a space there

— nothing in the truest sense. It's our first real example of an acknowledgment of the concept of nothing.

Over 1,000 years later, under the Seleucid Empire, the Babylonians appear to have begun using glyphs shaped like wedges in place of spaces — some of the first graphical representations of zero. But, even so, the Babylonians don't seem to have extended their concept of zero to include it as an actual number. A stone tablet of mathematical sums, for example, includes the calculation "20 - 20," but leaves the answer blank — an undefined sum.

The Maya applied zero in much the same way. When writing dates, they needed a means of putting a zero in columns when appropriate. For example, the date that corresponds to the beginning of what they believed was the world's current era was written 13.0.0.0 in Maya notation and corresponded to 3114 B.C. Because the Maya had no contact with Eurasia until long after these glyphs were written, it's clear that the Maya invented the concept of zero independently.

The Maya appear to have used several different glyphs for zero, though a shell was most common. The shell glyph also appears to have been used to indicate the concept of nothing more generally. A translated verse in Maya text mourning a fallen leader, reads, in part, "no pyramid, no altar, no earth/cave." The same shell glyph that stands for zero in their number system appears here in a more abstract sense, signifying nothing.

Zero on the Move

From Babylon, zero began to spread slowly to other regions of the world. It turns up in Greece around the fourth century B.C., probably brought back by Alexander the Great after he conquered the Babylonian Empire in 331 B.C. Here, we begin to see traces of the modern oval that we use today to represent zero. Greek astronomers like Ptolemy made use of a hollow circle when calculating trigonometric figures, often adding a bar or line across the top. This, argues Robert Kaplan in his book *The Nothing That Is: A Natural History of Zero*, indicates they probably thought of zero as something closer to a punctuation mark between real numbers, rather than a number in and of itself.

For a true appreciation of zero's place in the number line, we must venture to India. There, researchers see the first solid evidence of zero, called "sunya" by the Indians, being used in mathematical calculations. It's a sign that mathematicians there conceived of zero as a unique numerical entity. Likely the first to make this logical leap was a man named Brahmagupta, a foundational figure in Indian mathematics. In his mathematical treatise *Brahmasphutasiddhanta*, written in A.D. 628, Brahmagupta provides rules for doing calculations with zero that mirror what we understand today.

"When zero is added to a number or subtracted from a number, the number remains unchanged; and a number multiplied by zero becomes zero," he writes.

This represents a profound logical leap, argues neuroscientist Andreas Nieder in a 2016 paper.

“For a brain that has evolved to process sensory stimuli (something), conceiving of empty sets (nothing) as a meaningful category requires high-level abstraction. It requires the ability to represent a concept beyond what is perceived,” he writes.

The true origins of zero are still a subject of debate among historians and mathematicians. For example, the number zero may have shown up in what's now Cambodia even earlier than in India, argues Amir Aczel. The mathematician undertook a years-long search for the origins of zero, ending up in a shed near the ancient city of Angkor Wat. There, a tablet dated to the seventh century A.D. bears what he argues is the first real zero. As he writes in *Finding Zero: A Mathematician's Odyssey to Uncover the Origins of Numbers*, that would move the first true zero from India to Cambodia, and push back our timeline of the number by about 200 years.

Wherever it was first discovered, our present-day zero — the one we write with a hollow oval — didn't make it to the Western world until the 13th century. That's when Fibonacci, best known today for an eponymous number set, introduced Europe to the Indo-Arabic zero in his text *Liber Abaci*. The book, published in 1202, brought our modern number system to the continent, including its foundational zero. The numbers caught on, and mathematicians carried the zero into the Renaissance and beyond.

In Europe, as wherever else zero was discovered or introduced, it appears that the number never fell out of fashion. Once nothing appears, it's there to stay.

Please visit the site: <https://www.discovermagazine.com/planet-earth/how-we-discovered-the-number-zero>

NEW FINDINGS UNCOVERED AT 8,000- YEAR-OLD AMIDA MOUND IN TURKEY'S DIYARBAKIR

Ceramics from the Neolithic, Roman and Islamic periods have been discovered during excavations at the site in Diyarbakir, southeastern Turkey.

The latest archeological excavations at the historical site of Amida Mound in southeastern Turkey's Diyarbakir province have revealed new findings that shed light on the history of the region. Professor Irfan Yıldız, head of the archeological team, believes with the help of new prehistoric discoveries, the mound will attract more visitors to the heart of Diyarbakir.

Archeological work at the Amida Mound has been ongoing since 2018 with several exciting new findings made in the last two years.

Yıldız, speaking to Anadolu Agency (AA), said that the historical Sur district, where the mound is located, was home to many ancient civilizations, including the Hurrians and Mitannis, Urartians, Assyrians, Persians, Romans, Umayyads, Abbasids, Artuqids, Seljuks, and the Ottomans.

The latest excavations at the site were recently completed, with archaeologists unearthing several movable cultural heritage assets from various periods of history, dating back as far as 8,000 years.

Previous archeological work had revealed water channels and the earliest-known heating system in history, which were believed to be 1,800 years old, along with 1,700-year-old burial chambers. Recent digs have added several cultural assets to that growing historical catalog.

Yıldız noted that both last year's and this year's excavations discovered coins bearing a double-headed eagle figure, which was the coat of arms of Nasir ud din Mahmud, the eighth sultan of Mamluk Sultanate which built several historical structures in Diyarbakir, including the Artuqid Palace.

"Last year we found a coin minted by Nasir ud din Mahmud in Diyarbakir. This year, we unearthed three more coins. The fact that these coins were minted in Amid shows how highly the site was regarded by the Artuqids," Yıldız said. He explained how the coins shed new light on the history of the region.

"From the coins, we understand that the Artuqids of Hasankeyf and Amid were subjects of Ayyubids, as the name of Ayyubid ruler Malik al-Adil Abu-Bakr was inscribed on the coins. We have unearthed many Islamic era coins, particularly from the Aq Qoyunlu and Ayyubid periods, along with one from Ottoman and another from Republic times. These coins carry significant historical importance."

