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

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

Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Ιανουάριος 2018 -

The secret of change is to focus all of your energy, not on fighting the old but on building the new. (*Socrates*)

Newsletter of the Hellenic Society of Archaeometry

- January 2018 -

Nr. 202

ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ – TABLE OF CONTENTS

ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

42ND INTERNATIONAL SYMPOSIUM ON ARCHAEOMETRY (ISA2018), MERIDA, YUCATAN, MEXICO, MAY 20-26, 2018

Dear colleagues,

We invite you to submit your abstracts for the next 42nd International Symposium on Archaeometry (ISA2018) in Merida, Yucatan, Mexico, from May 20-26, 2018.

In the corresponging Abstract sections of the ISA2018 webpage:

http://isa2018.mx/

please review the Abstract information section: http://isa2018.mx/abstracts#information and instructions to submit your abstract (Abstract submission): http://isa2018.mx/abstracts#submission

Abstracts must be submitted by the online system of the webpage.

Let us know if you have any problem.

Remember that deadline for abstract submission is January 15, 2018.

We wish you a Happy New Year!

See you in Merida!

Best regards

Dr. Jose Luis Ruvalcaba
Organizing Committee
ISA2018
Merida, Mexico

ANCIENT DIGITAL HUMANITIES WORKSHOP, HELSINKI, 6 MARCH 2018, CALL FOR PAPERS

Organised in conjunction with the Digital Humanities in the Nordic Countries 2018 conference
(https://www.helsinki.fi/en/helsinki-centre-for-digital-humanities/dhn-2018)

In recent years, a growing number of scholars of ancient history have started to explore the possibilities offered by digital humanities.
The workshop 'Ancient Digital Humanities' aims to accelerate these developments and enter into the conversation already in progress in the larger field of history. The session brings together leading scholars who apply computational methods to the study of ancient history, culture, and literature. The term 'ancient history' refers here to the period extending from 3000 BCE until the beginning of the Common Era.

The workshop is organised by three research teams from the University of Helsinki: the Semantic Domains in Akkadian Texts Project and the Centre of Excellence in Ancient Near Eastern Empires (both funded by the Academy of Finland) and the Deep Learning and Semantic Domains in Akkadian Texts Project (funded by the University of Helsinki).

The papers read at the workshop may tackle methodological issues related to the study of ancient sources with digital methods or may present the results obtained from such undertakings. Moreover, papers discussing research infrastructures, open data, and the digitalisation of ancient sources are welcome.

Titles and short (250 words) abstracts should be sent by 21 January
2018 to Tero Alstola, tero.alstola@helsinki.fi. Authors will be notified by 28 January about whether their abstract has been accepted.

For more information, contact Tero Alstola, tero.alstola@helsinki.fi.

TRANSITIONS DURING THE EARLY BRONZE AGE IN THE LEVANT: METHODOLOGICAL PROBLEMS AND INTERPRETATIVE PERSPECTIVES, CRFJ AND THE ALBRIGHT INSTITUTE IN JERUSALEM, MAY 16-18, 2018, CALL FOR PAPERS

Deadline to submit abstracts: January 15, 2018

It is our pleasure to announce a colloquium entitled, "Transitions during the Early Bronze Age in the Levant: Methodological Problems and Interpretative Perspectives," organized by Matthew J. Adams (Albright Institute), Valentine Roux (CRFJ), and Felix Höflmayer (Austrian Academy of Sciences) and hosted by the W.F. Albright Institute of Archaeological Research, Centre de recherche français à Jérusalem (CRFJ), and the Institute of Oriental and European Archeology (OREA) of the Austrian Academy of Sciences.

The workshop will take place at the CRFJ and the Albright Institute in Jerusalem, May 16-18, 2018. The evening of the 16th will include a keynote address and reception, with papers to be delivered in sessions on the 17th and 18th.

We invite your participation as a presenter or participant in the colloquium. Papers should be 15-20 minutes and should address any aspect of periods of transition in the Early Bronze Age, especially those that consider the complexities of method and interpretation of social change within a rigid chronological framework. Below you will find a detailed description of the theme to inspire you.

If you wish to submit a paper, we ask that you send title and abstract (max. 250 words) to Sarah Fairman, AIAR Communications Director, at sarah.fairman@aiar.org by 15 January 2018. If any of you wish to organize a session on a particular sub-theme, we are open to suggestions.

The proceedings of the colloquium will be published in the OREA series of the Austrian Academy of Sciences. We look forward to receiving your submissions.

****

"Transitions during the Early Bronze Age in the Levant: Methodological Problems and Interpretative Perspectives"

The traditional approach to structuring the past is based on a rigid chronological perception of time forced upon dynamic and fluidly-transforming societies. The one-dimensional nature of the chronological approach results in periods of well-defined spatiotemporal cultural entities separated by "transitional" periods.

These defined cultural entities are often treated as static, though we know they were not, so that we may interpret cultural, historical, sociological, and political aspects of the society. Transition periods, however, are often treated as outliers interpreted against one or both of the periods that bracket them. In particular, they are characterized by a high variability of cultural traits, a form of "disorder" characterized by sets of old and new features, defying the clear delineation of socio-cultural boundaries.

Discussions of transitional periods, therefore, are muddled by a paradigm in which the before and after are individually defined, while the transition introduces added variability that defies allocation to one or the other distinct spatial temporal cultural groups. In short, our chronological model of periods succeeding one another is one dimensional and fails to help explain the cultural and spatial development within societies, that move much more fluidly through time. The result is the shoe-horning of variable societies into periods of “transition” from one solid cultural state to another, judged according to their predecessors and successors.

Over the course of some 100 years of scholarship on the Early Bronze Age Levant, our chronological resolution has been low, such that transformations of societies could not be seen directly, but only inferred from the fact that, for example, one time there was an Early Bronze Age I society and later there was an Early Bronze Age II that looked different. With the accumulation of new data, recent advances in radiocarbon chronologies, and more sophisticated theoretical approaches, transitional periods are beginning to come into sharp focus, and it is clear that our chronological approach severely limits our ability to interpret societal change across space and time.

The objective of this workshop is to confront our interpretations of the various transitional phases across the late 4th-3rd Millennium (Late Chalcolithic to Early Bronze I, EB I to EB II, and EB III to EB IV/Intermediate Bronze Age) in the southern Levant. The focus will be on the nature of the cultural-period-defining traits and their value for distinguishing between changes related to endogenous or exogenous evolution, cultural or demic diffusion. These traits will include material culture, architecture, mortuary practices as well as patterns of relationships between sites and subsistence strategies. We invite papers which address any aspect of periods of transition in the Early Bronze Age, especially those that consider the complexities of method and interpretation of social change within a rigid chronological framework.

