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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

XXIIIE COLLOQUE DU GMPCA COLLOQUE SUR LES SCIENCES ARCHÉOLOGIQUES, – MONTREAL 2019

**MARQUEZ VOS CALENDRIERS: 9 AU 12
MAI, 2019. PREMIÈRE FOIS AUX
AMÉRIQUES!**

**XXIITH GMPCA COLLOQUIUM
CONFERENCE ON ARCHAEOLOGICAL
SCIENCES – MONTREAL 2019**

**MARK YOUR CALENDARS: MAY 9 TO 12,
2019. FIRST TIME IN THE AMERICAS!**

Où/Where?

Université de Montréal, Montréal, Québec, Canada

EMAIL: GMPCA2019@gmail.com

Le site web sera mis en ligne sous peu.

Website coming soon.

- Rabais sur Air France pour les vols.
Discounts on Air France for flights.
- Bourses pour étudiants qui assistant au colloque.
Grants for students attending the conference.

* Organisé sous l'égide du GMPCA (Groupe des Méthodes Pluridisciplinaires
Contribuant à l'Archéologie

- <http://gmpca.fr/>)

INFRARED AND RAMAN SPECTROSCOPY
SCHOOL ON CULTURAL HERITAGE (VII
EDITION), CENTRO CONSERVAZIONE E
RESTAURO LA VENARIA REALE, ITALY,
NOVEMBER 2018

Infrared and Raman Spectroscopy School on Cultural Heritage (VII edition) will be held at Centro Conservazione e Restauro La Venaria Reale; near Turin (Italy) in the next November. The school, with the technical support of Bruker Italia, will be focused on the molecular spectroscopies and their complementarity. There will be theoretical lessons and practical sessions in particular on the use of different instruments and on the spectral interpretation

The lessons will be in Italian.

For more information and for the full program, please contact

labos_formazione@centrorestaurovenaria.it

or click on <https://www.centrorestaurovenaria.it/it/aree/formazione/formazione-professionale/192-corsi-in-partenza/1022-scuola-di-spettroscopia-infrarossa-applicata-alla-diagnostica-dei-beni-culturali-7>

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**THE 5TH ASIA PACIFIC CONFERENCE ON
LUMINESCENCE AND ELECTRON SPIN
RESONANCE DATING (APLED2018), 15-17
OCTOBER, 2018, BEIJING, CHINA**

APLED meetings are an interactive platform for scientific exchange amongst those who work on luminescence and electron spin resonance dating, open to all professionals, researchers and students in Asia Pacific region and beyond.

The programme will cover all aspects of luminescence and ESR dating, ranging from advances in methodology and new applications in all science, medical and archaeological fields. The tradition of a single session will be kept to maximize interdisciplinary interaction and poster sessions will be organized to boost discussions amongst attendees. Keynote talks as well as panel debates on hot topics and emerging issues are planned.

The conference will take place at Peking University, which is located in the most dynamic part of Beijing City, easily connected by subway lines.

Please visit the site: <http://webues.pku.edu.cn/apled2018/index.html>

**THE MOVEMENT OF TECHNICAL
KNOWLEDGE: CROSS-CRAFT
PERSPECTIVES ON MOBILITY AND
KNOWLEDGE IN PRODUCTION
TECHNOLOGIES, SOCIETY FOR AMERICAN
ARCHAEOLOGY (SAA) MEETING,
ALBUQUERQUE, USA, APRIL 10-14, 2019,
CALL FOR PAPERS**

Organisers: Louise Iles (University of Sheffield) and Carmen Ting (University of Cyprus)

The mechanisms by which technical knowledge moves through time and space provides the basis of much material culture research, spanning studies that explore technological change and innovation as well as those that examine technological stability and continuity. However, there are challenges facing archaeologists who seek to reconstruct the learning processes and knowledge networks of past craft practitioners and the implications of the movement of such knowledge and/or craftspeople. In particular, there is a gap between identifying technological change and knowledge transfer in specific local contexts and developing an understanding of regional technological trends, especially in light of the growing use of ‘big data’ to examine research questions at very broad scales.

This session brings together archaeomaterials research that considers how and why technological knowledge moves (temporally and geographically) on all scales, and asks for a reflection on how these interpretations are formed, in relation to – for example – ethnographic and/or experimental data. It seeks to stimulate discussion on all aspects of knowledge transmission, to share approaches and perspectives from different materials, and bridge the gap between local and regional technological landscapes. This session should interest those working in materials-focused excavation, ethnoarchaeology, experimental archaeology, and the analysis of production remains and artefacts.

If you wish to be considered for this session, please send a 200-word abstract to Louise Iles – l.iles@sheffield.ac.uk – by Wednesday 22 August.

Dr Louise Iles FHEA | Leverhulme Early Career Fellow

[University of Sheffield Department of Archaeology](http://www.sheffield.ac.uk/archaeology)
Minalloy House | 10-16 Regent Street | Sheffield S1 3NJ

Work days: Tues-Fri

Just published, on the knowledge networks of iron metallurgy:

<https://authors.elsevier.com/sd/article/S0278416517300727>



INQUA 2019 ABSTRACT SUBMISSION,
SESSION 'THE FUTURE OF QUATERNARY
CHRONOLOGY' IN THE SPECIAL SESSIONS
UNDER INQUA COMMISSION:
STRATIGRAPHY AND CHRONOLOGY

INQUA 2019 abstract submission is now open. Please consider submitting an abstract to our session 'The Future of Quaternary Chronology' in the special sessions under INQUA Commission: Stratigraphy and Chronology

Description of Session: Many of the techniques utilised in Quaternary geochronology have evolved in recent years allowing higher precision, longer timescales or wider ranging applications. Intercomparison exercises and re-measurement of standards have enhanced the accuracy. In addition new methods for calculating ages from raw measurements have been developed, as well as the incorporation of associated information (e.g. stable isotopes, sediment properties, models of the underlying system, etc.) into statistical models to provide improved corrections or interpretation of results. This session will highlight current and potential advances in geochronological techniques over the entire range of the Quaternary as well as novel or complex applications and integration of records and timescales using these methods.

We think this will be a very interesting session! We will try to arrange a special issue in an appropriate journal if there are enough papers to make it worthwhile.

Hope to see you there!

Paula Reimer, Manfred Frechen, Geoff Duller, Mathieu Duval, Kirsty Penkman, Gilles Rixhon, Katrin Lasberg, Yan Li

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Facebook: <https://www.facebook.com/14ChronoCentre>

Please visit the site: <http://www.inqua2019.org/>

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

CHINESE GOVERNMENT SCHOLARSHIP
PROGRAM FOR GRADUATE STUDENTS IN
CULTURAL HERITAGE SCIENCE AT
NORTHWESTERN POLYTECHNICAL
UNIVERSITY, XIAN, CHINA

Northwestern Polytechnical University (NPU) sincerely welcomes outstanding international students to join NPU and pursue graduate education in cultural heritage science. By pursuing the major of Materials Science, the students will conduct interdisciplinary research on cultural heritage from the scientific perspective, including characterizing object material and craftsmanship, analyzing degradation phenomena, and developing conservation methodologies.

Students could choose English or Chinese program. The duration of scholarship will be 3 years for master students, and 4 years for PhD students. Successful applicants will receive the stipend of 3000 RMB/month for master students, and 3500 RMB/month for PhD students. Besides, the tuition, dormitory housing, comprehensive medical insurance, and 1-year Chinese preparatory study (optional) will be provided for free.

Northwestern Polytechnical University is one of the 211 and 985 project universities and enjoys a highly distinguished reputation. NPU is located in Xi'an, where the Eighth Wonder of the world Terra-Cotta Warriors Museum lies in. NPU is a member of the Excellent Union 9 (E9) universities in China. NPU is an international university of science and technology, and has strong capabilities and outstanding achievements in aeronautics, astronautics and marine technology, making it very unique and distinguished from other institutions. Besides, NPU also offers well-developed programs in humanities, economics, management and law.

The program will be open every year, interested students are encouraged to contact the supervisor first via zhanyun.zhu@nwpu.edu.cn.

For more information of the program: <http://gjyxy.nwpu.edu.cn/info/1147/2862.htm>

Dr. Zhanyun Zhu | Assistant Professor/Graduate Supervisor

Centre for Materials and Conservation Research in Archaeology/Centre for Nano Energy Materials

School of Materials Science and Engineering

Key Scientific Research Base of Conservation & Restoration for Mural as Collection and Materials Science (State Administration for Cultural Heritage)

Northwestern Polytechnical University

<http://teacher.nwpu.edu.cn/en/zhanyunzhu.html>



HRP HERITAGE SCIENCE SCHOLARSHIP

Historic Royal Palaces (HRP) is funding a scholarship, which is open to candidates accepted onto the UCL MRes in Science and Engineering in Art, Heritage and Archaeology (SEAHA).

Over the two-year period the successful applicant will spend time studying towards the MRes degree at UCL and with the HRP Conservation and Collection Care department at Hampton Court Palace, carrying out scientific research to support significant conservation projects such as the conservation of the Rubens ceiling paintings at the Banqueting House. Heritage science is an interdisciplinary research field encompasses all technological and scientific work that can benefit the heritage sector.

The scholarship covers the course fees for a UK/EU student and a stipend of UKP10,000 a year for living expenses.

We are seeking an individual who:

Is enthusiastic about science

Has strong intellectual abilities proven with the achievement of a good first degree
Plans to make a career in the UK heritage sector
Has a passion for history and for communicating conservation and heritage science to the public

Having completed the course, the graduate will be expected to seek employment in the UK in the first instance.

We particularly welcome black, Asian and minority ethnic (BAME) applicants as we consider that these groups are currently under-represented both in heritage science and within our own organisation: we believe that there should be better representation of our diverse society in this sector. HRP is committed to building an organisation that truly values the differences in people. We are an equal opportunities employer and truly value a diverse workforce.

Deadline for applications: 31st August 2018

Please apply online through the UCL application system:
<http://www.ucl.ac.uk/prospective-students/graduate/taught/degrees/science-engineering-arts-heritage-archaeology-mres>

Under funding, indicate "HRP scholarship". In your motivation letter, please respond particularly to the above four selection criteria.

For more information please contact:

Dr Constantina Vlachou - Mogire, Senior Conservation Scientist
Email: constantina.vlachou@hrp.org.uk, Tel: 020 3166 6458

Dr Josep Grau-Bove, MRes SEAHA Course Director
Email: josep.grau.bove@ucl.ac.uk

Dr Constantina Vlachou-Mogire ACR
Senior Conservation Scientist
Conservation and Collection Care
Historic Royal Palaces
Hampton Court Palace
Surrey KT8 9AU
UK



ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

MSC IN CULTURAL HERITAGE MATERIALS AND TECHNOLOGIES, DEPARTMENT OF HISTORY, ARCHAEOLOGY AND CULTURAL RESOURCES MANAGEMENT, UNIVERSITY OF THE PELOPONNESE

The MSc in Cultural Heritage Materials & Technologies (CultTech) is a collaboration between the Department of History, Archaeology and Cultural Resources Management (University of the Peloponnese), the National Center for Scientific Research "Demokritos" and the National Observatory of Athens. A key issue for CultTech is its orientation towards hands-on research, thus offering post-graduate research training and the potential for the implementation of a diploma dissertation closely related or within ongoing research projects.

The official language of the programme is English. The duration is 3 semesters (two semesters of taught courses and one for the implementation of the dissertation thesis).

During the Academic Year, educational visits at National Center for Scientific Research Demokritos and National Observatory of Athens are scheduled for MSc students as well as field trips around the Peloponnese region and Navarino Environmental Observatory at Costa Navarino Pylos.

Students from the fields of archaeology, cultural heritage management, conservation, materials science and engineering are welcomed to apply.

The programme takes place in Kalamata, Greece.

Apply at <http://culttech.uop.gr/how-to-apply.html> until September 15, 2018

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

AGLAE ASSOCIATION

A.G.L.A.E. stands for "Association Générale des Laboratoires d'Analyses et d'Essais" which means **General Association of Analytical and Testing Laboratories**.

This is a **non-profit-association**, governed by the French law of 1 July 1901.

Founded on 16 December 1993 by various laboratories (regional, public, private, industrials, water companies...), the Association aims to improve analyses, especially chemical, microbiological and biological, in the fields of the environment and medical biology.

AGLAE is accredited by the French Accreditation body [Cofrac](#) for the provision of **proficiency testing**.

Key facts

- More than 1000 laboratories where test samples are distributed, with 15% international shipments
- 200 tests provided
- 1200 parameters analysed by laboratories
- More than 10000 parcels sent this year

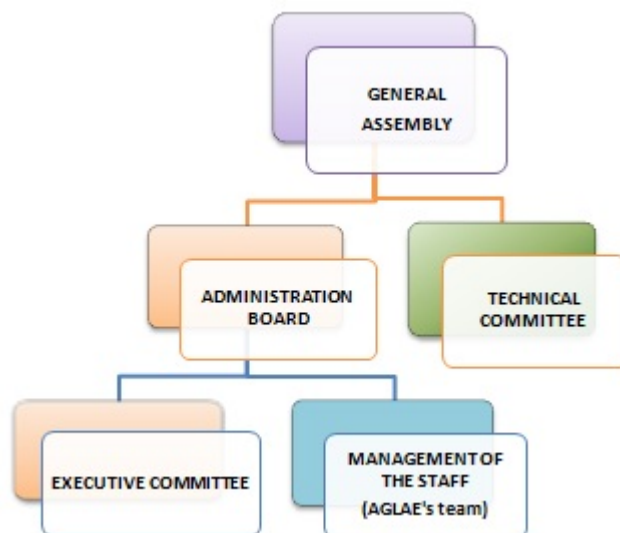
The structure of the association

AGLAE, as an Association, comprises a general Assembly, an Administration Board and an Executive Committee, to which a Technical Committee adds. These entities manage the Association from an administrative point of view.

Should you wish to join the General Assembly, please [contact us](#).

The practical implementation is conducted by permanent staff members: the [team](#).

More precisely:



The **General Assembly** gives the general directions of the Association.

The **Administration Board** makes the major decisions of management in accordance with the guidelines of the General Assembly. It is elected by the General Assembly.

The **Executive Committee** is the subgroup of the Administration Board.

The **Technical Committee** consists of members from the Administration Board, staff members and other people qualified in specific analytical fields.

The **team** gathers the permanent staff members of the Association.

Find the list of the [members of the Administration Board](#).

Please visit the site: <http://www.association-aglae.fr/en>

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

**JOURNAL OF MEDITERRANEAN
ARCHAEOLOGY 31.1 (2018) TOC**

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Articles

Sustainable Practices? A Story from Roman Cosa (Central Italy) Andrea U. De Giorgi

At the Crossroads of Textile Cultures: Textile Production and Use at the South Italian Archaic Site of Ripacandida Margarita Gleba , Christian Heitz , Hedvig Landenius Enegren , Francesco Meo

Across the Surface of the Sea: Maritime Interaction in the Cycladic Early Bronze Age Katherine Jarriel

Inhabiting Domestic Space: Becoming Different in the Early Iron Age Western Mediterranean Beatriz Marín-Aguilera

Discussion and Debate: In Defense of a Contextual Classical Archaeology Donald C. Haggis

Please visit the site:

<https://journals.equinoxpub.com/index.php/JMA/issue/view/2689>

CEDAR FORESTS, CEDAR SHIPS: ALLURE, LORE, AND METAPHOR IN THE MEDITERRANEAN NEAR EAST

Bryn Mawr Classical Review 2018.06.38

Sara A. Rich, *Cedar Forests, Cedar Ships: Allure, Lore, and Metaphor in the Mediterranean Near East*. Oxford: Archaeopress, 2017. Pp. x, 280. ISBN 9781784913656. £36.00.

Reviewed by Marcus Ziemann, The Ohio State University
(marcusdziemann@gmail.com)

Table of Contents:

<http://www.archaeopress.com/ArchaeopressShop/DMS/E76C623C0F384CADA0862F3777ADF5F5/Rich%20-%20contents.pdf>

In this book, which began its life as an archaeology dissertation at the Katholieke Universiteit Leuven, Sara Rich attempts to provide a history of eastern Mediterranean cedars from the trees' perspective (a "hylocentric antinarrative," as she calls it). In doing so, she includes biological, philological, historical, archaeological, and, not least, philosophical material relevant to her analysis of the cedars. Moreover, she deals with the cultures of ancient Mesopotamia, Egypt, the Levant, Greece and Rome, as well as the European and West Asiatic cultures of the Middle Ages, and the modern-day nation-states of the eastern Mediterranean. If this sounds like an ambitious project, it is, and Rich signals as much in her introduction. She promises to provide a history of the trees that is "object-oriented" (in the philosophical sense) and stresses the trees' qualities and interactions with their environment (both ecological and anthropological). In particular, she wants to know how the trees' qualities affected humans' perception of them and how this perception in turn affected humans' interactions with and utilization of the trees as resources. Despite her stated ambitions, I am not sure that she fully accomplishes what she intended. The book resembles a broader application of Carlo Ginzburg's microhistories onto the cedar "industries" (for want of a better term), especially shipbuilding, from ancient to modern times. When Rich does attempt to broach the more metaphysical and psychological portions of her argument, she is frequently handicapped either by inadequate specialist knowledge (unsurprisingly, given the great number of fields she attempts to cover) or by arguing for the obvious or by pure speculation. That being said, this book is not without merit. Many of the factual errors are superficial, and the book is certainly a useful history of humans' utilization of cedars in the Eastern Mediterranean.