Other than coins, several historical ceramic objects have been found at the Amida Mound site.

“Ceramics, ranging from the late Neolithic period, early Chalcolithic period, Bronze Age, Iron Age all the way to the Roman and Islamic periods have been discovered during the latest excavations. We have found Artuqid ceramic pieces adorned with figures for the first time,” Yıldız said.

These go to show that “it (the Amida Mound) is one of the rare sites in the world where settled life has continued, uninterrupted, for 8,000 years,” he added, calling for more support for archeological work.

The findings have been transferred to the Diyarbakır Archeological Museum for further examination.

Please visit the site: <https://www.dailysabah.com/life/history/new-findings-uncovered-at-8000-year-old-amida-mound-in-turkeys-diyarbakir> [Go there for pix]

ANCIENT GREEK STATUES DISCOVERED NEAR ATHENS AIRPORT

During recent excavations near Athens International Airport, east of the capital, two ancient Greek statues of female figures were uncovered from inside a white burial monument.

The announcement was made by Greece's Culture and Sports Ministry on Sunday.

The grave column was unearthed during routine excavations in the area where construction works to construct the new Town Hall Municipality of Paiania will commence.

The two women in the fragmented sculpture are facing each other: On the right, the woman who is wearing a transparent robe is seated on an elegant seat with her feet resting on a footstool. On the left, in front of her, stands her servant supporting her head on her left hand in sorrow.

The theme of the performance is typical in tomb reliefs dating back to the 4th century BC.

Similar grave columns have been found in the Holy Temple of Agia Paraskevi in Markopoulo as well as the Archaeological Site of Kerameikos.

The item was transferred for safekeeping and maintenance to the nearby Archeological Museum of Vravrona.

The excavation is continuing and other fragments are likely to be found.

Please visit the site: <https://www.tornosnews.gr/en/greek-news/culture/43059-ancient-greek-statues-discovered-near-athens-airport.html> [Go there for pix]

ANCIENT MARKETPLACE IN TIBERIAS MAY HAVE BEEN ONE OF ISLAM'S FIRST MOSQUES, BY SARAH BEN-NUN

The excavations estimate that what was unearthed underneath the structure — the outer layer of a mosque — might actually date back to 635 CE, constructed by a friend of the Prophet Muhammad.

The outer layer of a mosque discovered in excavation in Tiberias, has been dated to the seventh century CE, according to a presentation last week of archaeological findings from the site. The dating of the layer may deem the mosque one of the first known mosques to have been built after the beginning of Islam.

Dr. Katia Cytryn-Silverman, who led the 11-year-long excavations at the site on the outskirts of Tiberias, is a senior lecturer at the Hebrew University of Jerusalem and presented the findings last week during an academic conference with Hebrew University and the Ben-Zvi Institute. The conference was organized in commemoration of Tiberias's 2,000th anniversary, according to Haaretz.

Cytryn-Silverman, who specializes in Islamic archaeology, said that the early Islamic period layer could make the structure one of the first known mosques.

The excavations estimate that what was unearthed underneath the structure — the outer layer of a mosque — might actually date back to 635 CE, and potentially constructed by a friend of the Prophet Muhammad — Shurahbil ibn Hasana — when the Levant was conquered by his forces in the seventh century, noted Arab News.

Cytryn-Silverman said that they cannot be sure that ibn Hasana built the structure. "But," she added, "we do have historic sources that say he established a mosque in Tiberias when he conquered it in 635," Arab News reported.

Cytryn-Silverman explained that after the Arab conquest, Tiberias became a center of economic and political growth for the Arab world, Haaretz reported.

Arab News noted further that historians do know where a lot of the earliest mosques are, but cannot access them since contemporary mosques have been constructed over the original site.

For example, Haaretz noted, one of the oldest mosques in the world is in Fustat, Egypt. Fustat was Egypt's first Muslim capital, established in the seventh century. The mosque, Mosque of Amr, was the first to be built in Egypt.

Jewish presence in Fustat is dated to the late seventh century, as they joined the various other groups in the developing city.

Maimonides moved there in 1166, where he gained the title Ra'is al-Umma or al-Millah (Head of the Nation or of the Faith) for writing his Guide for the Perplexed, and was an acclaimed physician.

Please visit the site: <https://www.jpost.com/archaeology/ancient-marketplace-turned-mosque-uncovered-near-tiberias-656502>

EGYPT ANNOUNCES FIRST MAJOR ARCHEOLOGICAL DISCOVERY OF 2021, BY ALAA OMRAN

The latest archeological discovery at Cairo's Saqqara necropolis includes coffins dating back some 3,000 years, a funerary temple and other treasures.

CAIRO — Egypt recently uncovered a significant archaeological discovery that sheds light on secrets in the Saqqara necropolis south of Cairo and on the 18th and 19th Egyptian dynasties.

The unearthed artifacts are a major find that could turn the ancient burial site into a major tourist and cultural destination and revise our understanding of region during the New Kingdom era under King Teti, the first pharaoh of Egypt's Sixth Dynasty. The burial sites being excavated are around his pyramid.

Prominent archeologist Zahi Hawass told reporters at the Saqqara site on Jan. 17 that the joint Egyptian mission of researchers from the Supreme Council of Antiquities and the Zahi Hawass Institute of Egyptology, unearthed the funerary temple of Queen Nearti, the wife of King Teti, near the pyramid of her husband.

The mission also found plans for the temple's construction and three warehouse-like structures built of mud bricks in the southeast side of the funerary temple, used for storing ritual offerings to the deities.

In addition, 52 burial wells were found, with depths ranging from 10 to 12 meters and containing more than 50 wooden coffins dating back some 3,000 years during the New Kingdom period — a discovery unprecedented in the Saqqara area.

The sarcophagi are carved into human form and bear paintings of several gods as well as funerary writings from the Book of the Dead, which is said to be a guide for the deceased in their journey to the other world.

Several other artifacts were also found inside the wells, including statues of deities such as the gods Osiris, Ptah and Seker.

The archeological mission also unearthed a papyrus four meters long and one meter wide, bearing excerpts from the Book of the Dead and the signature of its owner, Bu-Khaa-Af.