BRITISH SCHOOL AT ATHENS GREEK AND ROMAN POTTERY COURSE, 3RD-15TH APRIL 2018

Dear Colleagues,

We would be grateful if you could help us circulate the advertisement for the British School at Athens Greek and Roman Pottery Course that will take place in 3rd-15th April 2018. http://www.bsa.ac.uk/index.php/teaching/postgraduate/greek-and-roman-pottery. This intensive course gives participants a unique opportunity to gain hands-on experience with one of the major pottery sequences in Greece, guided by leading specialists in the field. Based at the British School's Study Centre at Knossos, it makes use of the rich holdings of the Stratigraphic Museum which include material from across the Mediterranean in all periods from the Neolithic to Late Roman. The course also comprises field classes to abandoned pottery workshops of the late 19th century, potting villages, visits to important Bronze Age, Classical, Hellenistic and Roman archaeological sites, along with the Heraklion Archaeological Museum and the Museum of Cretan Ethnology. Local potters, specializing in traditional techniques, provide practical experience of all stages of pottery production. The course coordinator is Dr Kostis S. Christakis (The Knossos Curator) and instructors are Prof. Todd Whitelaw (UCL Institute of Archaeology), Dr Colin Macdonald (British School at Athens), Dr Conor Trainor (University of Warwick), Mr Antonio Bianco (University of Crete), Dr Florence Liard (Williams Fellow in Ceramic Petrology, Fitch Laboratory), Dr Patrick Quinn (UCL Institute of Archaeology), Dr M. Giannopoulou (University of Crete) and Dr Denitsa Nenova (UCL Institute of Archaeology). The course fee of £750 includes tuition, teaching materials, room and board (shared accommodation in double rooms with breakfast and some lunch) at the British School's Research Centre at Knossos, fieldtrip travel expenses, 24-hour access to the Library, and BSA membership. Travel to and from Heraklion is the sole responsibility of the course participant. Students are recommended to apply to their universities for assistance with the fees. A very limited number of bursaries may be available from the BSA for those who would be otherwise unable to attend. Application forms can be downloaded from the British School website (www.bsa.ac.uk). Completed application forms and an academic reference letter (it is the applicant's responsibility to ensure that her/his reference is sent) should be emailed to the Knossos Curator Dr Kostis S. Christakis **by 15th February 2018** (knossoscurator@bsa.ac.uk). For further information contact the course coordinator Dr Kostis S. Christakis (knossoscurator@bsa.ac.uk).

All the best

Kostis S. Christakis

6TH CONFERENCE IN AEGEAN ARCHAEOLOGY, UNIVERSITY OF WARSAW, POLAND, JUNE 14TH-15TH, 2018

Dear All,

The 6th Conference in Aegean Archaeology will take place at the University of Warsaw, Poland on June 14th and 15th, 2018.

The organizers invite proposals on all themes related to Aegean Archaeology (i.e. Aegean areasand cultures in the Bronze Age, e.g. art, crafts, everyday life; social, funerary, political also in a broader context (new methods, approaches, technologies applied to the research; new technologies in data, research, site management, etc.).

Proposals are especially welcomed from early career researchers: PhD students or candidates, as well as scholars who have already completed their doctoral research and recently obtained the title.

For further details see the full announcement:
http://www.archeo.uw.edu.pl/zalaczniki/upload2083.pdf

The application form: http://www.archeo.uw.edu.pl/zalaczniki/upload2076.doc

On behalf of the Organizing Committee - Prof. Kazimierz Lewartowski

1ST EUROPEAN AMERICAN SCHOOLS ORIENTAL RESEARCH (ASOR) AND ECOLE PRATIQUE DES HAUTES ETUDES (EPHE) SYMPOSIUM, SORBONNE, PARIS, SEPTEMBER 4-5, 2018

Vanessa Juloux and Randall W. Younker are pleased to announce the first European American Schools Oriental Research (ASOR) and Ecole Pratique des Hautes Etudes (EPHE) symposium that will be held in Paris September 4-5, 2018 at la Sorbonne. We invite you to submit an abstract to present a communication at the ASOR/EPHE European symposium session, "Collaborative Projects among European and International Scholars for the Study of Ancient Worlds Using Digital Approaches" (session description below).

Abstract: 250 words + title + 6 keywords.
Chicago style.

Deadline: by January 15th, 2018.

Sessions format: "speed communication" (15mn + 10 mn questions).

Submissions are accepted online at this web address:
https://goo.gl/forms/tCVIuqlPCCCmi8l73

Registration information: http://ancient-worlds-symposium.eu/docs/registration.html
Preliminary program: http://ancient-worlds-symposium.eu/docs/program

Note: open to ASOR, and EPHE members as well as to other scholars members of European institutions.

SESSION DESCRIPTION: Since the Digital Era, computational methods and practices have produced new evidence for our understanding of Ancient Near Eastern and neighboring civilizations from Neolithic to Late Antiquity. However, unfortunately, international collaborations are still limited. Just as CenterNet helps to build a network of digital humanities, our aim is to collectively initiate discussion for building collaborative opportunities among European and international scholars.

No matter how advanced your Ancient World digital project is, we invite you to introduce your methods, in order to either find a partner, or build a network of digital humanities within our fields of research. We strongly encourage European junior scholars to present their digital practices, especially when it encourages collaboration between scholars from different fields (e.g. archaeologist/art historian).

****

For additional information about the symposium:
http://ancient-worlds-symposium.eu

Contact: vanessa.juloux@ephe.sorbonne.fr

****

THE IMPACT OF CONSERVATION-RESTORATION EDUCATION ON THE DEVELOPMENT OF THE PROFESSION ENCORE CONFERENCE, TORINO, ITALY 23 MAY 2018, CALL FOR PAPERS

In celebration of the 20th anniversary of ENCoRE the ENCoRE conference (on 23 May 2018) preceding the General Assembly (24-25 May 2018) will be devoted to:

The Impact of Conservation-Restoration Education on the Development of the Profession
Papers are invited on topics related to the developments in past decades including current trends.

Some suggested topics are:

• Conservation methods developed in educational institutions
• Aesthetic approaches in the CR education
• The balance between theory and practice
• The influence of financial/political pressure on educational institutions
• The role of CR-institutions in education of related heritage professions (transversal skills)
• The impact of PhD studies

The Abstract must be submitted by Monday 15 January 2018 to: conference@encore-edu.org

Abstracts should describe original, unpublished work.