Chapter 1 is a synthesis of the scientific aspects of the trees, including taxonomic classification, fossil history, and ecology.

Chapter 2 focuses on the role of cedars in cultures of the eastern Mediterranean from the earliest evidence in Mesopotamian and Nilotic cultures down to about the time of Alexander. She stresses that the well-known aromatic resin was one of the most

important qualities that contributed to its “allure” for humans. Much as we use cedar-wood today to help protect clothing from moths, the ancients’ appreciated the resin for its anti-rot and insecticidal properties. The resin, a natural sealant that would only be surpassed by artificial resins and pitch in later times, helped protect timber used for ships to withstand rot from exposure to sea-water. In addition, cedar is structurally a much harder wood than pine or cypress, so it was also useful for building permanent structures. Rich maintains that these properties contributed to the ancient Mesopotamians’, Egyptians’, and Levantines’ association of cedars with the divine, proposing that the durability of the timber functioned metonymically for the immortality of the divine realm. While Mesopotamian and Biblical texts do connect cedars to the divine, they do not offer any hints as to why, and she does not cite any ancient textual source that explicitly (or even implicitly) makes this connection. In the case of the Egyptians, the connection to the divine is purely speculative.

The textually oriented scholar will find in this and the following chapters a valuable survey of references to cedars in ancient texts, but will find frequent problems with Rich’s use of them. To give one example, Rich builds an argument on a passage that she as cites as Tablet VI, Column 1, lines 38-49 of the Epic of Gilgamesh, but both her reading and her citation are problematic (p. 58). First, Rich has misidentified this passage (it is actually Tablet VII, and her line numbers are slightly off). Second, in the first portion of the text, the ends of all of the lines are missing (at least three cuneiform signs each), yet Rich’s source has all of the words strung together as a connected sentence. Third, the second portion of the text is misconstrued to make it say something quite different from its actual sense, and this misunderstanding affects Rich’s discussion of the passage. She contextualizes the passage as Enkidu lamenting the destruction of the natural beauty of the Cedar Forest, but that is not the narrative thrust of this episode. Enkidu is about to die because he and Gilgamesh disrespected the goddess Ishtar, and he is angry that the journey to the Cedar Forest set in motion the chain of events that led to their impious acts against Ishtar and his subsequent death.

Rich uses a news website called the Assyrian International News Agency as her source, which has no connection to any professional Assyriologists that I can determine. What this website presents as the Epic of Gilgamesh is the creative prose re-imagining of the epic published by N.K. Sandars in 1960 (Penguin Classics). Elsewhere Rich cites information from Andrew George’s introduction to his (standard) edition of the text, but she never uses George’s or any other easily accessible professional translations when she cites the epic. She also uses Heidel’s obsolete *The Gilgamesh Epic and Old Testament Parallels*.

Furthermore, she uses Cowley’s older editions of the Elephantine Papyri rather than Bezalel Porten’s newer, standard editions (which also come with translations into English and Modern Hebrew).

Chapter 3 continues the history of humans’ utilization of cedars up to the modern period. The Greeks and Romans did not share their eastern Mediterranean neighbors’ fascination with cedars, so there is much less to say here. After the Christianization of the Roman Empire, some interest was again paid to cedars because of the importance of cedars in the Bible, but never again did cedar timber become the most sought-after lumber for construction as it was for the Mesopotamians and Levantines. Ships were increasingly built with pine and artificially sealed and treated with other pitches and resins. In the

modern period, cedars have become a source of tourism dollars for those interested in the Bible's Cedars of Lebanon.

Chapters 4 and 5 return to the ancient world to explore the symbolism behind the use of cedar for the construction of ships. These chapters again rely largely on speculation (as Rich admits), without explicit ancient testimony to confirm the arguments. The most convincing part of these chapters is the connection she draws between the Egyptians' use of funerary boats and sarcophagi made from cedar. She makes a very interesting connection between the cedar industries in Byblos and the interment of Osiris' body in a cedar box in Byblos. However, absent any confirmation from the Egyptians, it is perhaps premature to attribute the use of cedar to Egyptian religious ideas connecting cedar to the immortal and divine. She does not adequately address the obvious Occam's Razor counterargument: perhaps cedar was simply used because it is a rugged material that will last and not rot quickly?

There is a strong correlation between cedars and the divine only in texts from the Bible and Mesopotamia, yet all of the ships analyzed in these two chapters were built by people from other cultures (ancient Egypt, Phoenicia, and Greece). Can we assume so readily that these peoples shared the Mesopotamian and Biblical writers' views?

The sections dealing with cedar wood for shipbuilding in the Levant are likewise not entirely persuasive. Rich uses textual and cultural evidence from well after 700 BCE in order to explicate the building practices, symbolism, and beliefs of the builders of ships that sank in the fourteenth century BCE. Nowhere does she indicate how she knows that religious practices and beliefs remained consistent across the different areas of the Levant and over the course of more than half a millennium. Moreover, she treats all Levantine gods/goddesses and cultural practices as though they were "pan"-Levantine and not regional/city specific. Lastly, she does not address the problem of what asherim were, simply relying on the traditional understanding of them as a "cult-pole," which is problematic for her argument that ships' masts were understood as asherim. Indeed, we have no archaeological evidence for asherim, so projecting the concept of the asherah as found only in Biblical texts and a few inscriptions from after 700 BCE onto Phoenician ships of the fourteenth century BCE is problematic.

Finally, Chapter 6 maps attitudes towards cedars from late antiquity to the modern day. Rich links the replacement of sustainable harvesting of cedars by the deforestation of lower-quality timbers for ship-building to the more prevalent view that the natural world exists to be exploited by mankind, which seems plausible enough. However, she arrives at this conclusion by an odd route – the idea that St Augustine and al-Ghazali were vehement Aristotelians may raise some eyebrows. It seems simpler to attribute this viewpoint to the influence from Genesis 1:26-30 and the similar belief found in Stoic philosophy.

The epilogue primarily traces the efforts by modern nation-states to establish forestry regulations to rollback the effects of deforestation. The direct mention of cedars by governmental agencies in this section is glaringly absent. It seems that these agencies' concerns are related far more to the preservation of their forests generally than to the specific qualities of the cedars.

The bulk of this study is devoted to assembling a wide array of information from disparate disciplines, which is a great service to the academic community, and this monograph will undoubtedly be a useful reference for years to come. The problems arise primarily in the areas where Rich attempts to make her most ambitious arguments, speculating beyond the limits to which the evidence can be pushed, and her arguments are weakened by a lack of sufficient specialist knowledge of the texts and cultures with which she deals. Despite my critiques of this book, I would like to reiterate that this project assembles a great deal of useful data about cedars, undoubtedly an important topic in the study of the ancient world.

Please visit the site: <http://bmcr.brynmawr.edu/2018/2018-06-38.html>

MINOAN EARTHQUAKES: BREAKING THE MYTH THROUGH INTERDISCIPLINARITY. STUDIES IN ARCHAEOLOGICAL SCIENCES

5

Bryn Mawr Classical Review 2018.07.06

Simon Jusseret, Manuel Sintubin (ed.), Leuven: Leuven University Press, 2017. Pp. 408. ISBN

9789462701052. €9.50.

Reviewed by Vassilis Petrakis (vpetrakisrm@yahoo.gr)

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Above all, this innovative volume breaks new ground by gathering specialists from the fields of geology and archaeology in an attempt to shed some new light onto the effects of earthquake disasters on Cretan Bronze Age (hereafter Minoan) society. Stemming from the workshop ‘Out of rubble: Interdisciplinary perspectives on Minoan earthquakes’ (Leuven, November 2012),¹ this collection represents a major advance in the field of archaeoseismology by addressing key issues in methodology and presenting new evidence and fresh interpretations of specific case studies.

After the mandatory preface (by Jan Driessen), acknowledgements, and contents section, the reader is greeted with a short glossary of abbreviated seismological and archaeoseismological concepts supplemented by a comprehensive table of Minoan chronology (p. 15).

The modified concept of ‘Potential Earthquake Archaeological Effects’ (abbreviated PEAEs), recently introduced by the editors and Charlotte Langohr,² improves significantly on the concept of ‘Earthquake Archaeological Effect’³ and is presented very conveniently on p. 98.

As the editors note, all such effects, when considered separately, can be difficult to tell from other, natural or man-induced destructive agents. This admission represents well the cautious spirit in which the theme is explored throughout the book.

The first section includes five introductory chapters focusing on the geology of ancient earthquakes. The odd one out here is Driessen’s charming opening chapter (“‘In bulls doth the Earth-Shaker delight’—Introduction to the volume’) that reports on the genesis and further development of the idea that earthquakes were significant destructive agents in Bronze Age Crete. Like many other aspects of ‘Minoan mythology’, the idea goes back to Sir Arthur Evans, whose experience of two earthquakes that hit Herakleion in 1922 and 1926 inspired his association of all “chief breaks in continuity” at Knossos with such events.⁴ Driessen also briefly explores the effect of Evans’ theory in later scholarship, as well as popular culture, such as comic books.

Susan Hough (‘Seismological issues of concern to archaeoseismology’) offers a concise historiographical overview of pre-modern earthquake studies, from Zhang Heng (78-139 AD) up to Wegener’s theory of continental drift (1912) and Hess’ key study (1962) of the

spreading of ocean floors and the creation of new crust. Hough emphasizes that plate boundary zones are almost always seismically active, and also cautiously reviews the concept of the periodic earthquake cycles, as well as the limitation of our historical data that would enable us to test relevant models. Finally, she examines earthquake ground motions and stresses their variability in form and cause, which make it difficult to be certain that a specific end result (i.e., a particular example of damage) can be attributed to an earthquake.

James McCalpin ('Palaeoseismology') discusses the object and methods of palaeoseismology, the study of large earthquakes that "have caused permanent deformation on the Earth's surface" (p. 56), usually within the Quaternary period (2.5 million years ago up to the present).

McCalpin also focuses on the difficulties in distinguishing between palaeoseismic and non-seismic or even non-tectonic features, i.e., in determining the true cause of a specific geological deformation, and he stresses the issues surrounding equifinality (i.e., the possibility that different processes would produce similar results). In the rest of the chapter McCalpin presents the various methods whereby such deformation can be restored, dated, and measured (in terms of magnitude); he also discusses the potential application of the data gathered by palaeoseismology to both deterministic and probabilistic Seismic Hazard Assessment (SHA).

While palaeoseismology is a branch of geology, archaeoseismology is by definition interdisciplinary. Manuel Sintubin ('Archaeoseismology') gives a succinct description of its subject matter: "pre-instrumental earthquakes that can be studied indirectly by evidence in the archaeological record" (p. 81). Sintubin rightly focuses much on PEAEs and their careful assessment and distinguishes them into seismic and post-seismic. Like McCalpin's overview of palaeoseismology, he also discusses the dating methods (and their limitations) of ancient earthquakes, as well as their potential use in SHA, and concludes with a very prudent and very self-evident (or so the present reviewer thinks) plea for a shared protocol, which he justifiably considers the greatest challenge of the discipline.

Christoph Grützner and Thomas Wiatr ('Non-invasive techniques in archaeoseismology') discuss the application of advanced geoscience techniques that do not involve excavation in archaeoseismological research. The basic principles and application of georadar, geoelectrics, magnetic and seismic methods, as well as photogrammetry and laser scanning are comprehensively presented.

The second part of the book discusses the geological and tectonic context of the island of Crete, with helpful explanatory editorial endnotes added in all three chapters. Charalambos Fassoulas ('The geological setting of Crete: an overview') offers a valuable survey with very comprehensive and still concise presentations of the geodiversity and tectonic evolution and its influence on the making of the Cretan landscape. Gerassimos Papadopoulos ('Earthquake sources and seismotectonics in the area of Crete') examines the seismic history of Crete drawn from historical sources (from the 365 AD event to 1952) as an aid in our understanding of the impact of Bronze Age earthquakes in contemporary society. Jack Mason and Klaus Reicherter ('The palaeoseismological study of capable faults on Crete') discuss the potential of a detailed study of capable faults for the dating of the last events and assessing their maximum capable magnitudes and recurrence, focusing on the Sfaka fault (within the Ierapetra Fault Zone) in east Crete.

Part 3, entitled ‘Minoan archaeoseismology’ includes Simon Jusseret’s comprehensive overview of the topic (‘Archaeoseismological research in Minoan Crete: past and present’) serving, alongside Driessen’s opening chapter, as a concise introduction to the theme of the volume for the archaeologist. Jusseret discusses the features of specific contexts where earthquakes have been (with varying degrees of certainty or probability) identified as destructive agents, such as Middle Minoan (MM) IIB Phaistos; MM IIIA Anemospilia, Knossos; and Palaikastro in MM IIIB (see below); the seismic destruction levels at Akrotiri on Thera, Mochlos (see below), and Pitsidia in Late Minoan (LM) IB; and Gouves and Malia in LM IIIB. Jusseret cautiously addresses the fundamental question of the reliability of archaeoseismological hypotheses (pp. 234-235) and briefly considers earthquake-resistant features in Minoan architecture, which are also the subject of the following two chapters.

Clairy Palyvou and Eleftheria Tsakanika discuss Minoan (primarily Neopalatial, c.1700-1450 BC) architectural responses to the threat of earthquakes. Palyvou (‘An architectural style of openness and mutability as stimulus or the development of an earthquake-resistant building technology at Akrotiri, Thera, and Minoan Crete’) stresses the role of timber as a ductile material that could save a structural element from immediate collapse, “giving time to the inhabitants to escape the building” (p. 259), but not severe deformation (e.g., Room 4 of the West House in Akrotiri). The role of timber is the subject of Tsakanika’s contribution (‘Minoan structural systems: earthquake-resistant characteristics. The role of timber’), which draws on her doctoral research in the load-bearing and reinforcing application of timber in Minoan architecture. The earthquake-resistant behavior of such systems is still very poorly understood, as exemplified by Tsakanika’s observation that certain intriguing features, such as the vertical discontinuity between different masonry systems (external ashlar and interior rubble) in the Knossos Southeast House (pp. 282-283, fig.14), increased the vulnerability of the building. Elsewhere, the editors suggest that this example might be viewed as an example of how the structure could take precedence “over form and function in Minoan constructions” (p. 388).

Part 4 will attract the most attention from Aegean archaeologists as it includes three discussions of specialised topics focusing on specific sites in central and east Crete: Mochlos, Knossos, and Palaikastro. Jeffrey Soles, Floyd McCoy, and Rhoda Shuka (‘Evidence for three earthquakes at Mochlos in the Neopalatial period, c. 1700-1430 BC’) discuss evidence for the identification of Bronze Age earthquakes from the site of Mochlos (once a peninsula, but now a small island off the coast of northeast Crete), into which a splay from the Lastros fault within the Ierapetra Fault Zone extends. Observations regarding Neopalatial contexts and structures from the settlement have been integrated with the analysis of local fault lines and the evidence for underwater (submerged) wave-cut notches. The latter, associated as they are with datable pottery, are instrumental in correlating archaeological evidence recovered from the part of the site that is now above sea level. Overall, the identification of three seismic events seems convincing, although the authors should be praised for their caution (p. 322).

Colin Macdonald (‘Punctuation in palatial prehistory: earthquakes as the stratigraphical markers of the 18th-15th centuries BC in central Crete’) offers a comprehensive review of the Knossian evidence (or the lack thereof) for earthquake destructions. He distinguishes among three kinds of archaeologically detectable “responses” to such

disasters: primary (focused rescue operations), secondary (clearances, dumps, and backfills), and, most interestingly, those only “hypothetically” associated with the consequences of earthquakes, a rather diverse category that would include anything from abandonment to the ceremonial deposition of debris (p. 332). Drawing on Iro Mathioudaki’s ongoing study of the pottery from the House of the Fallen Blocks and the House of the Sacrifice Oxen,⁵ two buildings that were pivotal in shaping Evans’ ideas on the impact of earthquakes in Minoan Crete, Macdonald observes that the destruction deposits are dated in the earlier part of the MM IIIA phase, instead of to the close of MM IIIB. This conclusion effectively fulfils the subtitle of the volume, breaking one influential hypothesis of mythical status.

Evidence pertaining to other central Cretan sites near Knossos is also reviewed: probable earthquake destructions in early MM IIIA at Anemospilia and Alonaki, and in LM IA at Zominthos (Mt Ida) and Galatas (Pediada) are suggested, but the problematic identification of MM IIIB shocks elsewhere on the island is stressed. While acknowledging the destructive potential of earthquake disasters, Macdonald advocates that human agency should be considered in combination with the earthquakes as the explanation for the ‘game-changing’ destructions at the end of LM IB (pp. 351-352).

Tim Cunningham quotes Protagoras in the title of this section’s last chapter (‘Man the measure: earthquakes as depositional agents in Minoan Crete’), while noting the difficulties in applying the modified Mercalli intensity scale (see pp. 11 and 47-48, fig. 8) to archaeological contexts. Cunningham studies a plausible seismogenic deposit from Palaikastro (Room 10a in the Southeast Building of Block M), a pantry found filled with carefully sorted pots and with seemingly no signs of later disturbance. Cunningham rightly focuses on the true question of local human response to such disasters and stresses that such responses are much more characterized by solidarity rather than dissolution and breakdown. He emphasizes how the seismicity of Crete formed a nearly constant background to human activity on the island (p. 378), although it is doubtful that truly devastating shocks would have been emically viewed as “constants.”