This same name was found on four Ushabti funerary statues. A wooden coffin carved in human form was also found, in addition to other Ushabti statues made of wood and tin-glazed pottery from the New Kingdom era.

A set of wooden masks and a shrine to Anubis, a god of the afterlife, were also uncovered, as well as statues of Anubis found in good condition. Several games left for

the dead were also unearthed such as senet, which is very similar to today's chess, and as set for the Game of Twenty Squares bearing the name of its owner.

Other artifacts included depictions of geese as well as a bronze ax, indicating that its owner was one of the leaders of the army during the New Kingdom era, and paintings depicting scenes of the deceased and their wives and bearing hieroglyphics.

One limestone panel in good condition depicts a man identified as Khu-Ptah and his wife Mut-am-waya. One part of the painting shows the couple worshiping the god Osiris, while the lower part depicts the man seated and his wife sitting behind him with their daughters, one at her mother's feet holding a lotus flower to her nose.

Hawass said that the excavation works continue and new archeological discoveries can be expected as many of Saqqara's antiquities have not been unveiled.

Sabri Farag, director of the Saqqara archaeological site, told Al-Monitor that the latest discovery is a very important one in the Saqqara necropolis and that the excavation mission is ongoing. He said, "Saqqara has not revealed all its many secrets yet," adding that the mission uncovered eight archeological finds in 2020 and this new one already in 2021. He said that more discoveries can be expected over the course of the year.

Waad Abu al-Al, director of projects at the Egyptian Ministry of Tourism and Antiquities, told Al-Monitor that restoration works are underway in the southern cemetery of King Djoser to open the necropolis for tourists.

"Excavations works in the ancient site are also ongoing and once they're completed, Saqqara will take its place on the world's tourist map," he said.

Please visit the site: <https://www.al-monitor.com/pulse/originals/2021/01/egypt-saqqara-major-archeology-discovery-tourism.html#ixzz6kaqFCaJd> [Go there for pix]

HOW EGYPT PLANS TO EXCAVATE ANTIQUITIES SUBMERGED UNDER ALEXANDRIA WATERS, BY KHALID HASSAN

Alexandria University launched a new project to excavate and preserve underwater artifacts, in a bid to revive tourism and protect Egypt's underwater heritage.

Alexandria University inaugurated Jan. 1 a new project dubbed “Underwater Heritage” aimed at excavating underwater artifacts in the eastern port of Alexandria in the northern coast of Egypt. The project is led by Emad Khalil, director of the Alexandria Center for Maritime Archaeology and Underwater Cultural Heritage, and carried out in collaboration with the Egyptian National Commission for UNESCO and a number of European partners in support of the project.

President of Alexandria University Abdul Aziz Qanswa said in a statement Jan. 1 that this project will ensure that Egypt's underwater heritage is not lost, describing the project as a qualitative leap in the tourism sector given the treasures and antiquities dating back thousands of years.

Speaking to Al-Monitor, Ehab Fahmy, head of the Underwater Antiquities Central Department at the Ministry of Antiquities, said that there are underwater treasures under the eastern port of Alexandria, namely the Royal Quarters dating back to the Ptolemaic period, including royal ports and columns from the palaces during that period. The eastern port stretches over an area starting at the Silsila promontory to the east toward the Citadel of Qaitbay to the west.

Fahmy believes more antiquities will be excavated through the project, which will also guarantee their preservation. He said, “The Alexandria governorate is floating on submerged priceless antiquities, and the excavation works are designed to show how great the Egyptian civilization is and tell the world about such a human heritage, which is not only the property of Egypt but that of humanity.”

Alexandria is well known for its archaeological sites where thousands of artifacts are submerged underwater, most notably the ancient Citadel of Qaitbay that covers an area of 22,500 square meters and houses more than 3,000 artifacts dating back to the Greek and Roman civilizations. Also in the Egyptian port city lies the Pharos (Lighthouse) of Alexandria, which is one of the Seven Wonders of the World.

Fahmy said that his department at the Ministry of Antiquities has paid great attention to underwater antiquities lately, by holding excavation skills training workshops to the workers and by involving international organizations in the excavation and restoration activities.

In 2001, Egypt signed the UNESCO Convention on the Protection of the Underwater Cultural Heritage. The convention involves preserving the submerged cultural heritage for at least 100 years, and preventing theft or illegal practices.

On Jan. 20, 2020, the Central Department of Underwater Antiquities in Alexandria launched a training seminar for its employees on the most up-to-date methods for underwater archaeological excavation based on the latest studies in this regard.

The Ministry of Antiquities inaugurated May 6, 2020, the Antiquity and Information Initiative to raise awareness of the antiquities and introduce the Alexandria underwater cultural heritage to Egyptians and foreigners. The initiative involved weekly news published in Arabic, French and English about underwater sites, along with photos of those items recovered from the sites or those that are still submerged.

Fahmy said, “We are in constant need to cooperate with our European partners and international organizations to excavate submerged antiquities in particular, given that the excavation activities are extremely difficult, unlike the excavation of antiquities on the ground. The excavation of submerged antiquities is carried out in three stages. First, a team of specialists from the Ministry [of Antiquities] searches for antiquities using specific devices to identify how deep they are and their exact position. Second, divers extract antiquities from under the water, and this is an extremely difficult process given the time and effort required from the divers.

The third stage involves the maintenance and cleaning of antiquities from water and salt, before their restoration and repair.”

He added, “After the completion of this project, we aim for additional exhibitions of submerged antiquities abroad in order to introduce this human heritage to the world, until the plan [to build] an underwater antiquities museum materializes.”

In 2015, the Ministry of Antiquities had announced a plan to build an underwater antiquities museum at a cost of \$150 million. If achieved, the museum would be the first underwater museum for ancient Egyptian civilization in the world. The plan has yet to be implemented.

Monica Hanna, archaeologist and founder of Egypt's Heritage Task Force, told Al-Monitor that the idea of setting up an underwater antiquities museum was part of an attempt to protect this heritage from looting. Yet the ministry's poor resources and limited capabilities prevented its implementation over the past years.