Abstracts must be written in ENGLISH and contain the following information:

• Author(s) full name
• Contact author
• Affiliation
• Telephone number
• E-mail address
• Title of the paper
• Key words
• Abstract (max. 500 Words)

Selected papers will be published in a special edition in celebration of the 20 years of ENCoRE.

Final deadline for handing in papers for publication will be Sunday 1 July. The papers will go through an editorial process for final selection of publication.

Abstracts must be submitted in Word Format. After the evaluation of the proposed contributions and the selection of papers the program will be announced March 2018.

hope to receive interesting papers demonstrating the various approaches and strategies academic research based teaching may take, dealing with integrated teaching of practical topics ("practice") and theory as well as with rather theoretical topics.

You are kindly asked to distribute this call for papers amongst interested colleagues – thank you in advance for your support.

The ENCoRE Conference as well as the General Assembly will be hosted by the University of Torino (Italy) at the SUSCOR – SCHOOL IN SCIENCES FOR CONSERVATION AND RESTORATION OF CULTURAL HERITAGE. The School is located in the Center for Conservation Restoration at Venaria Reale, Torino.

The Board of ENCoRE

GEOCHRONOLOGY SESSION AT EGU2018 VIENNA, AUSTRIA, 8-13 APRIL 2018

Dear colleagues,

We would like to draw your attention to the EGU session dedicated to development of chronologies and chronometers, and their importance for Quaternary research.

We are looking forward to the new exciting techniques and records.

Our invited speaker this year is Christiane Yeman of ETH who will present "Online radiocarbon analysis of carbonates with laser ablation AMS"

Please see the description of the session below. We look forward to seeing you in Vienna,

Irka, Susan, Andreas and Seb

CL5.01/GM2.11
Advances in Quaternary Geochronology (co-organized)
http://meetingorganizer.copernicus.org/EGU2018/session/26437

Deadline for abstract submission is January, 10th, 2018, 1pm ET.

Information can be found at: www.egu2018.eu

****

ETH Zurich
Dr. Irka Hajdas
Laboratory of Ion Beam Physics
HPK H25
Otto-Stern-Weg 5
CH-8093 Zürich

Phone: +41446332042
Email: hajdas@phys.ethz.ch
Web: www.ams.ethz.ch and INFO on C14 analysis
http://www.ams.ethz.ch/LIPServices/c14.html

Swiss Society for Quaternary Research CH-QUAT
http://www.ch-quat.ch

****

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ – JOB VACANCIES/FELLOWSHIPS

PHD POSITIONS AT BOSTON UNIVERSITY

Dear colleagues,

As some of you may be aware, Boston University is restructuring Archaeology from a department to an interdepartmental program. As part of this transition, we are retiring the existing PhD in Archaeology and have created a new track in Anthropological Archaeology within the existing PhD in the Department of Anthropology, which will be the new academic home for approximately half of the current Archaeology faculty. We are among those, and are looking to recruit new doctoral students with a focus in Environmental Archaeology to our new Anthropological Archaeology doctoral program.

Boston University offers 5-year guaranteed funding packages to all new doctoral students, and we anticipate admitting 2-3 archaeologists this year to join a total cohort of 8-10 in Anthropology. Additional funding opportunities include participation in the new NSF-funded "Boston UniverCity" program on urban environmental challenges (https://www.nsf.gov/awardsearch/showAward?AWD_ID=1735087) and on the research projects listed below:

1 student to work with Catherine West on zooarchaeology, stable isotopes, and applied archaeology, especially in Western North America or the Arctic/Subarctic.

1 student to work with John Marston on macrobotanical (seeds and charcoal) and microbotanical (phytolith) assemblages from the eastern Mediterranean, primarily Turkey and Israel.

1 student to work with Marston and collaborators on a multi-isotopic analysis of animal and plant remains from Central Turkey to reconstruct climate change and mobility from the Late Bronze Age through Medieval periods.

We are particularly looking for students with strong analytical backgrounds and advanced training in zooarchaeology, paleoethnobotany, and stable isotope biogeochemistry. Students will be eligible to complete a parallel certificate in Biogeoscience (http://www.bu.edu/bio-geo/) and/or Museum Studies (http://www.bu.edu/ah/graduate-program/museum-studies/) alongside their PhD. Boston University funds international students identically to US nationals, so we can consider foreign citizens.

Please distribute this message to colleagues and students to whom it might be of interest. We would be happy to discuss particulars with any interested student. Note that the application deadline is **January 15**. Further details on admission can be found here: http://www.bu.edu/anthrop/graduate/graduate-admissions/

Best wishes,
Mac and Catherine

****

John (Mac) Marston
Assistant Professor, Anthropology and Archaeology
http://sites.bu.edu/ealab/marston/
marston@bu.edu

Catherine West
Research Assistant Professor, Anthropology and Archaeology
http://sites.bu.edu/zooarchlab/catherine-west/
cfwest@bu.edu

****

ARCHAEOMETALLURGY POSITION AT UCL

Dear all,

Please see below for details of a one-year position for an archaeometallurgist, and distribute to potentially interested individuals.

As part of Professor Christopher Scull's Leverhulme-funded project 'Lordship and Landscape in East Anglia AD 400-800', we are seeking to appoint a full-time research assistant in archaeometallurgy. The project investigates pathways to social and economic complexity in post-Roman Britain through analysis of the Central Places where power was exercised and the socio-economic networks that sustained them.

The Research Assistant will be responsible for the recording, sampling, analysis and reporting of the materials science characterisation of archaeometalurgical remains from high-status early medieval sites in Suffolk. These are likely to include both precious metals and copper-alloy artefacts and coins, as well as production waste.