Cunningham advances an attractive (albeit speculative) explanation for the establishment of a cult area within the abandoned Southwest Building in Block M, supposedly triggered from the appearance of surface water due to a seismogenic change in the water table,⁶ what Macdonald would classify as a “hypothetical response.”

The volume appropriately concludes with the reflections of the editors on the main existential questions of Minoan archaeoseismology: whether earthquakes can explain changes in the Minoan archaeological record and how to proceed in a proper interpretation of their impact on Bronze Age societies (‘Earthquakes and Minoan Crete: breaking the myth through interdisciplinarity’). Most importantly, they emphasize the need to take quantitative (as opposed to qualitative) approaches, focusing both on the regional setting, as well as in differentiations of the PEAEs within the same site.

In such an innovative and academically strong publication, only one complaint seems fitting here: since Akrotiri on Thera is already the focus of two contributions (Palyvou, Tsakanika), one wishes that further evidence from sites outside Crete would have been considered to some extent, especially Bronze Age Aegean sites that have been the focus of archaeoseismological research for some time (such as Tiryns), or sites where evidence for earthquake impact has been reported but not scrutinized (such as Ayia Irini on Keos).

The very conception and structure of this volume is a most encouraging step towards the transformation of Minoan archaeoseismology into “a more holistic and self-critical discipline” (Jusseret, p. 240) and decidedly away from the catastrophist school of thought where earthquakes are employed as a “deus ex machina” factor to explain any kind of change. If this discipline is “still in its infancy” (p. 393), as the editors admit, this book anticipates its imminent coming of age.

Notes:

1. The ‘Out of rubble’ Programme.
2. S. Jusseret, C. Langohr, M. Sintubin, ‘Tracking earthquake archaeological evidence in Late Minoan IIIB (~1300–1200 B.C.) Crete (Greece): a proof of concept’, *Bulletin of the Seismological Society of America* 103 (2013), pp. 3026-3043.
3. M. A. Rodríguez-Pascua, R. Pérez-López, J. L. Giner-Robles, P. G. Silva, V. H. Garduño-Monroy, K. Reicherter, ‘A comprehensive classification of Earthquake Archaeological Effects (EAE) in archaeoseismology: application to ancient remains of Roman and Mesoamerican culture’, *Quaternary International* 242 (2011), pp. 20-30.
4. A. Evans *The Palace of Minos*, volume 2:1, London 1928, p. 320; M. Jusseret, ‘Contextualizing the birth of Mediterranean archaeoseismology’, *Antiquity* 88 (2014), pp. 964-974.
5. Presented at the Athens Minoan Seminar (18-March-2016) Minoan Seminar 18 March 2016.
6. Shifted strata were noted during excavation; see S. Thorne ‘Well 576: excavation and stratigraphy’ in J. A. MacGillivray, L. H. Sackett, J. M. Driessen (eds.) *Palaikastro: Two Late Minoan Wells*, BSA Supplementary Volume 43, London 2007, pp. 9-14, at p. 11.

Please visit the site: <http://bmcr.brynmawr.edu/2018/2018-07-06.html>

THE BABYLONIAN ASTRONOMICAL COMPENDIUM MUL.APIN

Hermann Hunger and John Steele Routledge, Abingdon, 2018
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£105.00; \$149.95

MUL.APIN, written sometime before the end of the 8th century BC, was the most widely copied astronomical text in ancient Mesopotamia: a compendium including information such as star lists, descriptions of planetary phases, mathematical schemes for the length of day and night, a discussion of the luni-solar calendar and rules for intercalation, and a short collection of celestial omens. This book contains an introductory essay, followed by a new edition of the text and a facing-page transliteration and English translation. Finally, the book contains a new and detailed commentary on the text.

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Please visit the site: <https://www.routledge.com/The-Babylonian-Astronomical-Compendium-MULAPIN/Hunger-Steele/p/book/9781138050471>

ΕΙΔΗΣΕΙΣ - NEWS RELEASE

PTOLEMAIC TOMB DISCOVERED IN ALEXANDRIA

A granite sarcophagus and a marble bust were found in a tomb during excavation work on private land in Alexandria Nevine El-Aref

A marble head discovered in the Ptolemaic tomb

A Ptolemaic tomb has been discovered during an archaeological inspection on a privately owned plot of land in Sidi Gaber, Alexandria.

According to Egyptian law, any land that is to undergo construction must be archaeologically excavated and inspected by a mission from the Ministry of Antiquities before building foundations are laid down.

Mostafa Waziri, secretary-general of the Supreme Council of Antiquities, said that the tomb was found five metres below the ground's surface and houses a large black granite sarcophagus. Experts have not yet determined to whom the tomb belongs.

“The sarcophagus has been sealed since it was created in antiquity,” Waziri told Ahram Online, adding that the coffin is 185 cm tall, 265 m long and 165 cm wide.

A heavily deteriorated marble bust a man, who may be the tomb's owner, was also discovered inside the tomb.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/9/41/305971/Heritage/GrecoRoman/Ptolemaic-tomb-discovered-in-Alexandria.aspx>

ANCIENT BREWING WAS NOT A HITTITE OR MISS PROCESS - RESEARCH FINDS 4000- YEAR-OLD ANATOLIAN BEER WAS VERY LIKELY DELICIOUS, BY ANDREW MASTERSON

Beer-makers in the ancient Hittite empire – which centred on Anatolia in modern Turkey – carefully controlled their brews according to the season, altered flavours according to taste, and used a bittering agent thousands of years before the domestication of hops.

Those are some of the main findings emerging from research by Michael Brown from the Institut für Ur- und Frühgeschichte und Vorderasiatische Archäologie in Heidelberg, Germany, and published in the Journal of Archaeological Science: Reports.

Absent from Brown’s paper, however, is the discovery that Hittite beer – at least the style derived from biological and archaeological evidence unearthed at a temple brewery site in Kuşaklı-Sarissa in north-central Anatolia, dating to the second millennium BCE – would not have been out of place in a modern gastro-pub.

“It’s not mentioned in the paper but we did brew a small trial batch in the lab while writing up the chemical analyses,” he says.
“Surprisingly pleasant, a bit like Belgium Duvel!”

The Hittite empire arose around 1600 BCE, and reached its height about two centuries later when its reach included the northern Levant and Upper Mesopotamia. Sources attest that beer-drinking fulfilled several ceremonial and religious functions.

To further flesh out this picture, Brown analysed residues obtained from archaeological samples in order to understand the materials and techniques used by the brewers at the site. Kuşaklı-Sarissa’s use for beer-making was easily confirmed by the presence of calcium oxalate, a substance that forms when oxalic acid bonds with calcium in water. The molecule is a strong (although not conclusive) indicator of barley-based brewing, especially when found on ceramic vessels.

The containers found at the site (and mirrored by those at a second brewery unearthed in the old Hittite capital of Boğazköy-Hattusa) included large vessels for mashing, and narrow-necked amphorae that could be easily sealed with clay to prevent bacterial contamination.

Some of the beer being brewed, Brown suggests, was consumed through reed straws stuck straight into the fermentation vessels. Most, however, would have been sealed up and left to mature.

Grain remnants found at the site were overwhelmingly from barley. The kernels were much larger than those from other parts of the wider archaeological dig, implying, says Brown, that they were deliberately selected for beer-making.

Smaller concentrations of Emmer wheat kernels were also found – suggesting that the brewers sometimes made mixed-grain ales, or even pure wheat beers.

Brown cites research published in 2011 that established that brewing practices varied substantially across the Hittite empire, and were also influenced by seasonal temperatures.

For instance, grain was dried by spreading it over mats placed on the flat roofs of buildings. Fresh grains were turned over twice a day, achieving germination, the researchers found, in as little as four days. There is also some evidence that the Hittites combined malted and unmalted grains in the mashing process, perhaps in an effort to produce lower-alcohol brews. (The result, notes Brown, would have been “not always the desired outcome”.)

Ancient beers, it has often been assumed, would have been significantly sweet, mainly because hops – the important bittering agent used today – was not deployed until the late Medieval period.

The Hittites, Brown’s research discovered, very likely achieved the same result using a different botanical. His residue analysis revealed significant quantities – between one and two per cent – of seeds from plants in the genus *Polygonum*, which includes buckwheat and knotweed among about 220 other species.

The 4000-year-old samples were too degraded to enable precise identification, but *polygonum* seeds are known to contain high concentrations of phenolic compounds, which impart a bitter taste.

Brown points out that there is no specific Hittite word so far translated that specifies “bitter”, and at least two that imply “sweet” in a beer context. This, he said, should not be used to infer that all Hittite beers were sugary to taste.

Rather, it is more likely to mean that bitter-tasting beers were the norm, and that sweet ones – such as *marnuan*, a honey beer, and *Walhi*, another sweetened form – were speciality brews that, again, might not be out of place in a groovy little downtown bar in Berlin.

The research fails to pinpoint the exact source the Kuşaklı-Sarissa brewers used to secure the other essential ingredient for alcohol-making: yeast. Brown identifies several possibilities, including honey-mead, grape-wine and hardwood bark from nearby woodland.

Regardless of origin, however, he notes that yeast reserves were very likely stored in sugar-rich worts – the liquid extracted from the mashing process – in narrow-necked bottles for use during the colder months when the key species, *Saccharomyces cerevisiae*, was in short supply.

Remnant yeast populations were also very likely to be present all year round on the porous surfaces of the brewery’s clay vessels and walls – a fact, Brown suggests, that “would have served to increase consistency between successive fermentations”.

The research strongly suggests that 4000 years ago the Hittites were serving up beers that were varied, deliberate, and ranged in alcohol content. Brown's brewing experiment also established that the drinks in question were very likely sophisticated and delicious.

His results, he concludes, may well be of interest to more than just archaeologists and historians.

“This study establishes a theoretical basis for future experimental reconstruction and highlights novel ingredients potentially of interest to modern craft brewers,” he writes.

ANDREW MASTERSON is news editor of Cosmos.

Please visit the site: <https://cosmosmagazine.com/archaeology/ancient-brewing-was-not-a-hittite-or-miss-process>

EVERYONE THOUGHT HE WAS KILLED BY A GIANT ROCK AT POMPEII. THEN, THEY FOUND HIS SKULL, BY IAN SHAPIRA

The photographs from Pompeii in May scorched the Internet.

Archaeologists at the site of the Mount Vesuvius eruption of A.D. 79 discovered the skeleton of a man with a giant rock atop his neck. The stark image needed no complicated scientific caption: The man wasn't burned to death by lava or volcanic ash. He was killed when the mammoth stone slammed into his head, burying him in the earth forever.

Experts figured his skull had disintegrated under all that weight and after all those years.

The picture, naturally, spawned all sorts of dark Internet memes, joking about Wile E. Coyote and the Road Runner.

But then, Pompeii archaeologists in Italy announced Thursday that, lo and behold, they found the man's skull — completely intact — and concluded that he likely did not die after being crushed by the stone.

He probably died of asphyxiation.

About 1,000 skeletons have been found since excavations began at Pompei in the 1700s, but this man's skeleton was the first one found in at least a decade, said Massimo Osanna, the general director of the Archaeological Park of Pompeii. He said the discovery of the skull — which was pushed farther down than the rest of the skeleton — was important because it dispelled the hypothesis that the man was fleeing the volcano, only to be killed by a large stone.

“It was probably impossible for him to breathe when he was surrounded by all this pyroclastic flow,” Osanna said, noting that other Pompeii victims likely died from high temperatures.

But how did the skull get disconnected from the neck?

Osanna told The Washington Post that he suspects archaeologists from previous eras, digging less carefully and more hastily in the hunt for treasures, likely separated the skull without knowing. The head was found in a tunnel beneath the rest of the skeleton.

“The [previous archaeologists] didn't see the skeleton. The excavation in the 18th century was to find something sensational — bronzes, marble objects. They were not so attentive to the context. Now we are carefully putting altogether the rest of bones of this skeleton and from this analysis, we can use DNA to learn the age, sex, ethnicity or even disease.”

Osanna told The Post that there's been limited excavation at Pompeii since the 1950s. To this day, a large swatch of the area has not been touched yet — about 54 of the site's 163 acres, he said. But last year, archaeologists resumed their efforts in a much more robust campaign to discover more bones and skulls — and more about the lost civilization.

For anyone who's interested in seeing the man's remains up close (rather than just sharing the photos as online memes), Osanna said he hopes that tourists might be able to visit the park's laboratory in a year or two.

Around the world, other experts found the skull's discovery mesmerizing.

Kristina Killgrove, a bio-archaeologist who has done excavation work in a city near Pompeii that was also engulfed by Mount Vesuvius's eruption, said the skull's discovery is startling.

"A lot of skeletons that were excavated hundreds of years ago were found when archaeologists weren't interested in the human body," said Killgrove, who wrote a Forbes article detailing her observations of the skull in more depth. "This guy, because he's not co-mingled with other people, can give us a lot of information about how he died."

Killgrove said she couldn't help but notice one thing about his skull.

"His teeth," she said, "are really nice. They're worn down but they're really nice."

Please visit the site:

<https://www.washingtonpost.com/news/retropolis/wp/2018/06/29/everyone-thought-he-was-killed-by-a-giant-rock-at-pompeii-then-they-found-his-skull/> [Go there for pix]

TWO 4,500-YEAR-OLD HOMES FOUND NEAR GIZA PYRAMIDS, BY OWEN JARUS

Archaeologists have discovered two ancient homes near the Giza pyramids in Egypt. The structures may have housed officials responsible for overseeing the production of food for a paramilitary force more than 4,500 years ago.

The residences were found in an ancient port at Giza that flourished at a time when the Pyramid of Menkaure was being constructed at Giza.
(Menkaure was a pharaoh who reigned from around 2490 B.C. to 2472 B.C.)

One of the structures may have housed an official who oversaw the containment and slaughtering of animals for food, while a priest who was part of an institution called the "wadaat" may have lived in the other home, archaeologists said. [See Photos of the Excavation Site and Giza Residences]

Seals found near the suspected priest's residence mention the wadaat, an ancient Egyptian institution whose priests could be high-ranking officials in government, said Mark Lehner, the director of Ancient Egypt Research Associates, the organization that led excavations at the two homes. This residence is attached to a structure that may have been used for malting, suggesting that its occupant oversaw brewing and baking operations at the time, Lehner said.

The two residences are located near a series of structures called galleries, which may have housed a paramilitary force at Giza, Lehner said. These galleries may have held more than 1,000 people. Any food produced near the two residences was likely meant mainly for people living in the galleries, although some of the food could have reached people working at the Menkaure pyramid, Lehner said.

Just the food necessary to feed those living in the galleries would have been immense. The amount of emmer wheat required may have been 877.54 kilograms (1,934 lbs.) per day, calculated Claire Malleson, an archaeobotanist with Ancient Egypt Research Associates, in a paper published in the book "Exploring the Materiality of Food Stuffs" (Routledge, 2017).

People would have had to bake this emmer wheat and turn it into bread. Those living in the galleries and laboring on the Menkaure pyramid would also have required a massive amount of meat.

Ancient port

The two residences are located in what Lehner believes was "basically the national port of its time," with goods and materials coming in from all over Egypt and the eastern Mediterranean. Archaeologists previously found other residences in this port, including a 21-room house used by scribes who worked in the port.

A port was likely also in operation at Giza when the Great Pyramid was being constructed in the name of the Pharaoh Khufu (reign circa 2551–2528 B.C.). A logbook written by an inspector named Merer, who lived during the 27th year of Khufu's reign,

appears to contain references to such a port. This logbook is in the process of being deciphered.

Excavations will resume in this area in 2019.

Please visit the site: <https://www.livescience.com/62976-ancient-homes-giza-pyramids.html>

PTOLEMIC-ERA BLACK GRANITE
SARCOPHAGUS DISCOVERED IN
ALEXANDRIA THE TOMB, WHICH WAS
FOUND AT A BUILDING SITE, MEASURE 8.5
FEET LONG AND 5 FEET WIDE,
BY JASON DALEY

A black granite sarcophagus was recently uncovered in the Sidi Gaber district of Alexandria, Egypt, reports Rob Waugh at Yahoo News UK. The most exciting part? A layer of mortar between the lid and the rest of the tomb indicates that the coffin hasn't been opened in 2,000 years, which is rare in Egypt where looters have picked through tombs and burials for millennia.

The ancient sarcophagus was found by local authorities during standard archaeological excavations conducted before the construction of a new building on Al-Karmili Street. It was found approximately 16 feet below ground. A rough alabaster bust of a man, likely a depiction of the body in the coffin, was also discovered in the tomb, which is believed to date from the era of the Ptolemies, the Greek royal family dynasty that ruled for roughly three centuries from 305 to 30 B.C.E.

According to the Ministry of Antiquities, the tomb is about 8.6 feet long and more than 5 feet wide. Mostafa Waziri, general secretary-general of the Supreme Council of Antiquities, says it is the largest sarcophagus ever excavated in the city.