In March 2020, Egypt's parliament ratified a bill submitted by the government to amend Antiquities Protection Law No. 117 of 1983. The amendments stipulate that whoever acquires or sells an antiquity or part of it outside Egypt shall be fined with no less than 1 million Egyptian pounds (\$63,850).

According to members of parliament, the amendments aim to protect Egypt's antiquities under the law and to end all disastrous and unlawful acts of stealing, trafficking, sabotaging and destruction.

On July 29, 2020, a number of divers in Hurghada discovered a ship in the Red Sea that had sunk decades ago; it had been cut in parts and the ship's contents had been removed.

Hanna said, “There is a clear tendency at the ministry to exploit this heritage to promote tourism, with Egyptian submerged antiquities displayed abroad. The ministry’s interest in this regard will reflect positively on the Egyptian economic situation.”

An exhibition dubbed “Treasures of Ancient Egypt: Sunken Cities” was inaugurated July 3, 2020, at the Virginia Museum of Fine Arts in Richmond, Virginia. The exhibition displayed 293 artifacts recovered from the sunken cities of Heracleion and Canopus in the eastern port of Alexandria and Abu Qir port, including large statues of the goddess of Isis, Serapis as well as statues of the Sphinx.

Please visit the site: <https://www.al-monitor.com/pulse/originals/2021/01/egypt-alexandria-underwater-antiquities-preserve-heritage.html#ixzz6kITAtLx7>

PREHISTORIC ASHDODITES USED CHOPPING TOOLS TO EAT BONE MARROW – STUDY, BY ROSSELLA TERCATIN

Hundreds of thousands of years ago, the ancient humans living in the area of modern Ashdod used a specific type of stone tools to break animal bones and extract the bone marrow.

Hundreds of thousands of years ago, the ancient humans living in the area of modern Ashdod used a specific type of stone tools to break animal bones and extract the bone marrow, a new study has found. And, most likely, they were not the only ones.

Known as “chopping tools,” flint pebbles with one flaked, sharp and massive edge are among the earliest artifacts ever produced. They appeared as early as 2.5 million years ago.

“The chopping tool was invented in Africa about 2.6 million years ago, and then migrated with humans wherever they went over the next two million years,” Prof. Ran Barkai of the Sonia and Marco Nadler Institute of Archaeology at Tel Aviv University explained in a press release. “Large quantities of these tools have been found at almost every prehistoric site throughout the Old World – in Africa, Europe, the Middle East and even China – evidence for their great importance.

However, until now, they had never been subjected to methodical lab testing to find out what they were actually used for.”

Barkai conducted the study with his TAU colleague Dr. Aviad Agam, together with Dr. Flavia Venditti from the University of Tübingen and in collaboration with the Laboratory of Technological and Functional Analyses of Prehistoric Artifacts from Sapienza, University of Rome, which also sent researchers.

“For years we have been studying stone tools from prehistoric sites in Israel, in order to understand their functions,” Barkai added. “One important source of tools is Revadim, an open-air site (as opposed to a cave) dating back to 500,000-300,000 years before our time, and rich with remarkably well-preserved findings.”

Located east of Ashdod, Revadim offered highly favorable conditions to ancient humans and was settled over and over again over the millennia.

Researchers have unearthed many artifacts at the site, as well as bones of many types of game, such as elephants, cattle, deer, gazelles and others.

For this study, whose findings were published in the journal PLOS ONE on Wednesday, the team examined 53 samples of chopping tools, including the use-wear traces and the organic residues they carried.

The scholars also manufactured replicas of the tools using flint collected in the area and employed them to break bones of middle-size animals.

According to the scientists, the chopping tools represented a multipurpose toolkit, which can be compared to toolkits of modern tradesmen.

Extracting bone marrow requires breaking the bone with a high degree of precision in order to avoid damaging the marrow, a staple in the prehistoric humans' diet in light of its nutritiousness, they pointed out.

“The chopping tool, which we examined in this study, was evidently outstandingly popular, because it was easy to make, and highly effective for this purpose,” Barkai explained.

“This is apparently the reason for its enormous distribution over such a long period of time,” he concluded. “The present study has expanded our knowledge of the toolkit of early humans – one more step toward understanding their way of life, tracking their migrations, and unraveling the secrets of human evolution.”

Please visit the site: <https://www.jpost.com/archaeology/prehistoric-ashdodites-used-chopping-tools-to-eat-bone-marrow-study-656035>

WHAT NEW SCIENCE TECHNIQUES TELLS US ABOUT ANCIENT WOMEN WARRIORS - RECENT STUDIES SHOW THAT MAN WAS NOT ALWAYS THE HUNTER, BY ANNALEE NEWITZ

Though it's remarkable that the United States finally is about to have a female vice president, let's stop calling it an unprecedented achievement. As some recent archaeological studies suggest, women have been leaders, warriors and hunters for thousands of years. This new scholarship is challenging long-held beliefs about so-called natural gender roles in ancient history, inviting us to reconsider how we think about women's work today.

In November a group of anthropologists and other researchers published a paper in the academic journal *Science Advances* about the remains of a 9,000-year-old big-game hunter buried in the Andes. Like other hunters of the period, this person was buried with a specialized tool kit associated with stalking large game, including projectile points, scrapers for tanning hides and a tool that looked like a knife. There was nothing particularly unusual about the body — though the leg bones seemed a little slim for an adult male hunter. But when scientists analyzed the tooth enamel using a method borrowed from forensics that reveals whether a person carries the male or female version of a protein called amelogenin, the hunter turned out to be female.

With that information in hand, the researchers re-examined evidence from 107 other graves in the Americas from roughly the same period.

They were startled to discover that out of 26 graves with hunter tools, 10 belonged to women. Bonnie Pitblado, an archaeologist at the University of Oklahoma, Norman, told *Science* magazine that the findings indicate that “women have always been able to hunt and have in fact hunted.” The new data calls into question an influential dogma in the field of archaeology. Nicknamed “man the hunter,” this is the notion that men and women in ancient societies had strictly defined roles: Men hunted, and women gathered. Now, this theory may be crumbling.