Specific duties will include: Macroscopic description and photography of relevant artefacts; preparation and analyisis of polished blocks by optical microscopy and SEM-EDS; collation of published data for comparative purposes and writing of analytical reports and manuscript drafts for publication. For these duties, the post-holder will work in collaboration with Prof. Marcos Martinon-Torres and/or other researchers on the project.

https://atsv7.wcn.co.uk/search_engine/jobs.cgi?amNvZGU9MTcwNTUxNCZ2dF90ZW1wbGF0ZT05NjUmb3duZXI9NTA0MTE3OCZvd25lcnR5cGU9ZmFpciZicmFuZF9pZD0wJnBvc3RpbmdfY29kZT0yMjQ&jcode=1705514&vt_template=965&owner=5041178&ownertype=fair&brand_id=0&posting_code=224

****

Marcos Martinón-Torres
Professor of Archaeological Science
UCL Institute of Archaeology
31-34 Gordon Square
London WC1H 0PY
United Kingdom

email: m.martinon-torres@ucl.ac.uk
tel: +44 (0) 20 7679 7496
web: www.ucl.ac.uk/archaeology/people/staff/martinon_torres

****

1-3 OPEN POSITIONS FOR DOCTORAL RESEARCH, THE CENTRE OF EXCELLENCE IN "ANCIENT NEAR EASTERN EMPIRES" (ANEE) AT THE UNIVERSITY OF HELSINKI

ANEE is pleased to announce we are looking for doctoral candidates.
Application text below, link here: https://www.helsinki.fi/en/open-positions/doctoral-researchers-anee-1-3

The Centre of Excellence in "Ancient Near Eastern Empires" (ANEE) at the University of Helsinki will run from 2018–2025 and is directed by Dr. Saana Svärd. ANEE asks: How do changing imperial dynamics impact social group identities and lifeways over a millennium? ANEE covers the Neo-Assyrian, Neo-Babylonian, Persian, Hellenistic, and early Roman / Parthian Empires. ANEE engages with methodologically varied yet integrated research on the long-term processes by which social group identities and lifeways were negotiated. Taken together, the innovations of ANEE are the integrated longue durée approach; and the methodological innovativeness of each team (both separately and in collaboration). There will be several recruitment calls for fixed term positions during ANEE's lifespan (doctoral students, postdoctoral researchers, and university researchers).

ANEE is now recruiting members for three teams which investigate identity-building processes. Each team has a methodologically specific approach yet collaborates on four work packages.

Applications are invited for DOCTORAL RESEARCHERS (1–3) for a fixed term of up to 4 years, starting on or before 1 September
2018 to work in the University of Helsinki. The successful candidates'
research projects will focus on the goals of a team or teams. The applicant should indicate to which team she/he is applying. The selected doctoral candidates will need to apply for acceptance in the graduate school for either the Faculty of Arts or Faculty of Theology in March 2018. Their main duties will consist of PhD studies and writing of a dissertation. As ANEE is deeply multidisciplinary, competence in more than one field and/or proof of successful scientific collaboration will be considered an advantage.

Team 1 "Digital Humanities Approaches" develops digital humanities approaches (especially social network analysis and language technology), using these to supplement the more traditional Assyriological approaches. Team 1 is looking for applicants with a solid background in Assyriology or a related field (within the chronological scope of ANEE) and/or skills in Digital Humanities that can be put to use in relation to ANEE's goals. Team 1 is led by Saana Svärd (saana.svard@helsinki.fi).

Team 2 "Social Scientific Theory & Applications" tests and refines theoretical models from the social sciences for ancient evidence, integrating anthropological approaches to archaeology with sociological readings of textual and archaeological evidence. Team 2 seeks students with backgrounds in history of the Levant and/or the social sciences, and especially with an interest in migration, forced labor, and/or elite identities, and/or

ancient historians of the Persian Empire with similar profiles. Willingness to collaborate with other teams and multiple work packages is desirable. Team 2 is led by Dr. Jason Silverman (jason.silverman@helsinki.fi).

Team 3 "Material Culture & Community Heritage" investigates the impact of each empire on ancient local communities inhabiting the imperial fringes and provides a sustainable future for this heritage. This it does through an archaeological field survey program in the ancient imperial fringe zone of southern Jordan and by developing a local community outreach program there. Our work in Finland revolves around promoting an understanding of Ancient Near Eastern heritage and culture by developing a touring museum exhibition on the ancient Near East. The team also aims to collaborate with the Finnish authorities to further develop the policies and legislation regarding the trade in illicit antiquities. Team 3 seeks doctoral candidates in ANE archaeology, preferably with experience in GIS, remote sensing, and/or satellite analysis. Team 3 is led by Dr. Antti Lahelma (antti.lahelma@helsinki.fi), who is also the vice-director of ANEE.

For more information on the three teams and the work packages, please see www.helsinki.fi/ancient-near-eastern-empires

An appointee to the position of doctoral researcher must hold a Master's degree in a relevant field, and must subsequently be accepted as a doctoral candidate in the graduate school in the Faculty of Arts and/or Theology. The appointee must have the ability to conduct independent scientific research. Teaching or teaching-related tasks will form 5 % of the position. The candidate should have excellent analytical and methodological skills, and be able to work both independently and collaboratively as part of a multidisciplinary scientific community. The successful candidates are expected to have excellent skills in written and oral English. Skills in Finnish or Swedish are not required. Relocation costs can be negotiated and ANEE will offer help and information for the practicalities, if needed.

ANEE is functioning in the Faculty of Arts (Teams 1 and 3) and in the Faculty of Theology (Team 2), located in the City Centre Campus. The city of Helsinki is the capital city of Finland, with a population of ca. 600 000. It has been consistently ranked amongst the top cities in the world for quality of living. Founded in 1640, the University of Helsinki is an international academic community of 40,000 students and staff members. It operates on four campuses in Helsinki and at 15 other locations.

The salary for the position will be based on level 2 of the demands level chart for teaching and research personnel in the salary system of Finnish universities. In addition, the appointee will be paid a salary component based on personal performance. The salary is EUR
2,186–2,873 per month, depending on the appointee's qualifications and experience. The position will be filled with a 4 months trial period.

Applications should consist of the following English-language documents:
(1) CV including a possible list of publications (max. 3 pages)
(2) Contact information for two referees
(3) A research statement (max. 2000 words) consisting of
i) a brief description of previous experience, such as MA thesis

ii) a proposal for the PhD project that the applicant wants to conduct in ANEE (including suggested dates for the project)
iii) a brief description of the plans for scientific cooperation within ANEE, preferably specifying relevant team and work packages.

Further information on the position may be obtained from the team leaders (see above) or the director Saana Svärd
(saana.svard@helsinki.fi)

Please submit your application, together with the required attachments, through the University of Helsinki Recruitment System via the link Apply for job. Applicants who are employees of the University of Helsinki are requested to send their application via the SAP HR portal. Deadline for applications is 31 January 2018.

If you need assistance with the University's electronic recruitment system or SAP HR portal, please contact recruitment@helsinki.fi.

Apply at latest 31.01.2018

Apply link

https://rekry.helsinki.fi/sap/bc/erecruiting/posting_apply?param=cG9zdF9pbnN0X2d...