This is just the latest discovery in Alexandria, an ancient city written off by archaeologists for decades. According to Andrew Lawler at Smithsonian, researchers often ignored the fabled city founded by Alexander the Great and ruled over by his close advisor Ptolemy and his descendants after its namesake's death. That's because over the centuries a bustling, congested metro area of 5 million people has grown up over the ruins of marble palaces, monuments and other ancient works.

But over the last few decades, researchers have begun the painstaking work of urban archaeology, going layer by layer into the city's past. In 2005, archaeologists uncovered the remains of the University of Alexandria, where ancient Greek mathematician Archimedes studied. The remains of the Pharos, a lighthouse built by the Ptolemies that was considered one of the Seven Wonders of the Ancient World also lies in Alexandria's harbor. In fact, changes in the flow of the Nile River and rising sea levels mean that large chunks of the ancient city are currently underwater, a submerged time capsule ready for exploration.

Alexandria isn't the only coastal Egyptian city giving up its secrets. In the early 2000s, researchers discovered the legendary city Thonis-Heracleion, the ancient port city at the mouth of the Nile destroyed by an earthquake just a few miles from Alexandria. Jack Shenker at The Guardian reports that over the past decade and a half, underwater archaeologists have used vacuum systems to suck sediment and artifacts off the seabed,

and have uncovered incredible statues, sarcophagi and stele, including the Decree of Sais, a stele that lays out Egypt's intricate tax law. In fact, only 5 percent of Thonis-Heracleion has been explored, meaning there are decades of discoveries still to come.

While it's too soon to make predictions on the identity of the body inside the newly discovered sarcophagus in Alexandria, one thing is for certain: it won't be the last discovery made along Egypt's Mediterranean coast.

Please visit the site: <https://www.smithsonianmag.com/smart-news/giant-black-sarcophagus-discovered-alexandria-egypt-180969551/>

MONGOLIANS PRACTICED HORSE DENTISTRY AS EARLY AS 3,200 YEARS AGO, BY BRUCE BOWER

Equine tooth extractions evolved to make way for a riding bit, making mounted warfare possible

Mongolian pastoralists were trying to remove troublesome teeth from horses' mouths almost 3,200 years ago, making those mobile herders the earliest known practitioners of horse dentistry, a new study finds.

Those initial, incomplete tooth removals led to procedures for extracting forward-positioned cheek teeth known as first premolars from young horses, say archaeologist William Taylor and his colleagues. That dental practice, which dates to as early as about 2,800 years ago, coincided with the appearance in Mongolia of metal bits that made it easier for riders to control horses, the researchers report the week of July 2 in the Proceedings of the National Academy of Sciences. Long-distance travel and mounted warfare with sedentary civilizations across Asia soon followed (SN: 11/25/17, p. 16).

“Veterinary dentistry was instrumental in the rise of horse warfare on the Eurasian steppes, allowing herders to use metal bits while avoiding behavior and health complications for horses that may have accompanied bit use,” says Taylor, of the Max Planck Institute for the Science of Human History in Jena, Germany. In particular, first premolars could interfere with a bit's movement and cause pain or damage to the tooth.

Taylor's group identified microscopic signs of cutting and sawing on frontal teeth from two of 10 Bronze Age Mongolian horses. These two teeth, which date to between around 3,200 and 2,900 years ago, apparently grew at odd angles that may have interfered with chewing.

Horseback riding became widespread in Mongolia at that time (SN: 5/27/17, p. 10).

Of seven Mongolian horses dating to between around 2,800 and 1,650 years ago that had empty first premolar jaw sockets, six displayed bone regrowth in those sockets indicating that teeth had been extracted or lost due to other causes before the animals died.

Please visit the site: <https://www.sciencenews.org/article/mongolians-practiced-horse-dentistry-early-3200-years-ago> [Go there for pix and caps]

ANCIENT EGYPTIAN WOMAN WITH 70 HAIR EXTENSIONS DISCOVERED, BY OWEN JARUS

More than 3,300 years ago, in a newly built city in Egypt, a woman with an incredibly elaborate hairstyle of lengthy hair extensions was laid to rest.

She was not mummified, her body simply being wrapped in a mat. When archaeologists uncovered her remains they found she wore "a very complex coiffure with approximately 70 extensions fastened in different layers and heights on the head," writes Jolanda Bos, an archaeologist working on the Amarna Project, in an article recently published in the *Journal of Egyptian Archaeology*.

Researchers don't know her name, age or occupation, but she is one of hundreds of people, including many others whose hairstyles are still intact, who were buried in a cemetery near an ancient city now called Amarna. [See Photos of the Egyptian Skeletons and Elaborate Hairstyles]

This city was constructed as a new capital of Egypt by Akhenaten (reign ca. 1353-1335 B.C.), a pharaoh who unleashed a religious revolution that saw the Aten, a deity shaped as a sun disk, assume supremacy in Egyptian religion. Akhenaten ordered that Amarna be constructed in the desert and that images of some of Egypt's other gods be destroyed. Amarna was abandoned shortly after Akhenaten's death, and today archaeologists supported by the Amarna Trust are investigating all aspects of the ancient city, including the hairstyles its people wore.

Bos is leading the hairstyle research, and the woman with 70 extensions leaves her puzzled.

"Whether or not the woman had her hair styled like this for her burial only is one of our main research questions," said Bos in an email to Live Science. "The hair was most likely styled after death, before a person was buried. It is also likely, however, that these hairstyles were used in everyday life as well and that the people in Amarna used hair extensions in their daily life."

Many of the other skulls Bos analyzed also had hair extensions. One skull had extensions made of gray and dark black hair suggesting multiple people donated their hair to create extensions.

Hairy discoveries

As Bos analyzed a selection of 100 recently excavated skulls (of which 28 still had hair) from the Amarna cemetery, she noticed the people who lived in the ancient city had a wide variety of hair types. They range "from very curly black hair, to middle brown straight," she noted in the journal article, something "that might reflect a degree of ethnic variation."

Those skulls with brown hair often had rings or coils around their ears, a style that was popular at Amarna, she found. Why people in this city liked it is unknown. "We still have no idea. This is of course one of the answers we are still trying to find from the record," said Bos in the email.

People in the city also seemed to be fond of braids. "All braids found in the coiffures were simple and of three strands, mostly 1 cm [0.4 inches] wide, with strands of approximately 0.5 cm [0.2 inches] when tightly braided," Bos writes in the journal article.

People at Amarna also liked to keep their hair short. "Braids were often not more than 20 cm [7.9 inches] long, leaving the hair at shoulder length approximately," Bos added. "The longest hair that was found consisted of multilayered extensions to a length of approximately 30 cm [11.8 inches]."

Fat was used to help create all the hairstyles Bos found, something that would have helped keep the hair in one piece after death. More research is needed to determine whether the fat was from animals. A textile found on each of the skulls may have been used to cover part of the head.

Hide the gray?

In one case a woman has an orange-red color on her graying hair. It appears that that she dyed her hair, possibly with henna (a flowering plant).

"We are still not completely sure if and what kind of hair coloring was used on this hair, it only seems that way macroscopically," said Bos in the email. "At present we are analyzing the hairs in order to find out whether or not some kind of coloring was used. On other sites dyed hair was found from ancient Egypt."

This woman, among other ancient Egyptians, may have dyed her hair "for the same reason as why people dye their hair today, in order not to show the gray color," Bos said.

Please visit the site: <https://www.livescience.com/47875-ancient-egyptian-woman-with-hair-extensions.html> [Go there for pix]

ANCIENT FIND MAY BE EARLIEST EXTRACT OF EPIC HOMER POEM ODYSSEY CLAY SLAB BELIEVED TO DATE FROM 3RD CENTURY AD DISCOVERED NEAR ANCIENT CITY OF OLYMPIA

Archaeologists have unearthed an ancient tablet engraved with 13 verses of the Odyssey in the ancient city of Olympia, southern Greece, in what could be the earliest record of the epic poem, the Greek culture ministry said.

The clay slab is believed to date back to the 3rd century AD, during the Roman era.

“If this date is confirmed, the tablet could be the oldest written record of Homer’s work ever discovered in Greece,” the culture ministry said.

The extract, taken from book 14, describes the return of Ulysses to his home island of Ithaca.

The tablet was discovered after three years of surface excavations by the Greek Archaeological Services in co-operation with the German Institute of Archaeology.

It was found close to the remains of the Temple of Zeus at the site of the Olympic Games in the western Peloponnese.

Composed orally during the 8th century BC, the epic poem – attributed to Homer – was transcribed during the Christian era on to parchment of which only a few fragments have been discovered in Egypt.

Please visit the site: <https://www.theguardian.com/books/2018/jul/10/earliest-extract-of-homers-epic-poem-odyssey-unearthed> [Go there for pict]

ROMANS HAD WHALING INDUSTRY, ARCHAEOLOGICAL EXCAVATION SUGGESTS - ANCIENT WHALE BONES HAVE BEEN FOUND ON THREE ROMAN FISH PROCESSING SITES CLOSE TO THE STRAIT OF GIBRALTAR, BY NICOLA DAVIS

Ancient bones found around the Strait of Gibraltar suggest that the Romans might have had a thriving whaling industry, researchers have claimed.

The bones, dating to the first few centuries AD or earlier, belong to grey whales and North Atlantic right whales – coastal migratory species that are no longer found in European waters.

Researchers say this not only suggests these whales might have been common around the entrance to the Mediterranean in Roman times, but that Romans might have hunted them.

They add that Romans would not have had the technology to hunt whale species found in the region today - sperm or fin whales which live further out at sea - meaning evidence of whaling might not have been something archaeologists and historians were looking out for.

“It’s the coastal [species] that makes all the difference,” said Dr Ana Rodrigues, first author of the research from the Functional and Evolutionary Ecology Centre, CEFE, in France.

The right whale was once widespread in the North Atlantic, with breeding grounds off the northern coast of Spain and north west Africa, but was hunted by Medieval Basque whalers among others, and are now only found in the Western North Atlantic. Grey whales disappeared from the North Atlantic some time in the 18th century, and are now only found in the Pacific.

Until the recent discoveries it was unclear whether the whales’ habitat had ever included the Mediterranean: the region is southerly enough for the animals to potentially calve there after feeding in more northerly areas. While there are a handful of historical reports of right whales cropping up in the Mediterranean, the only reliable grey whale sighting in the region was in 2010 and is thought to have been a misguided individual that turned up from the Pacific.

Writing in the journal Proceedings of the Royal Society B, Rodrigues and a team of archaeologists and ecologists, describe how they set out to unpick the issue by examining 10 bones – thought to be from whales – collected during recent archaeological digs or housed in museum collections. These bones came from five sites – four around the Strait of Gibraltar and one site on the coast of north-west Spain, three of which were linked to the Roman fish-salting and fish-sauce making industries.

The team combined previous anatomical analysis with new analyses based both on DNA extracted from the bones and their collagen – a protein whose makeup differs between groups of species, and which degrades more slowly than DNA.

While one of the bones was found to be from a dolphin and another from an elephant – possibly a war animal – three were identified as grey whales, and two as North Atlantic right whales with another also suspected of being from this latter species. All were found by carbon-dating as being from either Roman or pre-Roman times – findings backed up by dating based on information from the archaeological sites.

The team say the discovery suggests grey and North Atlantic right whales were common in the waters around the Strait of Gibraltar during Roman times, since whale bones rarely end up in the archaeological record and they are not prized possessions.

This theory is backed up by writings from the time: Pliny the Elder – a fervent naturalist who died down the coast from Pompeii during the volcanic disaster – appears to reference whales calving in the coastal waters off Cadiz in the winter in his *Naturalis Historia*. And if the whales were present, the team say, it is possible the Romans hunted them.

The team say the location of the bones, and other evidence, suggests whales might even have entered further into the Mediterranean sea itself to calve.

Dr Vicki Szabo, an expert in whaling history from Western Carolina University said the study offered a rare glimpse into the past habitats of the whales, and backed up ideas that industrial hunting might have happened far earlier than widely thought, although its scale is unclear. “Whales are considered archaeologically invisible because so few bones are transported from shore to site, so I think in that context this concentration of species that they have is meaningful,” she said.

Mark Robinson, professor of environmental archaeology at the University of Oxford, said there have been suggestions for a decade that some Roman sites with fish vats in the region might have been linked to whaling. “The Greek author Oppian, writing in the 2nd century AD, describes whales being hunted in the Western Mediterranean by harpooning them on the surface, also using tridents and axes to kill them, lashing them to a boats and then dragging them to the shore.”

However Dr Erica Rowan, a classical archaeologist at Royal Holloway, University of London, said while the study suggests the habitats of the whales probably extended to include the Gibraltar region, how common the whales were and whether the Romans industrially hunted them as they did fish such as tuna remains unclear – not least because the study included just a handful of bones from a period spanning several hundred years.

“I think that if these whales were present in such numbers and were being caught on an industrial scale that we would have more evidence, perhaps not in the zoo archaeological record but in the ceramic record and in the literary sources,” she said. “The Romans ate and talked about an enormous variety of fish and seafood, and if whale was widely exploited and exported, then it is strangely absent from many discussions.”

But Rodrigues is more hopeful about what the discovery tells us. “I think [this study] can change our perspective of the Roman economy,” she said.

Please visit the site: <https://www.theguardian.com/science/2018/jul/11/romans-had-whale-industry-archeological-excavation-suggests>

NEW SAQQARA NECROPOLIS DISCOVERY **TO REVEAL SECRETS OF** **MUMMIFICATION: EGYPT MINISTRY OF** **ANTIQUITIES, BY NEVINE EL-AREF**

A mummification workshop was discovered in the Saqqara necropolis, along with a communal burial place consisting of several burial chambers, from the Saite-Persian Period.

Just south of Unas Pyramid in Saqqara necropolis in Giza the air is buzzing with people who flocked to the site, trying to catch a glimpse of the new discovery to be announced at a press conference.

Minister of Antiquities Khaled El-Anany announces the beginning of the excavation of a mummification workshop discovered along with a communal burial place, consisting uniquely of several burial chambers and dating to the Saite-Persian Period (664-404 BC). The work is being carried out south of the King Unas Pyramid in Saqqara by an Egyptian-German mission from the Tübingen University.

“A collection of 35 mummies has been uncovered along with four sealed sarcophagi that are to be opened soon to explore what lies inside,” El-Anany said. He added that one of the most important items uncovered is a gilded silver mummy mask found in a burial chamber off the main shaft attached to the mummification workshop.

Early studies show that the mask belongs to a person who held the titles ‘the second priest of Mut’ and ‘the priest of Niut-Shaes’. Preliminary microscopic examination suggests that it is made of gilded silver, and the eyes are inlaid with a black gemstone (possibly onyx), calcite and obsidian.

The wig is also inlaid with gemstones that were once embedded in coloured pastes. The mask measures 23 x 18.5 cm. A research and conservation project is currently being planned for the mask.

Ramadan Badry Hussein, director of Saqqara Saite Tombs Project and professor at Tübingen University describes the discovery as rare.

Hussein told Ahram Online that the mummification workshop, a rectangular building constructed with mud bricks and irregular limestone blocks, was found 30 metres beneath the ground.

On the south-western corner an entrance leads into an open area with two large basins and a mud brick ramp between them. The two basins are surrounded with mud brick walls.

It is believed that they were for the natron (a salt mixture used as a drying agent in embalming) and the preparation of linen bandages. He states that the mummification

workshop includes also an embalming cachette with a 13.00 metre deep shaft, ending with a rectangular subterranean chamber, where a large corpus of pottery was found.

This pottery includes vessels, bowls and measuring cups inscribed with the names of oils and substances used in mummification. The mummification workshop has also a large shaft (K 24) in the middle, which is used as a communal burial place. It measures 3 x 3.35 x 30 m.

Shaft K24 is unique in having several burial chambers, including a complex of burial chambers cut into the bedrock at a depth of 30.00 m.

They are arranged on the sides of two hallways. The first hallway has an intact burial chamber on the west, where three decayed wooden coffins were found on top of the western end of a large limestone sarcophagus.

A fourth mummy is found to the north of that sarcophagus. A large number of faience ushabti figurines were also found along the northern side of the sarcophagus.

Hussein pointed out that the middle wooden coffin, on top of the sarcophagus, is badly damaged, and the mummy inside it has a gilded mask that was found on top of the face of the mummy.

The wooden coffin was once plastered and painted with an image of the goddess Nut, the mother of the god of the dead, Osiris.

The decoration also includes the titles of the owner of the mask along with his name. He is the second priest of the goddess Mut and the priest of the goddess Niut-Shaes, a serpent form of the goddess Mut.

The theophoric name of the owner of the mask includes the name of the goddess Neith, the patron goddess of 26th Dynasty.

Pieces of the painted plaster carrying the rest of his name are still missing, and the mission is collecting more of them in order to read the full name of the deceased.

Mostafa Waziri, the secretary general of the Supreme Council of Antiquities, told Aham Online that this discovery is the first to be found since the last excavation work carried out by Maspero in 1900 where he found a several burials.

Waziri describes the discovery as important and unique, adding that German-Egyptian mission is very lucky to find such workshop.

He pointed out that the discovery is still at its beginning and more finds are expected.

The Tübingen University's mission to Saqqara has witnessed the implementation of state of the art technology in the documentation and recording of monuments, particularly in laser scanning and photogrammetry techniques.