While the Andean finding was noteworthy, this was not the first female hunter or warrior to be found by re-examining old archaeological evidence using fresh scientific techniques. Nor was this sort of discovery confined to one group, or one part of the world.

Three years ago, scientists re-examined the remains of a 10th-century Viking warrior excavated in Sweden at the end of the 19th century by Hjalmar Stolpe, an archaeologist. The skeleton had been regally buried at the top of a hill, with a sword, two shields, arrows and two horses. For decades, beginning with the original excavation, archaeologists assumed the Viking was a man. When researchers in the 1970s conducted a new anatomical evaluation of the skeleton, they began to suspect that the Viking was in fact a woman. But it wasn't until 2017, when a group of Swedish archaeologists and

geneticists extracted DNA from the remains, that the sex of the warrior indeed proved to be female.

The finding led to controversy over whether the skeleton was really a warrior, with scholars and pundits protesting what they called revisionist history. Although the genetic sex determination thus was indisputable (the bones of the skeleton had two X chromosomes), these criticisms led the Swedish researchers to examine the evidence yet again, and present a second, more contextual analysis in 2019. Their conclusion again was that the person had been a warrior.

The naysayers raised fair points. In archaeology, as the researchers admitted, we can't always know why a community buried someone with particular objects. And one female warrior does not mean that many women were leaders, just as the reign of Queen Elizabeth I was not part of a larger feminist movement.

Challenges to “man the hunter” have emerged in new examinations of the early cultures of the Americas as well. In the 1960s, an archaeological dig uncovered in the ancient city of Cahokia, in what is now southwestern Illinois, a 1,000-to-1,200-year-old burial site with two central bodies, one on top of the other, surrounded by other skeletons. The burial was full of shell beads, projectile points and other luxury items. At the time, the archaeologists concluded that this was a burial of two high-status males flanked by their servants.

But in 2016 archaeologists conducted a fresh examination of the grave.

The two central figures, it turned out, were a male and a female; they were surrounded by other male-female pairs. Thomas Emerson, who conducted the study with colleagues from the Illinois State Archaeological Survey at the University of Illinois, alongside scientists from other institutions, said the Cahokia discovery demonstrated the existence of male and female nobility. “We don't have a system in which males are these dominant figures and females are playing bit parts,” as he put it.

Armchair history buffs love to obsess about mythical societies dominated by female warriors, like Amazons and Valkyries. Let's be clear. These findings don't reveal an ancient matriarchy. But neither do they reaffirm the idea of societies in which men dominate completely. What they indicate is a lot more mundane and relatable:

Some women were warriors and leaders; many weren't. There was inequality, but it wasn't absolute, and there were a lot of shifts over time. When it comes to female power, and gender roles, the past was as ambiguous as the present.

Annalee Newitz (@annaleen), a science journalist and a contributing Opinion writer, is the author of the forthcoming “Four Lost Cities: A Secret History of the Urban Age.”

Please visit the site: <https://www.nytimes.com/2021/01/01/opinion/women-hunter-leader.html>

PUPPY PRINTS AND WALL ILLUSIONS FOUND IN 1,500-YEAR-OLD HOUSE IN TURKEY, BY OWEN JARUS

Archaeologists have discovered a fantastical-looking, 1,500-year-old house in Turkey that was decorated with illusory wall paintings and terracotta tiles on the floor with puppy prints and possible chicken decorations pressed into them.

The house may have been used by people involved with the military, the researchers noted.

"The tiles preserved the paw prints of puppies and in one rare case the hoof print of a goat," Frances Gallart Marqués, a former curatorial fellow at the Harvard Art Museums, said Jan. 6 during a presentation at the virtual joint annual meeting of the Archaeological Institute of America (AIA) and the Society for Classical Studies (SCS).

The animals likely walked on the tiles while they were drying out prior to firing, the researchers said. Drawings depicting what may be chickens or ducks were also found on the floor tiles; "these were finger-drawn before the tiles were fired," Gallart Marqués said.

If the floor tiles were left visible, and not covered up by a carpet, the paw prints and possible chicken decorations would have gone well with the "fanciful" style of the house's wall paintings, the researchers told Live Science. The wall paintings are painted on plaster and mimic draped curtains and polychrome marble, Vanessa Rousseau, an adjunct professor of art history at the University of St. Thomas in St. Paul, Minnesota, said at the virtual meeting.

The mix of colors and illusions in the paintings combined with the possible chicken decorations on the floor as well as light coming through the windows may have created a fantastic look. One could imagine being "surrounded by the somewhat surreal fakery of painted marble and drapery" with light coming through the windows and "shining on those birds' marks on the terracotta floor," Rousseau said during her presentation.

While the paintings and puppy prints may be playful, five longswords found in the house raise the question as to whether the inhabitants were involved in warfare. The longswords are "spathae," which are straight swords used by the ancient Romans whose length was usually greater than 20 inches (50 centimeters).

Given that only three other swords of any kind have been found in the excavated parts of Sardis, the discovery of five longswords in this one house is remarkable, the researchers told Live Science. In addition to the longswords, archaeologists also found buckles with designs that suggest they were worn by members of the military, and a lead seal that could have been used to stamp official documents. These finds, together with the house's central location in Sardis, suggest the people in the house were part of the city's military or civil authority, the researchers said.

The house was in use for more than 200 years before an earthquake destroyed it during the early seventh century. Excavation by the Sardis Expedition of Harvard University is being conducted with the permission of the Turkish government, and is directed by Professor Nicholas Cahill of the University of Wisconsin–Madison.

Please visit the site: <https://www.livescience.com/ancient-house-turkey-puppy-prints.html> [Go there for pix and caps]

WHO INVENTED THE ALPHABET?

BY LYDIA WILSON

New scholarship points to a paradox of historic scope: Our writing system was devised by people who couldn't read

Centuries before Moses wandered in the “great and terrible wilderness” of the Sinai Peninsula, this triangle of desert wedged between Africa and Asia attracted speculators, drawn by rich mineral deposits hidden in the rocks. And it was on one of these expeditions, around 4,000 years ago, that some mysterious person or group took a bold step that, in retrospect, was truly revolutionary. Scratched on the wall of a mine is the very first attempt at something we use every day: the alphabet.