Due date

Wednesday, January 31, 2018

JOB OPENINGS: POSTDOC AND TECHNICAL SPECIALIST AT THE CYPRUS INSTITUTE

Dear List Members,

I would like to draw your attention to two recently published job openings at the Science and Technology in Archaeology Research Center (STARC) at the Cyprus Institute in Nicosia. Please pass on to interested parties as you see fit.
Closing date is 7 January 2018.

Many thanks,
Thilo Rehren

****

Professor Thilo Rehren FSA
Director, Science and Technology in Archaeology Research Center
The Cyprus Institute
2121 Nicosia, Cyprus

https://cyi.academia.edu/ThiloRehren

Also:
UCL Institute of Archaeology
31-34 Gordon Square
London WC1H 0PY, UK

****

Postdoc (3 years fixed term): https://jobboard.cyi.ac.cy/?q=node/1978

Description of the position

The Post-doctoral Fellow will be expected to conduct independent research on a project in the pre-modern production of metals, glass and technical ceramics, and with direct relevance to Cyprus and / or the Eastern Mediterranean, the Balkans or the Middle East. It is expected that the successful candidate will suggest their own research topic, including where relevant demonstrating that they have access to the necessary research material (including sampling and export permits where required). Preference will be given to applicants whose projects are innovative and collaborative, and who can demonstrate how their own research will benefit from regular interaction with Professor Rehren and other colleagues at STARC / CyI.

The successful candidate will be expected to contribute to the development of archaeological materials science research at STARC, including a modest amount of service work and cooperative research with colleagues at STARC, CyI or elsewhere in Nicosia. His/her research should be based predominantly on the locally available

analytical equipment (primarily optical and scanning electron microscopy; pXRF; FTIR); funds for external analytical services are limited.

Research Technician: https://jobboard.cyi.ac.cy/?q=node/1980

Description of the position

The successful candidate will be expected to coordinate the day-to-day activities of and maintain the Archaeological Materials Science laboratory of STARC, with special emphasis on operating the optical and scanning electron microscopes, pXRF, FTIR and the associated sample preparation facilities. The role includes training and supervision of all users (MSc and doctoral students; postdocs; faculty; and visitors), and routine sample preparation (cutting, drilling, polishing of metallographic and ceramic sections) and analytical work, including the production of meaningful technical reports as instructed by the Director of STARC.

Initially, the role will require substantially contributing to the design of the sample preparation facilities and the SEM-EDS laboratory, and the setting-up of the new SEM-EDS and other equipment. In the long term, the successful candidate is expected to maintain a clean and functioning laboratory with a supportive attitude and the willingness to expand the facilities as the laboratory grows. Full awareness of relevant Health and Safety regulations, including X-ray protection issues, and the ability to develop and implement Standard Operating Procedures for all instruments are essential. Experience in Archaeological Materials Science (sample preparation for OM and SEM, and SEM-EDS and XRF analysis) is essential; experience in setting up analytical facilities in a Higher Education or Research environment is a strong advantage.

The initial appointment for the position is for one year with the possibility for renewal based on the availability of funds and level of performance for a long term appointment. The salary and rank will depend on the selected candidate's qualifications and experience.

Further details, including required qualifications and how to apply, are given on the CyI Employment Opportunities website.

ASCSA ACADEMIC YEAR PROGRAM - REGULAR MEMBERSHIP

Application Deadline: January 15, 2018

The American School of Classical Studies at Athens offers incomparable opportunities and programs for graduate students enrolled in US and Canadian institutions to research, travel, and excavate in Greece. Facilities include two major libraries, a scientific laboratory, extensive archives, two excavation study centers at the Athenian Agora and Corinth, and a residence hall in central Athens providing room and board.

Please note that for the 2018-2019 academic year, the Blegen and Gennadius libraries may be closed for up to six months between January and June for reorganization; members of the School will continue to have access to other facilities of the School and other libraries in Athens.

Eligibility: Students preparing for an advanced degree in classical and ancient Mediterranean studies, post-classical Greek studies or a related field. Well-qualified students with a B.A. will be considered for admission and fellowships, although preference is given to those who have completed at least one year of graduate study.

Program: The Regular Program from early September to June 1. The program requires participation in the School's fall trips, covering much of the Greek mainland. During the winter, topography sessions, museum visits, and seminars in Athens are required, with some additional trips. In the spring members normally participate in the School's excavations at Corinth and have time for independent research and optional trips. Regular Members are expected to be in residence at the School throughout the academic year.

For more information link to:
http://www.ascsa.edu.gr/index.php/programs/academic and http://www.ascsa.edu.gr/index.php/programs/schedule.

Fellowships: Fellows receive a cash stipend of $11,500 plus room, board and waiver of School fees. Up to 12 are available, awarded on the basis of transcripts, recommendations and examinations. Information is available at: http://www.ascsa.edu.gr/index.php/admission-membership/grants.

Application: Consists of an application form and three letters of recommendation submitted online. Applicants are required to submit legible pdf scans of academic transcripts as part of the online application. Please visit the ASCSA web site for more information about the application: http://www.ascsa.edu.gr/index.php/admission-membership/regular.

Examinations in Greek language, history, literature, and archaeology (two of four are required) are held on the first Saturday in February. Application fee: $50.

Web site: www.ascsa.edu.gr or http://www.ascsa.edu.gr/index.php/programs/academic

E-mail: application@ascsa.org

Applicants will be notified by mid-March.

The ASCSA is open generally to qualified students and scholars at colleges or universities in the U.S. or Canada; restrictions may apply for specific programs and fellowships. The ASCSA does not discriminate on the basis of race, age, sex, sexual orientation, color, religion, ethnic origin, or disability when considering admission to any form of membership or application for employment.

PHD POSITION ON MORTAR DATING AT AARHUS UNIVERSITY

Dear Colleagues,

We have a call for a PhD position on mortar dating at Aarhus University with deadline February 1st 2018. For details on the call please see here:

http://talent.au.dk/phd/scienceandtechnology/opencalls/calls-on-specific-projects/february-2018/radiocarbon-dating-of-lime-mortars/

Please forward to possible candidates.