The mission's digital documentation activities include the creation of 3D photogrammatic models and laser scans of the burial chambers of Padinist, director of the

storage department of the royal palace, Psamtek, chief physician and commander of the libyan mercenaries, and Amentayefnakht, commander of the recruits.

The mission also conducted a conservation project of the polychrome reliefs and inscriptions in these burial chambers.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/9/40/306907/Heritage/Ancient-Egypt/New-Saqqara-necropolis-discovery-to-reveal-secrets.aspx>

TRACES OF WAR FOUND IN ANCIENT LYDIAN CITY SARDIS

Military equipment has been unearthed in the ancient city of Sardis in the western province of Manisa's Salihli district. Officials believe they might have been used in an ancient war between the Lydians and the Persians.

The ancient city of Sardis, which was the capital of the Lydian Kingdom in the ancient ages and had been home to many civilizations from seventh B.C. to seventh A.D., is now undergoing excavation works.

This year's works continue in an area called the "Palace" region.

The ancient city of Sardis is also the first place where coins were minted and is home to one of the Seven Churches of Christianity.

The military equipment is believed to have been used in the war that caused the end of the Lydian Kingdom in 546 B.C.

Speaking about the excavations, the head of Sardis excavations, Professor Nicholas Dunlop, said, "This season we continue working inside the terrace walls in the area called the Palace region. We want to examine closely the structures of the terrace walls. Last year we were surprised during the works on the terrace walls. We found a level from the Bronze Age. We made excavations three meters deep at this level. Now our goal is to work in 10 meters depth."

Dunlop said that last year's excavations revealed extraordinary artifacts that did not belong to the mentioned period, such as a military shield, a piece of ivory from a furniture and stone seal.

"These pieces make our predictions stronger that this area was the field of a palace. We also found pots, cooking bowls and a piece of floor. We found three arrowheads in this floor. These arrowheads might be from the last big war, which occurred between Kroisos and Cyrus.

Nearly 40-50 arrowheads have so far been found in different fields during excavations at different times," he said.

Güzin Ersen, a doctorate student at Boston University's archaeology department, said, "Currently we are continuing to work at the structures kings built to represent their own power. The huge terrace walls were built to support the monumental structures. We are talking about very big structures. They were made of 3x1-meter stones. This terrace wall goes as far as 50 meters. This was a big investment in the past. The state and the kings made these structures to show their own power."

The war materials in the ancient city are expected to shed light on the collapse of the Lydian civilization after the Persians seized Sardis at the end of the 14th day of the war and plundered it.

Sardis

Situated in the area of Sart in the Salihli district, Sardis was home to many civilizations between seventh century B.C. and the early Byzantine era.

The city became rich thanks to agriculture, stockbreeding, trade and gold mining.

Sardis was also one of the Seven Churches of Revelation that played an important role in the growth of Christianity. Artifacts that have been unearthed there are now displayed at Manisa Museum.

Please visit the site: <http://www.hurriyetailynews.com/traces-of-war-found-in-ancient-lydian-city-sardis-134494>

EGYPTIAN SHIP MODEL SHEDS LIGHT ON BRONZE AGE WARFARE AND RELIGION, BY SHELLEY WACHSMANN

A wooden model of a ship-cart excavated at Gurob, Egypt, is the single most important piece of evidence for a now-lost warship design that was decisive in Mediterranean history

Ancient Egypt conjures visions of towering monuments and glittering gold, but it's often the small, unassuming archaeological finds that yield the deepest insights. The exhibition *Beyond the Nile: Egypt and the Classical World* explores some of these underappreciated objects and what they can tell us about the complex interactions among ancient Egypt, Greece, and Rome. This small wooden ship-cart model from an Egyptian tomb is one example.

In 1920 the great Egyptologist W.M. Flinders Petrie excavated at Gurob, a site located at the entrance to Egypt's Fayum district. One tomb contained a wooden ship model, together with pieces that had come off it. The model replicates a Late Bronze Age Mycenaean Greek warship, probably a pentakonter (fifty-oared ship). The "Sea Peoples"—a term used to describe the coalitions of migrating peoples who factored into the end of the Bronze Age, around 1200 B.C.—adopted and adapted this ship type, as we can see from the dramatic naval battle portrayed on the outer wall of Ramses III's mortuary temple at Medinet Habu.

Reaching the Near East during the Sea Peoples' migrations, this vessel served as the prototype for later galleys (oared ships) built and used by both the Greeks and the Phoenicians. When Greek triremes defeated Phoenician triremes at Salamis in 480 B.C., both vessel types descended from the same original Mycenaean pentakonter, making it arguably one of the most significant ship designs in history.

Unfortunately, no shipwrecked hulls of such a Bronze Age galley have come to light, so the Gurob model remains our single most important piece of evidence for understanding these remarkable vessels. Put simply, if Helen of Troy's face launched a thousand ships, then at present the Gurob model is the nearest we can approach that ship type.

The model, together with some of its detached pieces, were all that Petrie's assistants found in the tomb. Prior to its interment, someone had disassembled the model and broken the hull in two, apparently intentionally. A number of the model's parts are missing. The model retains its forecastle, however, although the fence is missing. The stem ends in a typical Mycenaean bird-head device, with a strange vertical beak known from other ship depictions. A structure now indicated solely by patterns of missing gesso, would have existed in the stern also.

Significantly, the model documents well the supporting stanchions postulated previously solely on the basis of two-dimensional representations of this ship type: the model has both miniature stanchions and rows of holes piercing the upper edges of the model's caprail (upper edges of a ship's hull), indicating their placement.

Four painted wheels, together with additional evidence, indicate that the model originally could have been displayed with a wagon-like support structure. At first glance, one may be excused for assuming that the model served as a child's toy. One would be wrong, however.

A diminutive decorated rectangular slip of wood, pierced at its center, was meant to sit beneath the hull. In this manner, the piece could be attached by means of a peg to a hole cut into the underside of the hull amidships. But what does this piece represent?

In ancient Egypt, people depended on the Nile as a main transportation superhighway. It is hardly surprising, then, that watercraft played an integral role in Egyptian religious life. Egyptians had the periodic need to transport ships overland, for three primary reasons: for funerary rituals, to move gods in ship-shaped palanquins, and for divination. The normal manner of carrying these cult "ships" overland was on the shoulders of porters, by means of long poles. The carrying poles required a base for attachment, as well as for the support of the ship itself: the Egyptologist George Legrain termed this base a *pavois* (French for "shield" or "buckler").

Ancient land-based Egyptian cult ships were normally, although not always, carried on long poles supported by priestly porters. Thutmose III. Photo: S. Wachsmann

The appearance of this modest slip of wood, representing a *pavois*, on the Gurob model is highly significant. It indicates that the model is no simple child's toy (my original assumption), but rather a cult vessel. It also points to a syncretism in which a European cult that used such "ship carts"—likely the cult of Dionysos—is seen in the process of assimilation as it adopts Egyptian cultic affectations. The cultic nature of the model also explains why the model and its parts were found alone in the tomb: the model may have been buried by itself due to its cultic significance.

The wheeled-cart aspect of the model is decidedly un-Mycenaean. The model's wagon belongs to a cultural phenomenon of cultic objects that appear in the twelfth century B.C. in the Aegean world, apparently arriving from farther north in central Europe. In fact, the Gurob model should not be understood as replicating an actual ship. Rather, it represents a land-based cultic ship (cart) that had been patterned after an actual ship, in this case a pentakonter. Put simply, the Gurob model is a copy of a copy. And while the Gurob model was thus twice removed from the original war galley that served as its prototype, the information that the model supplies regarding the transfer of cult in the seam between the Late Bronze and Iron Ages cannot be overemphasized.

The Gurob model also bears painted decoration, which imbues it with additional value, contributing to our understanding of the color epithets employed by Homer when describing the ships of his heroes. We literally see what Homer meant by his "black" ships: he refers to the pitch on the ship's hull as seen on the model.

The Dakhla Oases ship graffito. Courtesy of the Egypt Exploration Society. Photo: H. A. Winkler

The Gurob model must be considered in relation to the only other iconographic sources for Aegean galleys known from Egypt: the naval battle depicted on Ramses III's

mortuary temple at Medinet Habu, and a remarkable graffito from Dakhla Oasis, which depict these vessels employed in warfare and cult.

The Wilbour Papyrus, a cadastral document concerned with documenting the ownership of land for taxation purposes, together with additional textual evidence, indicates that one group of Sea Peoples, the Sherden, lived in and around Gurob contemporaneous to the model, raising the likelihood that the model belonged to someone of Sherden descent.

In researching the Gurob model for my book *The Gurob Ship-Cart Model and Its Mediterranean Context*, I enlisted the help of Dr. Donald Sanders, president of the Institute for the Visualization of History.

Donald and his colleagues built a free-access companion website for my book on the Gurob model that includes fully rotatable 3D virtual models of the Gurob model as found, together with two possible reconstructions: one with the model mounted on wheels and the other as it might be constructed to be carried by porters. Building the virtual model proved to be remarkably valuable in the research stage. We learned, by error, for example, that the wheels had been made as two pairs. When the pairs were mismatched, the model stood unevenly. The website also contains maps, satellite photos, and a complete collection of high-resolution color images of the model and its parts, which appear in black and white in the book.

Building a virtual 3D model of the Gurob model revealed many secrets.

Manipulate the 3D virtual model here, and see more virtual models of the Gurob ship-cart here.

We learned, for example, that the wheels had been prepared in “sets.”

This became clear when we originally mismatched the wheels. Courtesy of the Institute for the Visualization of History. Images: D. Sanders

Unless and until someone discovers, excavates, and reports on a Mycenaean or Sea Peoples galley, the Gurob ship-cart model may be the closest we will ever come to this truly remarkable ship type, which played such a significant role in the changing the course of world history at a critical juncture.

Please visit the site: <http://blogs.getty.edu/iris/egyptian-ship-model-sheds-light-on-bronze-age-warfare-and-religion/> [Go there for pix]

RARE GILDED DEATH MASK UNEARTHED IN EGYPT, BY CARLA BARANAUCKAS

Discovery of the 2,000-year-old death mask is “a sensation,” an expedition leader said, because most Egyptian dignitaries’ tombs were looted in ancient times.

A team of Egyptian and German archaeologists has discovered a mummification workshop that contained a rare gilded death mask, Egypt’s minister of antiquities announced Saturday.

The mask, which is more than 2,000 years old, is formed of silver with a thin layer of gold and appears to have been made for a priest of the Sufi period, said Ramadan Badry Hussein, the leader of the expedition.

“The finding of this mask could be called a sensation,” Hussein, a professor at the University of Tübingen in Germany, said at a press conference. “Very few masks of precious metals have been preserved to the present day, because the tombs of most ancient Egyptian dignitaries were looted in ancient times.”

The mummification workshop, found at the Saqqara necropolis of Memphis, is alongside a shaft that was used as a communal burial place. The last time this site was excavated was in 1900.

Some of the artifacts from the site will be put on display in the Grand Egyptian Museum, which is under construction.

The mummification workshop includes an embalmer’s cachette containing pottery vessels, bowls and measuring cups. Archaeologists are hoping to learn more about the oils used in the mummification process.

“We are in front of a gold mine of information about the chemical composition of these oils,” Hussein said.

Please visit the site: https://www.huffingtonpost.com/entry/rare-gilded-death-mask-unearthed-in-egypt_us_5b4c7087e4b0bc69a7890209 [Go there for a brief video]

SARCOPHAGUS FOUND. CONTENTS **UNKNOWN. ('NO GUESSING, PLEASE.')**

Jet black and glistening with mud, the giant granite sarcophagus sits at the bottom of a pit in the Egyptian city of Alexandria, perfectly sealed despite being 2,000 years old, prompting ever-wilder theories about what secrets might lie inside.

The discovery of the sarcophagus on a construction site last month was a rare find in Alexandria, a fabled port city where most traces of Egypt's ancient civilizations have crumbled into the waves or lie buried beneath urban sprawl.

A contractor digging foundations for a building on Al Karmili Street spotted the gleam of the burial vessel, which measures nearly nine feet by five. Archaeologists continued the dig by hand, and were excited to discover that the mortar seal around the heavy lid was entirely intact.

That is unusual: Centuries of plunder by treasure hunters and professional tomb raiders have spoiled many ancient Egyptian burial sites.

Speculation was rife about who, or what, may lie inside.

There are few clues. The Egyptian Ministry of Antiquities has dated the artifact to the rule of the Ptolemaic dynasty, the Greek royal family that reigned over Egypt for about three centuries following the death of Alexander the Great in 323 B.C.

The sarcophagus is unmarked, although a badly eroded alabaster bust found nearby might be a likeness of its occupant. Some officials have theorized that it could be a city nobleman or some other leading figure from the Ptolemaic period.

Twitter, of course, gave vent to some wackier theories, including predictions of doom if the box were opened.

Zahi Hawass, an Egyptologist and former antiquities minister known for his Indiana Jones-style hats, has suggested the find could bolster efforts to locate the tomb of Alexander the Great.

But officials poured cold water on the speculation, and some seemed downright exasperated by it.

"I've had calls about this all day," said Mostafa Waziri, secretary general of the government's Supreme Council of Antiquities. "People are saying it might contain Alexander or Cleopatra or Ramses. They don't know what they are talking about."

Mr. Waziri said his ministry had excavated 10 other sealed sarcophaguses in Minya, south of Cairo, this year. Some contained mummies, others had beads, amulets or religious statues, he said. "So what about this one?" he said. "It might be nothing special. We will only know when we open it."

Egyptian officials have learned to be cautious about making sweeping predictions. Three years of excited speculation about a hidden chamber in the tomb of the boy pharaoh Tutankhamen, which some experts said could contain the remains of Queen Nefertiti, ended in disappointment in May when radar scans proved conclusively that there were no hidden cavities after all.

Otherwise, though, it has been a good year for discoveries in Egypt. Archaeologists have found a hidden network of tombs in Minya and a rare Greco-Roman temple in the western desert, while the authorities have stepped up efforts to recover ancient treasures smuggled abroad.

In the past month alone, the Ministry of Antiquities has recovered nine precious items from France, including colored coffins and statues of cats, and a giant haul of smuggled antiquities was seized at an Italian port, including gold-plated mummy masks, wooden model boats and 21,660 coins.

Thousands of artifacts, including much of the Tutankhamen collection, have been transferred to the Grand Egyptian Museum, a spectacular \$1 billion project being built near the Giza pyramids outside Cairo.

After years of uneven progress, construction is now proceeding apace, and Egyptian officials say the building should be completed by the end of 2018, with a public opening sometime next year. Officials say it will be the world's largest museum devoted to a single civilization.

Whether the contents of the mysterious black sarcophagus in Alexandria find their way to the museum is likely to be determined in the coming days, Mr. Waziri said, when officials prize open its lid.

“If we find an inscription, it will be lovely. If we find the owner, even better,” he said. “But no guessing, please. Archaeology depends on evidence.”

A version of this article appears in print on July 14, 2018, on Page A10 of the New York edition with the headline: Sarcophagus Is Found in Egypt, and Theories About the Contents Fly.

Please visit the site: <https://www.nytimes.com/2018/07/13/world/middleeast/egypt-black-sarcophagus.html>

ARCHAEOLOGISTS DISCOVER BREAD THAT PREDATES AGRICULTURE BY 4,000 YEARS

At an archaeological site in northeastern Jordan, researchers have discovered the charred remains of a flatbread baked by hunter-gatherers 14,400 years ago. It is the oldest direct evidence of bread found to date, predating the advent of agriculture by at least 4,000 years. The findings suggest that bread production based on wild cereals may have encouraged hunter-gatherers to cultivate cereals, and thus contributed to the agricultural revolution in the Neolithic period.

A team of researchers from the University of Copenhagen, University College London and University of Cambridge have analysed charred food remains from a 14,400-year-old Natufian hunter-gatherer site – a site known as Shubayqa 1 located in the Black Desert in northeastern Jordan. The results, which are published today in the journal *Proceedings of the National Academy of Sciences*, provide the earliest empirical evidence for the production of bread:

“The presence of hundreds of charred food remains in the fireplaces from Shubayqa 1 is an exceptional find, and it has given us the chance to characterize 14,000-year-old food practices. The 24 remains analysed in this study show that wild ancestors of domesticated cereals such as barley, einkorn, and oat had been ground, sieved and kneaded prior to cooking. The remains are very similar to unleavened flatbreads identified at several Neolithic and Roman sites in Europe and Turkey. So we now know that bread-like products were produced long before the development of farming. The next step is to evaluate if the production and consumption of bread influenced the emergence of plant cultivation and domestication at all,” said University of Copenhagen archaeobotanist Amaia Arranz Otaegui, who is the first author of the study.

University of Copenhagen archaeologist Tobias Richter, who led the excavations at Shubayqa 1 in Jordan, explained:

“Natufian hunter-gatherers are of particular interest to us because they lived through a transitional period when people became more sedentary and their diet began to change. Flint sickle blades as well as ground stone tools found at Natufian sites in the Levant have long led archaeologists to suspect that people had begun to exploit plants in a different and perhaps more effective way. But the flat bread found at Shubayqa 1 is the earliest evidence of bread making recovered so far, and it shows that baking was invented before we had plant cultivation. So this evidence confirms some of our ideas. Indeed, it may be that the early and extremely time-consuming production of bread based on wild cereals may have been one of the key driving forces behind the later agricultural revolution where wild cereals were cultivated to provide more convenient sources of food.”