The evidence, which continues to be examined and reinterpreted 116 years after its discovery, is on a windswept plateau in Egypt called Serabit el-Khadim, a remote spot even by Sinai standards. Yet it wasn't too difficult for even ancient Egyptians to reach, as the presence of a temple right at the top shows. When I visited in 2019, I looked out over the desolate, beautiful landscape from the summit and realized I was seeing the same view the inventors of the alphabet had seen every day. The temple is built into the living rock, dedicated to Hathor, the goddess of turquoise (among many other things); stelae chiseled with hieroglyphs line the paths to the shrine, where archaeological evidence indicates there was once an extensive temple complex. A mile or so southwest of the temple is the source of all ancient interest in this area: embedded in the rock are nodules of turquoise, a stone that symbolized rebirth, a vital motif in Egyptian culture and the color that decorated the walls of their lavish tombs.

Turquoise is why Egyptian elites sent expeditions from the mainland here, a project that began around 2,800 B.C. and lasted for over a thousand years. Expeditions made offerings to Hathor in hopes of a rich haul to take home.

In 1905, a couple of Egyptologists, Sir William and Hilda Flinders Petrie, who were married, first excavated the temple, documenting thousands of votive offerings there. The pair also discovered curious signs on the side of a mine, and began to notice them elsewhere, on walls and small statues. Some signs were clearly related to hieroglyphs, yet they were simpler than the beautiful pictorial Egyptian script on the temple walls. The Petries recognized the signs as an alphabet, though decoding the letters would take another decade, and tracing the source of the invention far longer.

The Flinders Petries brought many of the prizes they had unearthed back to London, including a small, red sandstone sphinx with the same handful of letters on its side as those seen in the mines. After ten years of studying the inscriptions, in 1916 the Egyptologist Sir Alan Gardiner published his transcription of the letters and their translation: An inscription on the little sphinx, written in a Semitic dialect, read “Beloved of Ba'alat,” referring to the Canaanite goddess, consort of Ba'al, the powerful Canaanite god.

“For me, it's worth all the gold in Egypt,” the Israeli Egyptologist Orly Goldwasser said of this little sphinx when we viewed it at the British Museum in late 2018. She had come

to London to be interviewed for a BBC documentary about the history of writing. In the high-ceilinged Egypt and Sudan study room lined with bookcases, separated from the crowds in the public galleries by locked doors and iron staircases, a curator brought the sphinx out of its basket and placed it on a table, where Goldwasser and I marveled at it. “Every word we read and write started with him and his friends.” She explained how miners on Sinai would have gone about transforming a hieroglyph into a letter: “Call the picture by name, pick up only the first sound and discard the picture from your mind.” Thus, the hieroglyph for an ox, aleph, helped give a shape to the letter “a,” while the alphabet’s inventors derived “b” from the hieroglyph for “house,” bêt. These first two signs came to form the name of the system itself: alphabet. Some letters were borrowed from hieroglyphs, others drawn from life, until all the sounds of the language they spoke could be represented in written form.

The temple complex detailed evidence of the people who worked on these Egyptian turquoise excavations in the Sinai. The stelae that line the paths record each expedition, including the names and jobs of every person working on the site. The bureaucratic nature of Egyptian society yields, today, a clear picture of the immigrant labor that flocked to Egypt seeking work four millennia ago. As Goldwasser puts it, Egypt was “the America of the old world.” We can read about this arrangement in Genesis, when Jacob, “who dwelt in the land of Canaan”—that is, along the Levant coast, east of Egypt—traveled to Egypt to seek his fortune. Along with shepherds like Jacob, other Canaanites ended up mining for the Egyptian elites in Serabit, some 210 miles southeast by land from Memphis, the seat of pharaonic power.

Religious ritual played a central role in inspiring foreign workers to learn to write. After a day’s work was done, Canaanite workers would have observed their Egyptian counterparts’ rituals in the beautiful temple complex to Hathor, and they would have marveled at the thousands of hieroglyphs used to dedicate gifts to the goddess. In Goldwasser’s account, they were not daunted by being unable to read the hieroglyphs around them; instead, they began writing things their own way, inventing a simpler, more versatile system to offer their own religious invocations.

The alphabet remained on the cultural periphery of the Mediterranean until six centuries or more after its invention, seen only in words scratched on objects found across the Middle East, such as daggers and pottery, not in any bureaucracy or literature. But then, around 1200 B.C., came huge political upheavals, known as the late Bronze Age collapse. The major empires of the near east—the Mycenaean Empire in Greece, the Hittite Empire in Turkey and the ancient Egyptian Empire—all disintegrated amid internal civil strife, invasions and droughts. With the emergence of smaller city-states, local leaders began to use local languages to govern. In the land of Canaan, these were Semitic dialects, written down using alphabets derived from the Sinai mines.

These Canaanite city-states flourished, and a bustling sea trade spread their alphabet along with their wares. Variations of the alphabet—now known as Phoenician, from the Greek word for the Canaanite region—have been found from Turkey to Spain, and survive until today in the form of the letters used and passed on by the Greeks and the Romans.

In the century since the discovery of those first scratched letters in the Sinai mines, the reigning academic consensus has been that highly educated people must have created the

alphabet. But Goldwasser's research is upending that notion. She suggests that it was actually a group of illiterate Canaanite miners who made the breakthrough, unversed in hieroglyphs and unable to speak Egyptian but inspired by the pictorial writing they saw around them. In this view, one of civilization's most profound and most revolutionary intellectual creations came not from an educated elite but from illiterate laborers, who usually get written out of history.

Pierre Tallet, former president of the French Society of Egyptology, supports Goldwasser's theory: "Of course [the theory] makes sense, as it is clear that whoever wrote these inscriptions in the Sinai did not know hieroglyphs," he told me. "And the words they are writing are in a Semitic language, so they must have been Canaanites, who we know were there from the Egyptians' own written record here in the temple."