Best regards

Jesper Olsen, Director, Aarhus AMS Centre

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

THE MICHAEL VENTRIS AWARD FOR MYCENAEAN STUDIES (2018)

The Michael Ventris Memorial Fund was founded in 1957 in appreciation of his contribution to the fields of Mycenaean civilization and architecture. The Trustees of the Fund offer an annual award of up to £2,500 to a junior scholar for research into Mycenaean studies or kindred subjects: (1) Linear B and other Bronze Age scripts of the Aegean and Cyprus, and their historical and cultural connections and (2) all other aspects of the Bronze Age of the Aegean and Cyprus. It is intended that the Award should support a specific project, which may be part of a continuing programme of post-doctoral research. The Award is open to applicants from all countries who have completed their doctorate within the past eight years. Applications are also accepted from postgraduate students who are about to complete their doctorate, although the Award is **not** intended to fund doctoral research per se.

Applicants should give particulars of their qualifications and academic record, and should outline the work they intend to pursue in the event of the Award being made to them, including projected costs. Applications should not exceed 6 single-sided pages (A4). They should be submitted by email, ideally as a PDF attachment.

Applicants must also supply the names and addresses of two referees, and, at the same time, ask the referees to write independently in support of their application.

Applications must reach the Classics Manager, Valerie James, Institute of Classical Studies, Senate House, Malet Street, London WC1E 7HU not later than **15 February 2018.**.

Please visit the site: https://ics.sas.ac.uk/awards/award-prizes

EYCH2018 - EUROPEAN YEAR OF CULTURAL HERITAGE: JOIN

On December 7th in Milan, the 2018 European Year of Cultural Heritage (EYCH2018) has been officially launched by the European Commission (see http://europa.eu/rapid/press-release_IP-17-5067_en.htm) . It will be a challenge for all heritage organizations.

EFAITH, the European Federation of Associations of Industrial and Technical Heritage is currently preparing the theme months for EYCH2018
see:
http://www.industrialheritage.eu/EYCH2018-theme-months (English version)
http://www.industrialheritage.eu/EYCH2018-mois-thematiques (french version)

For these two important activities are already announced - more will follow and will be announced on the website:
- an international steam weekend (17-18 March 2018)
- a meeting of Mining Heritage Associations in Beringen (13-15 April 2018) - a preliminary website was posted on www.miningheritage.org but will be replaced at the end of this week by a new one with more details In addition we have already received several positive reactions for the themes of the other months, especially for the chimneys campaign in May.

On the EFAITH webpage you will find a form that can be completed and returned to the EFAITH Secretariat for inclusion in the programs. This applies to all initiatives that fit into thematic months, as well as to all cross-border initiatives in the field of industrial and technical heritage.

EFAITH is one of the stakeholders of EYCH2018 and therefore advises on the awarding of the official EYCH2018 label to cross-border projects related to industrial and technical heritage. The initiatives that are part of the thematic months as such are grouped together in a cross-border project.

However, for recognition of other projects and initiatives that are limited to one country, region or municipality, one should contact your national coordinator.

May we also ask you to share this information with other initiatives you know or you have contacts with? Thank you very much for your cooperation

---
Le 7 décembre dernier, à Milan, la Commission Européenne vient de lancer l' Année européenne du patrimoine culturel 2018 (EYCH2018), voir: http://europa.eu/rapid/press-release_IP-17-5067_fr.htm
Ce sera sans doute un défi pour toutes les organisations du patrimoine.

En ce moment EFAITH, la Fédération Europpéenne des Associations du Patrimoine Industriel et Technique, est en train de preparer les mois thématiques pour cette Année, veuillez consulter :

http://www.industrialheritage.eu/EYCH2018-theme-months (version anglaise)
http://www.industrialheritage.eu/EYCH2018-mois-thematiques (version française)

Pour ceux-ci déjà deux activités importantes s'annoncent:
- un weekend international de la vapeur (17-18 mars 2018)
- une réunion des associations du patrimoine minier à Beringen (13-15 avril 2018) - voir www.miningheritage.org En plus nous avons reçu plusieurs réactions positives pour les thèmes des autres mois, surtout pour la campagne pour les cheminées en mai.

Sur la page web de l'EFAITH vous trouverez le formulaire qui peut être complété par les personnes responsables et renvoyé au secrétariat d'EFAITH pour inclusion dans les programmes. Ceci s'applique à toutes les initiatives qui s'insèrent dans les mois thématiques, ainsi qu'à toutes les initiatives transfrontalières dans le domaine du patrimoine industriel et technique.
EFAITH est l'un des stakeholders (parties prenantes) d'EYCH2018 et conseille donc sur l'attribution du label officiel EYCH2018 aux projets transfrontaliers liés au patrimoine industriel et technique. Les initiatives qui font partie des mois thématiques sont regroupées dans un projet transfrontalier.
Cependant, pour la reconnaissance d'autres projets et initiatives qui sont limités à un pays, ou à une région ou une municipalité, vous devriez vous adresser à votre coordinateur national. national

Pouvons-nous également vous demander de transmettre cette information à d'autres initiatives que vous connaissez ou avec lesquelles vous avez des contacts? Merci beaucoup pour votre coopération

2017 ASOR HONORS & AWARDS

Each year at the Annual Meeting, ASOR recognizes individuals who have performed outstanding service for the organization or who have published exceptional academic work or otherwise made significant contributions to our field. The following award recipients were honored at the 2017 Annual Meeting in Boston, MA. Awards were presented by Laura Mazow, Chair of ASOR's Honors and Awards Committee and Associate Professor at East Carolina University.

The Richard J. Scheuer Medal: This award honors an individual who has provided truly outstanding, long term support and service contributions to ASOR. (This medal is awarded when such an individual is identified.) Awarded to **William G. Dever**, Professor Emeritus of Near Eastern Archaeology and Anthropology at the University of Arizona and Distinguished Professor of Near Eastern Archaeology at Lycoming College.

The Charles U. Harris Service Award. This award is given in recognition of long term and/or special service as an ASOR officer or Trustee. (One award is given annually.) Awarded to **Carol Meyers**, Mary Grace Wilson Professor of Religion Emerita at Duke University.

The P. E. MacAllister Field Archaeology Award. This award honors an archaeologist who, during his/her career, has made outstanding contributions to ancient Near Eastern and Eastern Mediterranean archaeology. (One award is given annually.) Awarded to **Israel Finkelstein**, Jacob Alkow Professor of the Archaeology of Israel in the Bronze and Iron Ages at Tel Aviv University.