The charred food remains were analysed with electronic microscopy at a University College London lab by PhD candidate Lara Gonzalez Carratero (UCL Institute of Archaeology), who is an expert on prehistoric bread:

“The identification of ‘bread’ or other cereal-based products in archaeology is not straightforward. There has been a tendency to simplify classification without really testing it against an identification criteria. We have established a new set of criteria to identify flat bread, dough and porridge like products in the archaeological record. Using Scanning Electron Microscopy we identified the microstructures and particles of each charred food remain,” said Gonzalez Carratero.

“Bread involves labour intensive processing which includes dehusking, grinding of cereals and kneading and baking. That it was produced before farming methods suggests it was seen as special, and the desire to make more of this special food probably contributed to the decision to begin to cultivate cereals. All of this relies on new methodological developments that allow us to identify the remains of bread from very small charred fragments using high magnification,” said Professor Dorian Fuller (UCL Institute of Archaeology).

Research into prehistoric food practices continues A grant recently awarded to the University of Copenhagen team will ensure that research into food making during the transition to the Neolithic will continue:

“The Danish Council for Independent Research has recently approved further funding for our work, which will allow us to investigate how people consumed different plants and animals in greater detail.

Building on our research into early bread, this will in the future give us a better idea why certain ingredients were favoured over others and were eventually selected for cultivation,” said Tobias Richter.

The Shubayqa project research was funded by the Independent Research Fund Denmark. Permission to excavate was granted by the Department of Antiquities of Jordan.

Contact

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Please visit the site: <https://humanities.ku.dk/news/2018/archaeologists-discover-bread-that-predates-agriculture-by-4000-years/> [Go there for pix]

ANCIENT EGYPTIAN GRAFFITI, BURIAL SITES DISCOVERED BY YALE ARCHAEOLOGISTS, BY BESS CONNOLLY MARTELL

A team of archaeologists — led by Yale Egyptologist John Darnell — has uncovered a “lost oasis” of archaeological activity in the eastern Egyptian desert of Elkab.

The researchers from the Elkab Desert Survey Project — a joint mission of Yale and the Royal Museums of Art and History Brussels working in collaboration with the Ministry of Antiquities and the Inspectorate of Edfu — surveyed the area of Bir Umm Tineidba, once thought to be devoid of any major archaeological remains. Instead, the team unearthed “a wealth of archaeological and epigraphic material,” says Darnell, including a number of examples of ancient rock art or “graffiti,” the burial site of an Egyptian woman, and a previously unrecorded, enigmatic Late Roman settlement.

One particularly impressive image identified during the field season, says Darnell, dates back to about 3,300 B.C.E. and includes large depictions of animals, including a bull, a giraffe, an addax (antelope), a barbary sheep, and donkeys. Other tableaux depict long lines of boats, revealing an “interesting mixture of Eastern Desert and closer, Nile Valley-oriented styles,” notes Darnell.

“At a time immediately before the invention of the hieroglyphic script, rock art such as this provides important clues to the religion and symbolic communication of Predynastic Egyptians,” says Darnell.

“The large addax in particular deserves to be added to the artistic achievements of early Egypt.

Darnell says that this ancient graffiti was created for other people who would visit the site or who might pass along the road. “The ancient Egyptians just loved to write and draw,” he says. “And this general desire to express and memorialize yourself graphically seems to be one of the real hallmarks of Egyptian culture; it seems to be one of the things that you pick up when you are Egyptianized: that you just can’t pass one of these surfaces without memorializing yourself.”

Egyptians chose a meaningful spot to carve these images, explains Darnell, usually at a habitation site or, as in this case, a crossroad of tracks going east to west.

“This is imagery and style that you would expect in the Nile Valley, but it’s out here in the Eastern Desert at this site,” says Darnell, explaining that the drawings suggest a cultural mix and demonstrate that desert people were almost certainly interacting with Nile Valley people. “It shows a greater complexity and a little bit more of a mosaic, or hybrid of groups,” says Darnell. “I think this discovery will influence how we see the development of the early state in Egypt.”

“Our newly discovered material at Bir Umm Tineidba is important in revealing a desert population coming under increasing influence from the Nile Valley during the time of

Dynasty 0 [the Protodynastic Period in ancient Egypt characterized by an ongoing process of political unification, culminating in the formation of a single state to begin the Early Dynastic Period],” he adds.

The archaeologists also uncovered several burial tumuli — or mounds of earth and stone raised over graves — that appear to belong to desert dwellers with physical ties to both the Nile Valley and the Red Sea.

They investigated one of the tumuli, which they determined was the burial place of a woman between 25 to 35 years of age at the time of her death. “She was probably one of the local desert elite, and was buried with at least a strand of Red Sea shells and carnelian beads, alluding to her desert and Red Sea associations, as well as a Protodynastic vessel of Nile Valley manufacture, all indicative of the two worlds of Nile and desert with which she and her people appear to have interacted,” says Darnell.

To the south of the rock inscription and tumuli sites, the archaeologists located a Late Roman settlement with dozens of stone structures. The ceramic evidence and other materials indicate that the site dates to between 400 and 600 C.E., says Darnell. “This Late Roman site complements the evidence for similar archaeological sites in the Eastern Desert, and once again fills a gap in an area once blank on the archaeological map of the Eastern Desert.

“Probably associated with the ancient people whom Egyptian and later Roman documents call the Blemmyes, these sites reveal important information on the late administration of the Eastern Desert, and help us understand the transition between the Late Antique and the Early Islamic Periods,” says Darnell.

To document their findings in the field, the team used a digital technique developed at Yale in 2010, in collaboration with Yale digital archaeologist Alberto Urcia. The technology, employing the photogrammetric Structure from Motion technology, generates detailed three-dimensional models of the rock surface that are used to produce high-resolution images of each panel. Unfortunately, says Darnell, considerable and active mining in the area is threatening the sites in and near Bir Umm Tineidba.

The new technology, says Darnell, cuts excavation and recording time down to about a quarter of what it used to be. “It means you get through more material in greater detail than you would otherwise. If you’re racing the clock to record these desert sites before mining and land reclamation and thieves get at them, you know you can do four structures in a month rather than one structure in a month, which is fabulous.”

Darnell adds, “If I could go back in time and do all the other sites I’ve done in the past using that technique I would. At least we have it now, and it will greatly increase the speed and accuracy with which we will hopefully record ever more sites.”

Please visit the site: <https://news.yale.edu/2018/07/24/ancient-egyptian-graffiti-burial-sites-discovered-yale-archaeologists>

WHILE BUILDING MUSEUM TO HOUSE STUNNING LOD MOSAIC, RESEARCHERS UNEARTH ANOTHER, BY AMANDA BORSCHEL-DAN

Fresh piece falls into place to the 1,700-year-old puzzle of who was the wealthy -- maybe Jewish -- owner of a sumptuous Roman villa discovered 20 years ago under a garbage dump

An additional 1,700-year-old mosaic floor was recently discovered in excavations of the villa of a wealthy merchant in Lod. This new colorful snapshot of sumptuous Roman life was uncovered during preparations for a museum to house the original, massive Lod mosaic, which was discovered under a garbage dump in 1996 and has since toured the world.

New artifacts and architectural evidence from the late third century-early fourth century Roman period uncovered in recent excavation are causing archaeologists to reevaluate the rich merchant's holdings, according to Israel Antiquities Authority's dig director Dr. Amir Gorzalczany.

"The excavations at the site exposed a villa that included a large luxurious mosaic-paved reception room triclinium, and an internal columned courtyard, also with mosaics, and a water system. We found evidence for Mediterranean luxury that characterized the Roman empire, including attributes such as fresco wall paintings," said Gorzalczany in an IAA press release.

With the new mosaic, archaeologists wonder just how large the man's villa actually was. Could he have been the Mark Zuckerberg of 4th century Lod?

"The discovery, in close proximity to the earlier hall, raises new questions: How large was the building? Did the villa comprise several reception halls? Where were the private living rooms? Was there a second story? These issues may be resolved in future excavations," said Gorzalczany.

Much like the other eye-widening mosaics found in Lod, this new floor depicts realistic and fantastical animals and designs, but no human figures.

"Thankfully, the main central panel of the mosaic was preserved. The figures, many similar to the figures in the earlier mosaics, comprise fish and winged creatures. A fairly similar mosaic was found in the past in Jerusalem, on the Mount Zion slopes.

The Lod mosaics, however, do not depict any human figures that are present in the Mount Zion mosaic," said Gorzalczany, who believes both sites' mosaics may have been produced by the same artist, or working from similar designs. "This type of mosaic is better known in the Western part of the Roman Empire.

On portions of the new mosaic, Gorzalczy's team found regular rectangular impressions, which he said could denote the placing of couches upon which guests reclined during feasts. "These marks are common in similar villas and are an indication of the use of the space in the reception halls," said Gorzalczy.

Gorzalczy said that while the archaeological excavation carried out in July was relatively small, it "contributed significantly to our understanding of the villa building."

Dramatic footage provided by the IAA depicts the mosaic's careful removal for conservation so that construction of the Shelby White and Leon Levy Lod Mosaic Center could proceed. It was treated and removed from the site for conservation by a fascinating rolling technique — imagine cookie dough wrapped around a rolling pin — under the guidance of the Conservation Department of the IAA and supervised by head of the Artistic Conservation Branch Jacques Neguer and head of the Mosaics Department Galeb Abu-Diab.

The Shelby White and Leon Levy Lod Mosaic Center is currently under construction in the city, near Ben Gurion Airport, and is set to open in another two years, according to the IAA. It is a joint initiative of Shelby White and the Leon Levy Foundation, the Lod Municipality, the Lod Economic Development Corporation and the Israel Antiquities Authority. The idea is to form a modern structure over the 4th century villa, which will preserve the mosaics and the general floor plan from 1,700 years ago.

The villa was originally uncovered by the late IAA archaeologist, Dr. Miriam Avissar, who also unearthed the breath-taking first mosaic. Made up of several panels, it is 17 meters long and 9 meters wide — approximately 180 square meters in area (some 1,940 square feet). Among the colorful illustrations found on the mosaic are animals including elephants, lions, birds, fish and crustaceans. There is also plant life and flowers, boats and geometric patterns.

Found under a garbage dump in 1996, it was recovered and guarded until it was finally excavated and removed in 2009. In line with its seafaring motifs, the mosaic has had an adventure of its own:

Following conservation, the mosaic has toured the world, going on display in Paris, New York, San Francisco, Chicago and, most recently and for the first time in Israel, in Haifa.

The Haifa exhibit included panels on how the mosaic was made, as well as reconstructions of Roman ships, based on the flooring's colorful designs.

A Haaretz article on the Haifa exhibit quoted Dr. Zaraza Friedman, an archaeologist and expert on the iconography of ships in mosaics, who said the owner was "involved in the maritime trade" and "had widespread connections with North Africa." In part because there are no humans depicted in the mosaic, Friedman hypothesized that the owner was a traditional Jew from a family that migrated to Lod following the destruction of the Second Temple in 70 CE.

South of the main mosaic, a second colorful mosaic was found in 2015, which will also be incorporated in the museum along with this new third find.

The colorful animal depictions captured philanthropist Shelby White’s imagination decades ago. “The Lod Museum will be a dream come true, that began when my husband Leon Levy and I first saw the magnificent mosaic more than 20 years ago,” she said.

Lod mayor Yair Revivo said he was fascinated by the centrality of his city so many centuries ago. “The establishment of the center exhibiting aspects of the rich history of Lod will provide an impressive gateway to the town,” he said.

The center was meant to open in 2019, but is now set for a more vague “in two years.” If it was this new mosaic that is holding up construction, it is well worth the wait. Ahead of its opening, director of the IAA Israel Hasson said he is “happy that the citizens of Israel and worldwide will be able to appreciate the cultural heritage that has waited patiently for world recognition, and will now receive the honor it deserves.”

Please visit the site: <https://www.timesofisrael.com/second-stunning-lod-mosaic-unearthed-during-building-of-museum-to-house-original/> [Go there for many pix],
[Official release at:
<http://mfa.gov.il/MFA/IsraelExperience/History/Pages/Additional-1700-year-old-mosaic-discovered-in-Lod-29-July-2018.aspx>

SINAI'S UNFINISHED 150-YEAR SURVEY, **BY AHMED SHAMS**

The year 1868-1869 CE was an important one for the study of the Sinai Peninsula. That year two British Royal Engineers, Captains Charles W. Wilson and Henry S. Palmer, several non-commissioned officers, in addition to an Arabic linguist and orientalist, an Egyptologist, photographer, natural historian, and others, conducted the first Ordnance Survey for Sinai Peninsula. Although pilgrims, travelers and scholars had visited the vicinity of Mount Sinai since the 4th century CE, this was the first-ever scientific party to undertake the cartographic mapping of Biblical Sinai. But the job of mapping the Sinai is still unfinished.

The British survey followed in the footsteps of Europe's cartographic bias towards Southern Sinai – the presumed location of Biblical Mount Sinai – that had existed since at least 16th century CE. But it also marked an important transition, from what might be called individuality to institutionalization in mapping and mapmaking of the peninsula. Prior to the Ordnance Survey, all the maps for the Sinai were non-survey sketch maps, whether based on armchair cartography, ground observations, or both. One such sketch map in particular laid the foundation for the Ordnance Survey, namely, the 1868 CE “The Peninsula of Mount Sinai: A Sketch from the Observations on Ground” map by Frederick Holland, who later joined the British Royal Engineers.

International geopolitics was the driver of 19th and 20th century mapping. A standoff between the British, who effectively controlled Egypt from 1882 onward, and the Ottoman Empire, ended with the Taba border crisis in 1906 and created the eastern border of the Sinai. The events of World War I led to a transformation in mapping and mapmaking bias from the historic south to the geo-political north, which remained a battlefield throughout the century. Two aspects of mapping in that era are outstanding. One is the contribution of Leonard Woolley and T.E. Lawrence (Lawrence of Arabia), who did a survey of the northeastern Sinai and Negev on behalf of British Military Intelligence just prior to the war under the guise of searching for the Biblical ‘Wilderness of Zin.’ The other is the growing role of aerial photography in creating and checking topographic maps.

Authorities from different countries, including Egypt, Israel, the former Soviet Union and United States, as well as scholars, assumed Sinai's survey is a finished project. This was partially true when it came to place names, which were mostly compiled from the Anglo-Egyptian 1:100,000 Sinai Peninsula topographic map-series produced in mid 1930s-1940s. That map-series remained the definitive source for Sinai's Gazetteer until 1980s and beyond. Compiling new maps from aerial photography and satellite imagery and older British maps reinforced that perception. The new maps showed more detailed topographic features (contours), while the level of details of the cartographic features (data) did not necessarily improve, with exception of specific areas of high military or economic interest, such as minerals, oil and gas.

But is this perception true? Is the mapping of the Sinai essentially complete?

To challenge this the Sinai Peninsula Research (SPR) was founded in 2000 as a private field survey to study the mapping and mapmaking patterns and cartographic knowledge of the peninsula. The results were dramatic. The SPR discovered significant loss of cartographic knowledge on the historic and contemporary maps – information, especially place names, were being removed and lost to scholars. In its field work the SPR survey also reintroduced 19th century practices as the only means to recover the loss of cartographic data, place names plus points of interest. For example, none of the recent large or small scale maps by different survey authorities assigned more than 100 place names in the High Mountains of Sinai Peninsula, while the SPR maps assigned 475 place names.

There has been a 150-years gap in mapping and mapmaking in Sinai Peninsula. This has had a considerable impact on understanding tribal territories, development projects, administrative boundaries and governance, and archaeological surveys. Paradoxically, the institutional resources invested by different survey authorities over this period did not lead to a significant improvement in cartographic data in the second half of 20th century; instead, it led to the deterioration in several areas. These losses have unique impacts across the peninsula and beyond.

For cultural geographers like Doreen Massey, place is “the meeting up of histories in space.” It is through place names that Bedouins claim their tribal territories and identify their boundaries. These might reflect traditional mutually recognized ownership of orchards, water wells, conduits, cisterns and reservoirs by an individual or a family, or shared tribal utilization of water resources, pasture, temporary campsites or quarries. The young semi-urbanized 21st century Bedouin do not traverse the land extensively like their ancestors to learn about place names and tribal claims to local resources through a long-standing oral tradition. Moreover, those places are not assigned on maps as names or points of interest. That loss has resulted questions about place names which were lost or altered, and will cause counter tribal claims and local disputes in the future.

Cartographers do not transliterate or transcribe place names on maps in their tribal dialect of origin. Cartography standardizes how place names are written on maps as an institutional practice governed by international organizations (such as the United Nations Group of Experts on Geographical Names) and national survey authorities. Sinai has eight Bedouin dialect groups; institutional mapping and mapmaking neglected the importance of transcribing place names in their dialect of origin, or to assign Bedouin land use and resources utilization to identify tribal territories. To do so would have required different Bedouin guides originated from each surveyed tribal territory.

For development planners, place is “where resources exist in landscapes,” and place names and/or points of interest are how development organizations realize the distribution pattern of resources. But only strategic resources are assigned on the large or small-scale maps of the Sinai Peninsula. In addition, only land tenure inside urban boundaries are registered and/or assigned on maps, with some exceptions in remote valleys and mountains. The limited availability of inland cartographic data and the concentration of projects on the coasts of the peninsula helped cause the depopulation of inland Bedouin localities and multilevel development deficiencies.