There are doubters, though. Christopher Rollston, a Hebrew scholar at George Washington University, argues that the mysterious writers likely knew hieroglyphs. "It would be improbable that illiterate miners were capable of, or responsible for, the invention of the alphabet," he says. But this objection seems less persuasive than Goldwasser's account—if Egyptian scribes invented the alphabet, why did it promptly disappear from their literature for roughly 600 years?

Besides, as Goldwasser points out, the close connection between pictograms and text would seem to be evident all around us, even in our hyper-literate age, in the form of emojis. She uses emojis liberally in her emails and text messages, and has argued that they fulfill a social need the ancient Egyptians would have understood.

"Emojis actually brought modern society something important: We feel the loss of images, we long for them, and with emojis we have brought a little bit of the ancient Egyptian games into our lives."

Please visit the site: <https://www.smithsonianmag.com/history/inventing-alphabet-180976520/> [Go there for nice pix]

MINOAN LANGUAGE LINEAR A LINKED TO LINEAR B IN GROUNDBREAKING NEW RESEARCH, BY PATRICIA CLAU

The Minoan language known as “Linear A” may finally be deciphered with the help of the internet, which can be used to uncover previously-hidden links to the much-better understood Linear B language, which developed later in the prehistoric period.

The puzzle of Linear A has tormented linguists for many decades, as they attempted to link it somehow to Linear B, which was translated successfully for the first time in the 1950s. Linear B was used on the Greek mainland and Crete 50-150 years later than Linear A.

Understanding the link between them and decoding the secrets of Linear A would allow experts to paint a much more complete picture of Minoan civilization going back as far as 1,800 BC.

Linear A, which was used by the Minoans during the Bronze Age, exists on at least 1,400 known inscriptions made on clay tablets. The language has baffled the world’s top archaeologists and linguistic experts for many years.

But thanks to the pioneering work of Dr. Ester Salgarella, a Junior Research Fellow in Classics at St John’s College, Cambridge, understanding the Minoans’ most ancient language, used during the period of their civilization’s highest flourishing, may be at hand.

One of the hand-drawn tablets from the SigLA database featuring different Linear A signs. Dr. Salgarella created an interactive webpage featuring this tablet, in which the user can discover the meanings of the syllabaries. Credit: Dr. Ester Salgarella, Cambridge University

Her research breakthrough, which has been hailed as “an extraordinary piece of detective work,” could provide the key for linguists to unlock the secrets of the Minoan language – and learn more about its society and culture. The linguist spoke about her groundbreaking research in an exclusive interview with Greek Reporter.

Dr. Salgarella explains that, perhaps most astonishingly, the internet itself may be the key that unlocks the link between the languages.

Thera eruption devastated Minoan civilization The Minoans were a Bronze Age civilization based on Crete and other islands in the Aegean Sea. Named after the legendary King Minos, this lost civilization was one of Europe’s first urban societies.

Ruled from vast palaces, its people were accomplished artists and maritime traders, but their civilization fell into decline after a devastating volcanic eruption on the nearby island of Thera (modern-day Santorini).

Taking an interdisciplinary approach using evidence from linguistics, inscriptions, archaeology and paleography (the study of the handwriting of ancient writing), Dr. Salgarella examined the two scripts.

To compare them more easily, she created an online resource of individual signs and inscriptions called “SigLA – The Signs of Linear A: A paleographic Database.” She explains: “At the moment there is a lot of confusion about Linear A. We don’t really know how many signs are to be taken as core signs; there’s even been a partial misclassification of signs in the past.

Linear A incised on tablets found in Akrotiri, on the Greek island of Santorini. Credit: Wikipedia

“A foundation stone” to help unlock secrets of Linear A

“This database tries to clear up the situation and give scholars a basis for advancement. We don’t have a Rosetta Stone to crack the code of Linear A, and more linguistic analysis is required, but this structural analysis is a foundation stone.”

The discovery of the Rosetta Stone, which was inscribed with writing in both ancient Egyptian and Greek, allowed linguists to finally crack the code of Egyptian hieroglyphics in the 19th century.

The phonetic values of most Linear A syllabograms were already known from B, but the language expressed in Linear A has remained a mystery.

Linear A script carried over into Linear B Around 1,600 BC, Linear A was borrowed from the Minoans by the Mycenaean Greeks and Linear B is the Greek Mycenaean dialect, used in administration of not only the Mycenaean palaces of Crete but also in Thebes, Mycenae, Pylos and Tiryns on the Greek mainland.

Parallels between signs in Linear A and B have indeed been identified before, but Dr. Salgarella has now shown that a great many graphic variants of signs in the Minoan script were carried into Linear B.

“This combined paleographical and structural examination – using sign typology and associations – has led me to revise the current script classification and to argue that these two scripts are actually two sides of the same coin,” said Dr. Salgarella.

“Most scholars have assumed that because the two languages are different the scripts must be distinct, but the relationship is more subtle than this.”

No writing at all for fifty years after fall of Minoan civilization

Following the fall of the Minoan civilization, there is a gap of about 50 years with no archaeological evidence of either script on Crete.

Dr. Salgarella, who has revealed her findings in her newly published book, “Aegean Linear Script(s): Rethinking the Relationship between Linear A and Linear B,” explains “There is sufficient evidence that Linear B is a derivative from Linear A, so the question is, how did this transmission process happen?

“I wanted to find out how we can account for the similarities and, more importantly, the differences, and fill in these gaps.”

To form words, the scripts use “syllabaries,” meaning one written sign or symbol is not a single sound but an entire syllable. “Other signs are more like Chinese ideograms, or picture words,” says Dr. Salgarella.

Examining the patterns

Structural analysis involved looking at how the signs function, the direction in which they read, and whether they represent syllables, words or punctuation. Composite signs fall into what the researcher calls ‘configurational categories’.

“I could see that there is some kind of rationale on how to put them together,” said Salgarella. By examining the patterns, she was able to come to a better understanding of how to read the composite signs, and make sense of some of the combinations. The linguist hopes her findings will be a stepping stone to further research by linguists, paleographers and archaeologists, all working together.