The G. Ernest Wright Award. This award is given to the editor/author of the most substantial volume(s) dealing with archaeological material, excavation reports and material culture from the ancient Near East and eastern Mediterranean. This work must be the result of original research published within the past two years. (One award is given annually.) Awarded to **Glenn Schwartz**, Whiting Professor of Archaeology and Chair of the Department of Near Eastern Studies, Johns Hopkins University, for *Rural Archaeology in Early Urban Northern Mesopotamia: Excavations at Tell al-Raqa'i.*

The Frank Moore Cross Award. This award is presented to the editor/author of the most substantial volume(s) related to one of the following categories: a) the history and/or religion of ancient Israel; b) ancient Near Eastern and eastern Mediterranean epigraphy; c) textual studies on the Hebrew Bible; or d) comparative studies of the Hebrew Bible and ancient Near Eastern literature. This work must be the result of original research published during the past two years. (One award is given annually.) Awarded to **Sara J. Milstein**, Associate Professor of Hebrew Bible and Ancient Near Eastern Studies at the University of British Columbia, for *Tracking the Master Scribe: Revision through Introduction in Biblical and Mesopotamian Literature*.

The Nancy Lapp Popular Book Award. This award is presented to the author/editor of a book published in the last two years that offers a new synthesis of archaeological or textual evidence intended to reach an audience of scholars as well as students and the broader public. (One award is given annually.) Awarded to **Patrick E. McGovern**, Scientific Director of the Biomolecular Archaeology Project for Cuisine, Fermented

Beverages, and Health at the University of Pennsylvania Museum, for *Ancient Brews: Rediscovered and Re-created.*

The W. F. Albright Award. This award honors an individual who has shown special support or made outstanding service contributions to one of the overseas centers, ACOR, AIAR, CAARI, or to one of the overseas committees – the Baghdad Committee and the Damascus Committee. (This award is given when such an individual is identified.)

AIAR: Awarded to **Sharon Herbert**, Charles K. Williams II Distinguished University Professor of Classical Archaeology, Department of Classical Studies, University of Michigan, and former Director of the University of Michigan' s Kelsey Museum.

CAARI: Awarded to **Andrew P. McCarthy**, Post-doctoral Fellow, University of Edinburgh.

ACOR: Awarded to **H.R.H. Prince Raad Zeid Al-Hussein**, of the Hashemite Kingdom of Jordan.

ASOR Membership Service Award. This award recognizes individuals who have made special contributions on behalf of the ASOR membership, through committee, editorial, or office services. (Up to three awards are given annually.) Awarded to **Rachel Hallote**, Professor of History, Purchase College, State University of New York. Awarded to **Lawrence "Larry" Geraty,** President Emeritus of La Sierra University. Awarded to **Erin Darby**, Assistant Professor of Religious Studies, University of Tennessee, Knoxville, and **Robert Darby**, Lecturer in Art History, University of Tennessee, Knoxville.

The ASOR Special Service Award. Awarded to **James "Jim" Eisenbraun**, President and Publisher, Eisenbrauns.

The Joy Ungerleider Poster Award. This award is conferred upon the author(s) of the poster presenting the results of a study about ancient Near Eastern societies in a clear, legible fashion using original graphic content. Subject matter may be based in archaeological sciences, history, anthropology, epigraphy, ethnography, heritage or other scholarly approaches to understanding ancient people in the areas covered by ASOR. (One award is given annually.) Awarded to **Rebecca Seifried** (Institute for Mediterranean Studies) and **Chelsea A. M. Gardner** (Mount Allison University), for their poster: "The Value of Travelers' Itineraries in Archaeological Research: A GIS Analysis of Pathways through the Mani Peninsula, Greece."

INTERNET SITES

THE YEAR IN DISCOVERY: THE 50 GREATEST FINDS OF 2017

At https://tinyurl.com/yd5pkd2p is an interactive map that links to "The Year in Discovery: The 50 Greatest Finds of 2017".

Go there for a look/see.

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

AN EXPLORATION OF WRITING, PETER T. DANIELS

ISBN-13 (Hardback) 9781781795286
Price (Hardback) £80.00 / $100.00
ISBN-13 (Paperback) 9781781795293
Price (Paperback)
£27.95 / $35.00 ISBN (eBook)
9781781796092
Price (eBook)
Individual
£27.95 / $35.00
Institutional
£80.00 / $100.00

An Exploration of Writing is a book about our alphabets, our syllabaries, and all the other kinds of writing that people use and have used for 5000 years. It introduces the general public to a topic that hardly anyone has heard about, so it clarifies basic linguistic terms as they occur. For linguists exploring the growing field of graphonomy—the study of writing systems—in which the author has long been a pioneer, it weaves together the many threads of theory into a tapestry showing a fuller picture of what all our scripts are seen to share.

An Exploration of Writing begins with more familiar kinds of writing considered in unfamiliar ways—starting with English viewed syllabically—and leads the reader across the Old World and the New to less familiar kinds of writing, showing how all writings share a fundamental essence, however diverse they appear to be, because all writing represents language. The more familiar (Hebrew, Chinese, Korean) leads on to the less familiar (Udi, Pahlavi, Javanese).

Featured are some of the world's most recently elucidated scripts, and some that are long known but long neglected, such as those for Central Asian languages, and some of the most recent interpretations of long-mysterious scripts, such as Sumerian and Mesoamerican.

An Exploration of Writing is in the tradition of and in part a response to A Study of Writing (1952/1963), by I. J. Gelb. It encapsulates more than thirty years of the author's work and his dozens of articles on writing systems, ranging from investigating the physical process of writing to bringing to light the achievements of those who had deciphered forgotten scripts to developing a theoretical approach to the origins of writing which leads to insights into the nature of writing itself.

Table of Contents

Preliminaries

Please visit the site: https://www.equinoxpub.com/home/exploration-writing/ [Go there for endorsements]

ΕΙΔΗΣΕΙΣ - NEWS RELEASE

STUNNING ANCIENT GYM FLOOR MOSAIC REVEALED DURING CONSTRUCTION WORK IN LAODIKEIA, TURKEY

In all parts of Asia Minor, many ancient findings of Byzantine, Hellenistic or Roman times are regularly discovered and, this time, an excellent gym floor mosaic, as appraised by archaeologists, was unearthed in Laodikeia.

As often, the discovery occurred randomly, when a resident of the area began to dig for the foundations of a building.

When he filed for the necessary permission to build on a plot of land, the archaeological service discovered that underneath tha building, an archaeological treasure lay in wait.

Temporarily, the building was covered with a trentop for protection, until the archaeological service starts work in the spring in order to eventually present the new finding to the public.

Laodikeia is located within the borders of the villages of Eskihisar, Goncalı, Korucuk and Bozburun, six km north of the modern city of Denizli. The site is on the road to Pamukkale (Hierapolis), which is approximately ten km to the north.