Place names and points of interest have direct impact on both Bedouins and planners in the peninsula and on the functionality of administrative boundaries. Essentially, a map is

the tool to communicate places between parties. A map in this sense informs the realities on ground through cartographic data. The division of Sinai’s administrative map into polygon-shaped municipalities complies with neither local patterns of place names and points of interest, nor with physical geography, or even with local development policy.

Sinai’s maps need to be brought back into a working relationship with reality.

For archaeologists, the data provided by cultural geographers and Bedouins serves to locate ancient sites on the landscape and to contextualize ethnoarchaeology, while for planners these data are necessary for site management. Overlooking place names or their meanings contributes to the misinterpretation of local histories or overlooking entire sites. For example, the SPR survey re-discovered the only ‘Qanat’ water system in the Sinai, providing a key link for understanding the diffusion of tunnel-well irrigation systems between the Near East and North Africa.

The site name Deir Fukarra clearly refers to an existing fuqara (called foggara in North Africa). And despite the fact that the name was given to the neighboring excavated site, previous archaeological or cartographic surveys did not mention an existing tunnel-wells system in the vicinity with exception to several conduits. Indirectly, the foggara was identified by place name on survey maps before being investigated and assigned on the SPR maps.

Ground truthing a place name revealed an entirely new aspect of cultural history.

Filling the 150-year gap in mapping and mapmaking in Sinai Peninsula and the Middle East by the SPR survey reveals how the peninsula’s maps and history were not well-defined by cartographic data, and did not fully reflecting the local realities on ground. Ultimately, is time for “A New Sinai Map.”

Ahmed Shams teaches International Cultural Heritage Management at Durham University. He is the founder of Sinai Peninsula Research (SPR).

Please visit the site: <http://www.asor.org/onetoday/2018/07/Sinai%27s-Unfinished-Survey> [Go there for pix and maps]



OLDEST-EVER ANCIENT EGYPTIAN WORKSHOP DISCOVERED IN ASWAN, BY NEVINE EL-AREF

The workshop, the oldest ancient Egyptian workshop ever discovered, dating back to the Fourth Dynasty (2,613 - 2,494 BC), was found in the area located between the Crocodile Museum and the Nile's shore.

The structure has semi-circular holes of different sizes and contains a collection of cylindrical stone blocks used to melt and mix clay.

A pottery manufacturing wheel and its limestone turntable were also discovered.

"The discovery is an important and rare one," Mostafa Waziri, secretary-general of the Supreme Council of Antiquities, told Ahram Online, adding that this is the oldest workshop ever found in the country.

Waziri explains that the discovery gives insight into the daily lives of ancient Egyptians as well as the development of pottery and industry throughout Egypt's different dynastic periods.

Waziri asserted that this is the first pottery manufacturing wheel to be found from the ancient Egyptian era, adding that several reliefs and paintings showing the development of pottery in ancient Egypt had been previously discovered.

Egyptologist Morslav Verner had discovered just the head of a pottery manufacturing wheel made of burned clay in a pottery workshop found at Queen Khentkawes II's temple in Abusir necropolis.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/9/40/308532/Heritage/Ancient-Egypt/Oldestever-ancient-Egyptian-workshop-discovered-in.aspx> [Go there for pix]

LOST AND FOUND LITERATURE - NORTHERN ARIZONA UNIVERSITY PROFESSOR TRANSLATES ANCIENT MANICHEAN PAPYRUS MANUSCRIPT, BY JULIE HAMMONDS

Over the past 16 centuries, it's been buried, soaked, lost, looted, sold across international borders, feared, destroyed by war, painted with shellac and set between sheets of glass.

Its writers, followers of a visionary named Mani, wrote their religion's oral traditions on papyrus. Damaged by moisture and blackened by age, this precious manuscript—known as the “Dublin Kephalaia”—was almost unreadable in 2007 when Northern Arizona University professor Jason BeDuhn, an expert in comparative religions in the Department of Comparative Cultural Studies, began a translation.

An NAU seed grant gave BeDuhn and two colleagues their start; larger grants from the Australian Research Council and the National Endowment for the Humanities totaling \$500,000 followed. This month, after 10 years of analysis, the manuscript's ancient stories will be heard again.

Filling a gap in history

Found in Egypt, the Kephalaia manuscript describes a diverse, vibrant society at the crossroads of East and West.

“It's the first Western manuscript that tells us about Iranian culture at that time,” BeDuhn said of the tales of court life and folklore.

“It represents a very cosmopolitan society. At the same time, it tells how one philosopher figure founded a religious tradition.”

Mani was raised in a Jewish-Christian community and considered himself an apostle of Jesus, but his movement incorporated many different traditions.

“He said Jesus, Zoroaster and the Buddha were sent by God, but they did one thing wrong: they didn't write down their own teachings,”

BeDuhn said. “Time had distorted their messages. So, Mani said, God had sent another messenger to sort it out: him.”

Mani organized a church whose missionaries spread his ideas from Spain to China in the next 1,000 years. Then, Manicheism died out.

“Its original texts and manuscripts were lost, but in the last hundred years, some texts have been found,” DeBuhn said. “Our text is one of the largest manuscripts surviving from antiquity. It contains stories created within a century of Mani's death.”

A lost treasure found

Now stored in the Chester Beatty Library in Dublin, Ireland, the manuscript was written in Coptic, the last form of ancient Egyptian, which BeDuhn reads. But translating the manuscript was not a simple matter of reading the text. In the 1950s, a conservator used chemicals that preserved the fragile papyrus but obscured the ink, making it difficult to tell what was papyrus and what was lettering. BeDuhn and his colleagues applied multispectral and computer-enhanced photographic techniques and viewed the pages in ultraviolet light.

“But a lot of our analysis involved sitting in the library looking at each papyrus leaf from different angles under magnification,” he said.

“It was painstaking work.”

“The book tells dramatic stories, and there’s debate as Mani tries to win over other philosophers.” Some of the debates were esoteric. “For example: If a chick inside an egg dies, how does its soul get out of the egg? That was a difficult translation; we weren’t sure what they were talking about.”

On the other hand, the manuscript asks fundamental questions, such as whether the world is eternal or had a beginning.

“It’s an essential question in Buddhist thought, and Mani debates it with a person from the East named, essentially, Bodhisattva—a name for an aspiring Buddha.” BeDuhn and his colleagues found such connections throughout the text. “Iran had close contact with the Greco-Roman West as well as with India. It was a rich cultural crossroads—one we now see in much greater detail, thanks to this manuscript.”

BeDuhn is excited to see the first volume of the translation reach publication. The next three volumes will be published at the rate of one per year, concluding in 2021.

“The ‘Dublin Kephalaia Codex’ makes it clear that ancient cultures we think of as separate and distinct knew exactly what was going on with each other and were part of a larger conversation,” he said.

BeDuhn is a Guggenheim and National Humanities Center Fellow and past chair of NAU’s Department of Humanities, Arts and Religion. He is writing one book about Augustine of Hippo and another on how Manicheans viewed the soul.

Please visit the site: <http://news.nau.edu/jason-debuhn-manichean-manuscript/>

2,100-YEAR-OLD HELLENISTIC TEMPLE UNEARTHED IN TURKEY - OCTENNIAL EXCAVATIONS ALSO DISCOVERED 2,500- YEAR-OLD TEMPLE FROM PERSIAN ERA IN 2016, BY HAMZA TAV AND ABDULLAH OZKUL

A Hellenistic era temple which dates back to more than 2,000 years has been unearthed in archeological excavations in central Turkey.

The 2,100-year-old temple was found in Kinik Mound, an archeological site located in Yesilyurt village of Altunhisar district, Nigde province.

A team of Turkish and Italian archaeologists has been working in the site since 2011.

Professor Lorenzo D'Alfonso, a New York University academic and head of the excavations, affirmed the temple went to Hellenistic time.

“We continued excavations just below the place where we found the temple, and we found another temple dating back to the Hellenistic period, 2,100 years ago,” D'Alfonso told Anadolu Agency on Saturday.

D'Alfonso said that Kinik Mound likely hosted no city or settlement unit as of 30 B.C.

“We also found parts of a bull statue made from ceramics,” he added.

Basri Akdemir, the provincial director of culture and tourism, for his part, said: “207 movable cultural properties have been brought to the Nigde Museum [found] in these excavations since 2011.”

The excavations come as part of a 10-year joint project between University of Pavia, Institute for the Study of the Ancient World and New York University, supported and participated by Turkey's Nigde and Erzurum Universities.

In 2016, a 2,500-year-old temple dating back to the late Persian era had been discovered at the same site.

Please visit the site: <https://www.aa.com.tr/en/turkey/2-100-year-old-hellenistic-temple-unearthed-in-turkey/1210442>

ADVANCING TECHNOLOGY UNEARTHS **'LOST CITY OF ANCIENT ISRAEL',** **BY ILAN BEN ZION**

ARTICLE SUMMARY

A military zone has long inhibited exploration of the ancient and massive site of Beit Lehi, but archaeologists are using technology to share its secrets with the world.

A team of Israeli and American researchers is using cutting-edge technology to explore and document an obscure and inaccessible but increasingly significant archaeological site in central Israel.

The Hebrew University of Jerusalem and Utah Valley University (UVU) are expected to roll out in August a one-of-a-kind multimedia guide integrating 3D imaging and virtual reality to bring the ancient city of Beit Lehi, touted as “the lost city of ancient Israel,” to life.

The digital guide to the site is slated to be launched next month.

Beit Lehi, also known as Beit Loya, lies 37 kilometers (23 miles) southwest of Jerusalem in the rolling limestone foothills of the Judean Mountains not far from the UNESCO World Heritage site at Beit Guvrin. A closed military zone encompasses the entirety of the archaeological site, severely limiting civilian access and preventing development.

The site, which extends over a few hilltops, was occupied intermittently from the Iron Age down through the Mamluk period — nearly 2,200 years — before being abandoned around 1400 A.D. The surface bears the remains of a medieval mosque and village and an earlier Byzantine church, but below are a series of underground chambers carved out of the soft limestone. These include a massive columbarium (dovecote) with over 1,000 niches for birds, making it possibly one of the largest in the world, as well as stables, quarries with gigantic support pillars and escape tunnels, all dating from the 3rd and 2nd centuries B.C. to the 2nd century A.D.

Archaeologists have found over 50 different inscriptions at various places around the site in Hebrew, Greek and Arabic, including a 6th century B.C. Hebrew inscription bearing the name of Jerusalem and the Israelite god Yahweh.

First excavated in the 1980s, Hebrew University archaeologist Oren Gutfeld has returned in recent years with colleagues from the Israel Antiquities Authority and UVU to continue exploring and documenting the site.

“This area is untouched by archaeology, but it’s a gold mine,” Gutfeld told Al-Monitor as his jeep rumbled over the rocky track leading to Beit Lehi. He estimates that only around 10-15% of the site has been excavated. “We don’t have any idea how big it is. That’s the question.”

The UVU team has aided Hebrew University archaeologists in mapping and imaging the site using technology used by engineers to measure and map bridges and roads. Lidar — a laser imaging detection and ranging device capable of making 20 million measurements in 12 minutes — is being used to create three-dimensional maps of Beit Lehi’s vast caverns and tunnels. Advanced 360-degree cameras take photographs that are stitched together to create a high-quality image of these massive spaces that can be used in virtual reality applications.

Aboveground, the UVU researchers have deployed drones to create high definition aerial images of the ancient city’s structures. They not only document the site but have also helped discover previously unknown buildings. Michael Harper, a professor of digital media at UVU, explained that by using a technique called photogrammetry, the aerial photos taken by drones create topographically “flat” images that make the concealed outlines of structures “pop” out of the tawny scrubland.

Aerial images captured by the drones also revealed a previously unknown Iron Age settlement dating back nearly 3,000 years. Gutfeld’s team has started to excavate another discovery: an enormous Hellenistic period cultic complex — at least 40 meters long and 45 meters wide — perhaps to the Idumean god Qos.

“People thought it was a small community, but now we know it was a large urban center,” Gutfeld said.

The remains of imported luxury goods from as far afield as Rhodes and a subterranean oil press “are not indicative of modest, sleepy villages,” said Michal Haber, an archaeologist with the Israel Antiquities Authority involved in the dig. Instead, Beit Lehi appears to have been a prosperous, interconnected town during the Hellenistic and Roman periods. “We feel that every [dig] season, there’s something new” that is discovered, Haber told Al-Monitor.

Michael Harper, a UVU professor of digital media who is heading the project, said that the various types of images being taken at the site by students from Utah are being used both for research and to create a multimedia guidebook and “interactive magazine” that provides users with information about Beit Lehi. The magazine integrates 3D images of artifacts found at the site, aerial photos and other types of media to let users explore and understand the site in a more comprehensive way than a rare visit would be able to.

The digital media element of the project is one of several opportunities for UVU students across multiple disciplines to participate in hands-on “engaged learning” and gain valuable experience, Harper said, from photography and publishing to graphic design.

The magazine, whose first issue is due online this fall, is expected to be updated annually and will include rolling updates about new finds and articles about different aspects of Beit Lehi’s history.

Ilan Ben Zion is a Jerusalem-based reporter for the Associated Press and freelance. He holds a master's degree in diplomacy from Tel Aviv University and a bachelor's degree from the University of Toronto, graduating with honors in Near and Middle Eastern civilizations, Jewish studies and English.

Please visit the site: <https://www.al-monitor.com/pulse/originals/2018/07/high-technology-to-get-beit-lehi-out-of-obscurity.html>

**INCREDIBLE 'HYPATIA' STONE CONTAINS
COMPOUNDS NOT FOUND IN THE SOLAR
SYSTEM - THE MYSTERIOUS EGYPTIAN
ROCK CONTAINS MICRO-MINERAL
COMPOUNDS NOT FOUND ON EARTH, IN
ANY METEORITE OR COMET, OR
ELSEWHERE IN THE SOLAR SYSTEM,
BY MARIO DI MARTINO**

The Hypatia stone is only a few centimeters across, broken into pebble fragments, but it may very well be the most interesting rock in the world.

Named for Hypatia of Alexandria, the first prominent Western woman astronomer and mathematician, the colorful rock was found in 1996 in western Egypt by Aly Barakat, a geologist working for the Egyptian Geological Survey. Barakat was studying Libyan desert glass, which appears to be similar to sea glass from the ocean, except geologists believe it might have formed roughly 28 million years ago in a meteorite impact.

Barakat immediately recognized the unique significance of the glossy stone, lined with microscopic diamonds, and he suspected that it did not come from Earth. In 2013, geologists studying the Hypatia stone confirmed the rock was of extraterrestrial origin. Unlike any known meteorite, researchers originally believed the Hypatia stone was the first sample of a comet nucleus.

But it seems the space rock has a much more interesting past. A new study led by geologists at the University of Johannesburg found that compounds in the Hypatia stone are distinct from anything discovered in the solar system. The researchers therefore conclude that parts of the rock formed before the solar system, and if these compounds are not presolar, the prevailing idea that the solar system formed from a nebula of homogenous gas is called into question.

"We think that many compounds (polyaromatic hydrocarbons, silicon carbide, nickel phosphide compound, native metal inclusions) are presolar," Jan Kramers, a geochemistry professor at the University of Johannesburg who has studied the Hypatia stone for years, told Popular Mechanics in an email. "The assembly probably occurred in the early solar nebula."

Kramers, who led the 2013 study that identified the Hypatia stone as extraterrestrial, describes the rock's structure as similar to a fruit cake that has fallen into a pile of flour and cracked. The mineral matrix that makes up most of the rock is represented by the cake dough, while mineral grains embedded in the matrix are like the nuts and fruits, and the flour it fell into represents material that the Hypatia stone picked up when it impacted the Earth.

Using sophisticated electron microscopy to determine the compositions of microscopic parts of the Hypatia stone, Kramers and fellow geologists at the University of Johannesburg identified the parts of the rock that were not added when it impacted Earth. They found that many compounds in the stone seem to have formed prior to the sun and planets. The elements are the same—carbon and silicon and aluminum and iron—but the ratios of these elements in the material are all wrong, unlike the compositions of objects that orbit the sun.

Libyan desert glass, which is only found in the eastern Sahara Desert, around the border of Libya and Egypt. Some geologists believe the glass was formed during a meteorite impact tens of millions of years ago due to its ancient age and unique location.

"If it were possible to grind up the entire planet Earth to dust in a huge mortar and pestle, we would get dust with on average a similar chemical composition as chondritic meteorites," Kramers says in a press release, referring to chondrites, non-metallic meteorites that account for about 86% of all meteorites. "In chondritic meteorites, we expect to see a small amount of carbon and a good amount of silicon.

But Hypatia's matrix has a massive amount of carbon and an unusually small amount of silicon."

In other words, most of the rock in the Hypatia stone has the opposite ratio of carbons to silicons that you find in the vast majority of the asteroid belt as well as the planets Earth, Mars, and Venus. Not only that, but the mineral matrix of Hypatia also contains a significant amount of interstellar dust not generally seen in the rocky stuff of the solar system.