The Minoans used Linear A primarily, but not exclusively, for administrative purposes. Small clay ‘labels’ found on Crete bear short Minoan inscriptions on one side and imprints of fibers or string on the other. These suggest the labels were used to secure information written on folded or rolled perishable material, such as papyrus.

Clay tablets “baked” for eternity by fires from natural disasters

Natural disasters caused fires, which destroyed any writing materials — but very fortuitously “baked” the inscriptions into the clay labels and tablets. It’s possible, said Dr. Salgarella, that in the two generations between the periods when Linear A ended and Linear B appeared, writing may not have been used widely, but her findings show parts of the earlier script did actually survive — and were adapted by the Greeks into Linear B.

“The two scripts (not the two languages) can be seen as two sides of the same coin, and that is the reason why I chose the title ‘Aegean Linear Script(s)’ for my book,” the linguist explains. “The issue here is that the script – like the letters that are part of our alphabet, for example- has to be kept distinct from the linguistic level (language), although these two levels are of course interrelated.

“What we see with Linear A, Linear B, and the two different languages notated (Minoan and Greek) is that the graphic system (script) was continued without considerable change (but of course there are differences), but the languages differ. Upon the transmission process of Linear A to Linear B there was therefore ‘linguistic shift’. However, the graphic system was not deeply affected,” she says.

Asked by Greek Reporter if there are exact translations of any Linear A writing at present, Salgarella demurred, but explained why finding many corollary symbols leads to hope that it will indeed be completely understood one day.

“I am afraid there is currently no exact translation of the sign-sequences (= words) attested on Linear A tablets (as well as other document types). This is primarily because

we have not yet identified the linguistic family the Minoan language belongs to (unless it has to be taken as an ‘isolated’ language),” she replies. ”

However, we can still get a general idea of the content of some tablets by comparison with Linear B, for two reasons:

“Some logograms (picture-signs standing for commodities, e.g. ‘grain’, ‘figs’, ‘wine’, ‘olives’, ‘oil’) are the same in both Linear A and Linear B, meaning that these were continued from the Linear A script (and administrative system) onto the Linear B script (and administrative system).

“So, if we know the meaning of any such logogram in Linear B, we can assume it may have been the same in Linear A. Now, if on a Linear A tablet we can see the logogram for ‘wine’, at least we can get a general idea of the content of the record: ‘wine’ (it could have been a delivery of the product, an allocation or even wine to be used in specific ceremonial or religious contexts).

Additionally, she explains, “Most words occurring on Linear A tablets are understood to be personal names and place names. We do have a number of such names on Linear A tablets that are also found on Linear B tablets. For instance, in both LA and LB we have the place-name ‘pa-i-to’ (‘Phaistos’).

“As to personal names, we have the following correspondences (at times showing morphological adaptation to the Greek language): LA ‘di-de-ru’ corresponds to LB ‘di-de-ro’, LA ‘qa-qa-ru’ to LB ‘qa-qa-ro’, LA ‘ka-sa-ru’ to LB ‘ka-sa-ro’, LA ‘pa-ja-re’ to LB ‘pa-ja-ro’ just to name a few.

Many “core signs” shared between Linear A and B “So, if at present we cannot really ‘translate’ Linear A (as this would require knowledge of the underlying language), we are still able to read the texts if we apply to the Linear A signs that have got the same shape in Linear B (so-called ‘homomorphic’ signs) the same phonetic values that have been reconstructed for Linear B.

“This process is not unproblematic, and there is an ongoing debate as to the legitimacy of doing so, Salgarella admits. “However, if we assume that the phonetic values of the signs that are shared between the two scripts may have had a similar or comparable sound value, then we are able to at least ‘read’ Linear A inscriptions in phonetic transcription with an approximation.”

Salgarella’s research and new database identifies many vital “core signs.” Greek Reporter asked the linguist how many of these exist and what they stand for.

“By ‘core’ signs I mean those simple signs (i.e. single graphic units, not combinations of signs) that are attested on all the Linear A evidence so far unearthed at different sites on Crete and the Aegean islands. This set of ‘core signs’ also shows the most similarities with the Linear B signs.

“In fact, most of these core signs are shared between Linear A and Linear B, and are therefore referred to with the prefix ‘AB’ (e.g. AB 01, AB 08 etc...) in the research.

“There are a total of some 80 core signs,” Salgarella states. “In addition to core signs, in Linear A we also find ‘site-specific’ signs, meaning that they are only attested on the Linear A evidence found at a given site only. As a trend, we can see that these site-specific Linear A signs were not transmitted onto Linear B.

Open-access online database makes scholarship available to all

“This is the reason why it is productive to differentiate between these two sets of signs (core and site-specific) to examine in detail the characteristics of both Linear A as well as the Linear A to Linear B transmission process.”

Salgarella also points to the research conducted by Professor John Younger (now Emeritus), who has transcribed Linear A texts which can be viewed here.

The open-access SigLA database of inscriptions was created in collaboration with computer scientist Dr. Simon Castellan, from the University of Rennes in France. It features a list of 300 standard signs and 400 inscriptions which were copied by hand. It is still under construction, but more than 3,000 individual signs found within the inscriptions are currently searchable.

“An extraordinary piece of detective work”

Salgarella explains “Collecting the Linear A inscriptions in a unified database is of paramount importance to be able to answer sophisticated paleographical and linguistic questions about the Linear A script as well as the Minoan language it encodes, which will help us reconstruct the socio-historical context of the Minoan civilization.”

Professor Tim Whitmarsh, the A.G. Leventis Professor of Greek Culture and Fellow of St. John’s, had high praise for Salgarella’s work.

“Cracking Linear B was a huge post-war triumph for Classics, but Linear A has remained elusive.

“Dr. Salgarella has demonstrated that Linear B is closely related to its mysterious and previously illegible predecessor. She has brought us one step closer to understanding it. It’s an extraordinary piece of detective work.”

Please visit the site: <https://greece.greekreporter.com/2021/01/28/minoan-language-linear-a-linked-to-linear-b-in-groundbreaking-new-research/> [Go there for pix and caps]