"Even more unusual, the matrix contains a high amount of very specific carbon compounds, called polyaromatic hydrocarbons, or PAH, a major component of interstellar dust, which existed even before our solar system was formed," says Kramers. "Interstellar dust is also found in comets and meteorites that have not been heated up for a prolonged period in their history."

These polyaromatic hydrocarbons are the the components of the stone that turned to diamond from the heat and pressure of entering Earth's atmosphere and then impacting the Sahara Desert. This protective layer of space diamonds has helped Hypatia last so long, preserving the rock for geologists to study today.

But perhaps the best indications that the Hypatia stone—or components of it—formed before the solar system are the mineral grains, the fruits and nuts of the fruit cake. These embedded grains contain phosphorus and metallic elements such as aluminum and iron, but not in ratios or configurations you would expect.

"In the grains within Hypatia the ratios of these three elements to each other are completely different from that calculated for the planet Earth or measured in known types of meteorites," said geologist Georgy Belyanin of the University of Johannesburg, who led the research on the mineral grains. "As such these inclusions are unique within our solar system."

The team found pure metallic aluminum, an occurrence that is "extremely rare on Earth and the rest of our solar system, as far as is known in science," says Belyanin. They also

found grains of silver iodine phosphide and moissanite, or silicon carbide, which is the first time these minerals have been found in rock without first having to dissolve the rest of the rock with acid.

"There are also grains of a compound consisting of mainly nickel and phosphorus, with very little iron, a mineral composition never observed before on Earth or in meteorites," says Belyanin.

The team believes that many of the mineral grains with unusual compositions are presolar, though the strange composition of the mineral matrix may be an indication that we do not understand how the solar system formed as well as we thought. The prevailing theory is that a homogenous nebula of material collapsed into the sun and the remaining material, mostly silicates with carbons mixed in, formed the rocky planets and the asteroids.

"There are no silicate minerals in Hypatia's matrix, in contrast to chondritic meteorites (and the planets like Earth, Mars and Venus), where silicates are dominant," says Kramers. "Then there are the exotic mineral inclusions. If Hypatia itself is not presolar, both features indicate that the solar nebula wasn't the same kind of dust everywhere—which starts tugging at the generally accepted view of the formation of our solar system."

Future analysis of the Hypatia stone, combined with planetary science research of the solar system, could help scientists learn more about where the diamond-encrusted space rock came from. A better understanding of rocky material that orbits beyond Neptune in the Kuiper Belt, some 30 or 40 Astronomical Units from the sun, could improve our understanding of the Hypatia stone. The objects in the Oort cloud, much farther out, tens of thousands of times farther than the Earth from the sun, are even less well understood.

But for now, the Hypatia stone is one of a kind, a unique type of meteorite that has compounds scientists have never found anywhere else in the solar system. Kramers believes the pebbles could be preserved remnants from the much larger body that impacted the Sahara and melted its sands into Libyan desert glass some 28 million years ago, though there is no way currently to test the theory.

In any case, Hypatia is truly a diamond in the rough.

Please visit the site:

<https://www.popularmechanics.com/science/amp15050414/incredible-hypatia-stone-contains-compounds-not-found-in-the-solar-system/>

**AN EARLY CHRISTIAN CHURCH MAY
HAVE BEEN FOUND IN ROME - THE
STRUCTURE, INLAID WITH BEAUTIFUL
COLORED MARBLE, WAS BUILT AROUND
THE TIME THAT CHRISTIANITY BEGAN TO
GAIN WIDESPREAD ACCEPTANCE,
BY BRIGIT KATZ**

Construction projects in Rome often unearth incredible artifacts from the city's rich history. Work on a new subway line, for instance, has led to the discovery of ancient army barracks, the remains of imperial homes and centuries-old peach pits imported from Persia. So it is not entirely surprising that electrical technicians laying cables near the Tiber River recently found the remains of a luxurious building, which, as the Local Italy reports, may be one of the earliest churches in Rome.

The ruins were discovered close to the Ponte Milvio, a bridge that crosses the Tiber in the northern part of the city. According to La Repubblica, the site consists of four rooms dating from the first and fourth centuries A.D.

Part of the complex seems to have been used as a warehouse. But one of the structures clearly had a more special purpose. As Nick Squires writes in the Telegraph, it was made of "brick walls and exquisitely rendered floors made of red, green and honey-colored marble from Sparta, Egypt and what is now Tunisia."

The function of this structure is not entirely clear; Rome's Archaeological Superintendency called it "an archaeological enigma shrouded in mystery," according to the Local. The building may have been an ornate Roman villa. But experts think it could have also been a church. After excavating the surrounding area, archaeologists discovered a small cemetery and several tombs, including one that still held the remains of a Roman man. The find leads archaeologists to believe that the site may have been a Christian holy place since, as Emily Petsko points out in Mental Floss, churches are often attached to mausoleums.

"It was definitely a building for public use and we think it may have been a place of worship," Marina Piranomonte, the director of the dig, told the Telegraph.

Intriguingly, the structure was built around the time that Christianity began to gain widespread acceptance in the Roman Empire.

In fact, as Squires of the Telegraph notes, the building is located just "100 yards" from the Ponte Milvio, where a defining battle that may have spurred the Emperor Constantine's adoption of Christianity took place in 312 A.D.

At this time, according to Encyclopedia Britannica, the Roman Empire was cracking, plagued by civil wars and an uneasy division of power between coalitions of high-ranking men. In 312, Constantine, who had been declared emperor in 306, set out for

battle against his rival, Maxentius, who had also claimed the imperial title. Prior to the battle, Constantine is said to have had a vision: the sign of the cross hovering above the sun and bearing the inscription, “By this symbol you will conquer.”

After the battle, from which Constantine emerged victorious, the emperor declared that Christians—once a persecuted minority—should be able to worship freely. Years later, Constantine was baptized on his deathbed.

The Roman Empire’s earliest churches were built during Constantine’s reign in the fourth century. The newly discovered structure, according to La Repubblica, dates to some time between the third and fourth centuries. So while its significance is far from certain, the mysterious building may have been one of Rome’s early churches, built during a new era of tolerance for people of the Christian faith.

Please visit the site: <https://www.smithsonianmag.com/smart-news/early-christian-church-may-have-been-found-rome-180969707/> [Go there for pict]

RADKAN TOWER

A sophisticated astronomical tower built by one of the greatest Persian scholars of the Islamic Golden Age.

Standing some 100 feet tall on a hillock in northeastern Iran, this curious cylindrical tower was long assumed to be an ancient tomb, or perhaps a beacon guiding travelers in the area. In fact, it's likely it was something much more spectacular.

Thanks to the discoveries of an archeo-astronomer, it's now believed the Radkan Tower was an incredibly sophisticated instrument of astronomical science built nearly 800 years ago.

The yellow-brick tower dates to the mid-13th century and was created by one of the greatest Persian scholars of the age, Nasir al-Din Tusi.

A polymath, scientist, and astronomer, Tusi is known for helping found the pioneering observatory at Maragheh, Azerbaijan, which, along with the Radkan Tower, collected invaluable information about the stars and sky during a period of remarkable scientific discovery.

The tower has 12 walls corresponding to the 12 months in a year, with 36 columns around the exterior, topped with a conical roof. On the days of the solstice and equinox each year, the sun is aligned perfectly to shine through the doors on opposite sides of the tower.

It's also believed the structure can determine the beginning of the four seasons, leap years, and the start of Nowruz, the Iranian New Year.

Please visit the site: <https://www.atlasobscura.com/places/radkan-tower>

WERE THERE PHOENICIANS? **BY JOSEPHINE QUINN**

The ancient Phoenicians are the Mediterranean's first celebrities: sailors and merchants who traveled from their narrow strip of coastline in the Levant across the Mediterranean and through the pillars of Hercules, refining the arts of trade and navigation. From at least the ninth century BCE they founded settlements from Cyprus to North Africa to the Atlantic coast of Spain. This was long before the Greeks started their colonial expeditions, and Herodotus reports that the Phoenicians taught the Greeks many things, including the alphabet.

Their homeland cities, including Tyre and Sidon, were conquered by Alexander the Great in the fourth century BCE, but in the west Carthage went on to survive two Punic Wars and was only finally destroyed by Rome in 146 BCE.

In their own eyes, however, the Phoenicians don't seem to have existed. 'Phoenician' was a label Greek writers used for Levantine mariners who spoke similar dialects of a language very different from their own. The term implied little about those people's cultural or ancestral ties, and it apparently meant nothing to the people themselves: no one from the coastal cities or their overseas colonies ever to our knowledge described themselves as 'Phoenician'.

In fact, there's no evidence that they thought of themselves as a community at all. Scholars sometimes suggest that the people we call Phoenician called themselves 'Canaanite', but there are only two late, weak pieces of evidence for the use of this term as a straightforward self-description. One is a Phoenician inscription from a Numidian city in second century BCE Algeria that is often said to be dedicated by a 'man of Canaan' (Š KN'N), although it was pointed out as long ago as the 1960s that the final 'N' in is fact an 'L'. The other is an anecdote recorded by St. Augustine more than five hundred years later about Algerian peasants who call themselves 'Chanani', but the Latin of the passage is corrupt, the manuscripts are in disagreement, and the comment provides suspiciously convenient evidence for the theological argument being made in the passage concerned.

This lack of evidence for ethnic identification is not simply due to a lack of evidence: we have over 10,000 Phoenician inscriptions from the Levant, the western colonies (especially Carthage), and other Mediterranean cities, almost all of them funerary or votive – which is to say they describe a person who is being commemorated or making an offering. And they describe them in different ways, sometimes as coming from particular towns – Tyre, Sidon, Beirut, Carthage – or by their political offices, but most frequently in terms of their families, regularly going back two or three generations and in some cases sixteen or seventeen.

Perhaps things would look different if we had Phoenician equivalents of the Homeric epics or the Hebrew Bible, where we can read of larger identities people found beyond their towns and families, as 'Achaean' or 'Sons of Israel', identities that could persuade them to act together to face foreign foes. But whether Phoenician literature is lost or never existed, we just don't know what it might have said – and in any case, literary

accounts can be quite misleading in such matters: the views of a small coterie of intellectuals are easy to read onto a larger group of people who may not share them or even know about them.

Luckily, explicit self-description isn't the only way people reveal their sense of themselves: we can also look at the evidence for what they do, and in particular what they do together. In the case of the Phoenicians this sometimes picks out regional identities much smaller than 'Phoenician', but it can also reveal larger groups that cross what are now considered ethnic boundaries.

To take religion as an example, in the former category a small group of Levantine settlements clustered around the Straits of Sicily in the central Mediterranean practiced child sacrifice to Baal in communal sanctuaries, a very distinctive behavior that would have marked them off in social and cultural terms from other peoples in the region, including other 'Phoenicians'. And in the latter we find the much more widespread cult of Melqart, a god who mapped so easily and often onto the Greek god Herakles that it is frequently difficult to tell whether their followers saw any significant difference between them at all: this was a god who brought Greek and Phoenician speakers together across the whole of the Mediterranean.

How did we get from a world of local identities and idiosyncratic regional communities to the modern image of the Phoenicians as a distinct historical and cultural group? This is a relatively recent development, fully emerging only in the later nineteenth century, and in part it reflects modern European assumptions about the universality of national or ethnic identities and even of identity itself. But it also reflects the unexpected role played by the Phoenicians in the construction of modern nationalisms.

In sixteenth and seventeenth century Britain a fantasy that the island had been colonized by this sophisticated and adventurous maritime people helped differentiate the British from the French, associated more closely with the Romans and their territorial empire. In eighteenth and nineteenth century Ireland, by contrast, similar stories of Phoenician ancestry recast the British occupation of Ireland in terms of the great struggle between noble Carthage and the savage imperial power of Rome. And in the early twentieth century, back in the Levant, successful Catholic agitation for a separate Lebanese state was based on a claim to a common Phoenician past that repudiated the new country's Arab history and heritage in favor of a Mediterranean identity.

The reality is that the Iron Age Levant, like the Mediterranean as a whole, was a patchwork of different kinds of community with different needs, desires, and identities. Some, like the Israelites and Moabites, seem to have been actively seeking a common identity in this period; others, like the Phoenicians, were ignoring or even rejecting that possibility.

In part this was the result of their environment: a set of natural harbours open to the sea, but cut off from the hinterland by the bulk of Mount Lebanon and from each other by deep river valleys. These cities may look like neighbours on a map, but their most obvious contacts, customers, and relationships were overseas.

It may also however have been deliberate: James C. Scott argued in *The Art of Not Being Governed* (2009) that self-governing people living on the periphery of expansionary

states tend to adopt strategies to avoid incorporation, and to minimize taxation, conscription, and forced labor. This produces what he calls ‘shatterzones’, areas where people live mobile lives, often physically dispersed in rugged terrain that is hard to police from the outside. They tend to resist state formation and expansion among themselves as well as by their more powerful neighbours, and they often have flexible identities, easy to change and hard to read. This picture rings true too for the ancient ‘Phoenicians’, both in the mountainous Levant, on the edge of the great plains empires of Mesopotamia and Iran but never fully subject to them, or as migrants in the Mediterranean, another kind of shatter zone, where the activities of Levantine sailors were invisible and unaccountable to their overlords further east, and often to each other.

Josephine Quinn is Associate Professor (University Lecturer) in Ancient History at Oxford University, and Fellow and Tutor of Worcester College, Oxford.

Please visit the site: <http://www.asor.org/onetoday/2018/07/Were-There-Phoenicians>

ARCHAEOLOGISTS DISCOVER BREAD THAT PREDATES AGRICULTURE BY 4,000 YEARS

At an archaeological site in northeastern Jordan, researchers have discovered the charred remains of a flatbread baked by hunter-gatherers 14,400 years ago. It is the oldest direct evidence of bread found to date, predating the advent of agriculture by at least 4,000 years. The findings suggest that bread production based on wild cereals may have encouraged hunter-gatherers to cultivate cereals, and thus contributed to the agricultural revolution in the Neolithic period.

A team of researchers from the University of Copenhagen, University College London and University of Cambridge have analysed charred food remains from a 14,400-year-old Natufian hunter-gatherer site – a site known as Shubayqa 1 located in the Black Desert in northeastern Jordan. The results, which are published today in the journal *Proceedings of the National Academy of Sciences*, provide the earliest empirical evidence for the production of bread:

“The presence of hundreds of charred food remains in the fireplaces from Shubayqa 1 is an exceptional find, and it has given us the chance to characterize 14,000-year-old food practices. The 24 remains analysed in this study show that wild ancestors of domesticated cereals such as barley, einkorn, and oat had been ground, sieved and kneaded prior to cooking. The remains are very similar to unleavened flatbreads identified at several Neolithic and Roman sites in Europe and Turkey. So we now know that bread-like products were produced long before the development of farming. The next step is to evaluate if the production and consumption of bread influenced the emergence of plant cultivation and domestication at all,” said University of Copenhagen archaeobotanist Amaia Arranz Otaegui, who is the first author of the study.

University of Copenhagen archaeologist Tobias Richter, who led the excavations at Shubayqa 1 in Jordan, explained:

“Natufian hunter-gatherers are of particular interest to us because they lived through a transitional period when people became more sedentary and their diet began to change. Flint sickle blades as well as ground stone tools found at Natufian sites in the Levant have long led archaeologists to suspect that people had begun to exploit plants in a different and perhaps more effective way. But the flat bread found at Shubayqa 1 is the earliest evidence of bread making recovered so far, and it shows that baking was invented before we had plant cultivation. So this evidence confirms some of our ideas. Indeed, it may be that the early and extremely time-consuming production of bread based on wild cereals may have been one of the key driving forces behind the later agricultural revolution where wild cereals were cultivated to provide more convenient sources of food.”

The charred food remains were analysed with electronic microscopy at a University College London lab by PhD candidate Lara Gonzalez Carratero (UCL Institute of Archaeology), who is an expert on prehistoric bread:

“The identification of ‘bread’ or other cereal-based products in archaeology is not straightforward. There has been a tendency to simplify classification without really testing it against an identification criteria. We have established a new set of criteria to identify flat bread, dough and porridge like products in the archaeological record. Using Scanning Electron Microscopy we identified the microstructures and particles of each charred food remain,” said Gonzalez Carratero.

“Bread involves labour intensive processing which includes dehusking, grinding of cereals and kneading and baking. That it was produced before farming methods suggests it was seen as special, and the desire to make more of this special food probably contributed to the decision to begin to cultivate cereals. All of this relies on new methodological developments that allow us to identify the remains of bread from very small charred fragments using high magnification,” said Professor Dorian Fuller (UCL Institute of Archaeology).

A grant recently awarded to the University of Copenhagen team will ensure that research into food making during the transition to the Neolithic will continue:

“The Danish Council for Independent Research has recently approved further funding for our work, which will allow us to investigate how people consumed different plants and animals in greater detail.

Building on our research into early bread, this will in the future give us a better idea why certain ingredients were favoured over others and were eventually selected for cultivation,” said Tobias Richter.

The Shubayqa project research was funded by the Independent Research Fund Denmark. Permission to excavate was granted by the Department of Antiquities of Jordan.

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Please visit the site: <https://humanities.ku.dk/news/2018/archaeologists-discover-bread-that-predates-agriculture-by-4000-years/> [See also <https://gizmodo.com/discovery-of-14-000-year-old-toast-suggests-bread-can-b-1827631358>