It is also situated at the crossroads of main routes that connect western, central and southern Anatolia with each other. Set amid the fertile plains of the Lycos River, Laodikeia lies on a high plateau surrounded on three sides by rivers: the Lycos (modern Çürüksu) to the northeast, the Kapros (modern Başlıçay) to the southeast and the Asopos (modern Gümüşçay - Goncalı Deresi) to the northwest.

The site is one of the important archaeological remains for the region along with Hierapolis (Pamukkale) and Tripolis. Excavations at Laodikeia show that the city was settled continuously from the Chalcolithic Period (Copper Age, 5500 BCE) to 7th century CE. The name of the settlement was, in turn, Rhoas (Asopos Hill), Diopolis (City of Zeus) and finally Laodikeia.

The settlement was founded as a city in the Hellenistic Period. The Hellenistic city was founded by the commander Seleucus Antiochus II in the name of his wife Laodike around the middle of the third century BCE. The region later became part of the Roman Republic (after Empire) in 130-129 BCE. Throughout its history, Laodikeia suffered many earthquakes and was rebuilt numerous times. It was finally abandoned after a severe earthquake in the reign of Emperor Focas (r. 602-610 CE). Its citizens settled in Denizli - Kaleiçi and Hisarköy on the north slopes of Mt. Salbakos (modern Babadağ), after the city's abandonment. Laodikeia was one of the Seven Churches named in the Book of Revelation and later became a metropolitan city in the Early Byzantine period.

During the Hellenistic Period the city was designed on the Hippodamian grid plan where the streets cross at right angles or run parallel to each other. The golden age of the city was from the 1st to 5th centuries CE. Most of the structures and the city itself have been developed during this period.

Encompassing an area of about five square kilometres, Laodikeia boasts the following impressive remains: the largest ancient stadium of Anatolia (measuring 285 x 70m), two theatres (Western and Northern Theatres), four bath complexes (East, Central, West and East Roman baths), five agoras (East, Central, West, South and North Agoras), five fountains (nymphaea; East Byzantine, Caracalla, Septimus Severus, B and West Fountains), two monumental portals (Ephesus and Syria Gates), a council house (bouleuterion), houses with a peristyle design (House A Complexes, Peristyle House with Church), temples (Temple A), churches (East, North, West, Central, Southwest Churches and Laodikeia Church), public latrines, two large water distribution terminals and monumental colonnaded streets (Syria, Ephesus, Stadium Streets). The city is surrounded by cemeteries (necropoleis) on its four sides.

The most important income of the city was commerce, thanks to its location on the crossroads of major trade routes. The foremost trade was textiles. In addition, marble, grain and livestock commerce also provided an important income to the city.

Please visit the site: http://www.tornosnews.gr/en/greek-news/culture/28490-stunning-ancient-gym-floor-mosaic-revealed-during-construction-work-in-laodicea.html [Go there for pix]

FIRST-OF-ITS-KIND MUMMY STUDY REVEALS CLUES TO GIRL'S STORY SCIENTISTS USE POWERFUL X-RAYS AT ARGONNE TO ANSWER QUESTIONS ABOUT 1,900-YEAR-OLD MUMMY

Who is she, this little mummy girl?
Northwestern University scientists and students are working to unravel some of her mysteries, including how her body was prepared 1,900 years ago in Egypt, what items she may have been buried with, the quality of her bones and what material is present in her brain cavity.

As part of a comprehensive scientific investigation, the mummy traveled from Evanston to Argonne National Laboratory on Nov. 27 for an all-day X-ray scattering experiment. It was the first study of its kind performed on a human mummy.

"This is a unique experiment, a 3-D puzzle," said Stuart R. Stock, research professor of cell and molecular biology at Northwestern University Feinberg School of Medicine, who led the synchrotron experiment. "We have some preliminary findings about the various materials, but it will take days before we tighten down the precise answers to our questions. We have confirmed that the shards in the brain cavity are likely solidified pitch, not a crystalline material."

The Roman-Egyptian mummy—which resides at the Garrett-Evangelical Theological Seminary on Northwestern's Evanston campus—is one of only approximately 100 portrait mummies in the world. These mummies have an extremely lifelike painting of the deceased individual incorporated into the mummy wrappings and placed directly over the person's face.

The Romans introduced to Egypt these 2-D portraits of the dead after almost 3,000 years of idealized 3-D images. (Think King Tut).

Just over three feet long, the little girl's body is swaddled in a copious amount of linen. The outermost wrappings have been arranged in an ornate geometric pattern of overlapping rhomboids and also serve to frame the portrait. The face, painted with beeswax and pigment, gazes serenely outward, her dark hair gathered at the back. She is wearing a crimson tunic and gold jewelry.

The study of this rare archeological object, owned by Garrett-Evangelical, is part of an interdisciplinary class at Northwestern focused, in part, on filling out the contextual story of where this mummy came from and who she was.

Thirteen materials science and humanities students are examining the materials and methods used to create both this intact portrait mummy and a well-preserved collection of Roman-Egyptian mummy portraits for an upcoming exhibition at Northwestern's Block Museum of Art. Earlier in the quarter, the class traveled to California to study the

portraits at the Phoebe A. Hearst Museum of Anthropology at the University of California, Berkeley, which will loan the portraits to the Block Museum. (Unlike the Garrett mummy, each of these portraits has been separated from its mummy.)

The students already have discovered that the Garrett mummy's portrait was put together in a very different way from the Hearst Museum portraits and likely is from a different workshop. These findings and others yet to come, including results from the synchrotron X-ray study of the Garrett mummy, will culminate in the Block Museum exhibition, "Paint the Eyes Softer: Mummy Portraits from Roman Egypt."

"Intact portrait mummies are exceedingly rare, and to have one here on campus was revelatory for the class and exhibition," said Marc Walton, a research professor of materials science and engineering at Northwestern's McCormick School of Engineering. He is teaching the fall quarter class with Taco Terpstra, assistant professor of classics and history at the Weinberg College of Arts and Sciences.

The "Paint the Eyes Softer" exhibition will reunite ancient neighbors:
the girl portrait mummy is from the site of Hawara, a site close to Tebtunis, where the Hearst Museum's mummy portraits are originally from. The Hawara, or Garrett, mummy is believed to be from a high-status family and was entombed in an underground chamber with four other mummies.

"This is a once-in-a-lifetime opportunity for our undergraduate students—and for me—to work at understanding the whole object that is this girl mummy," Walton said. "Today's powerful analytical tools allow us to nondestructively do the archaeology scientists couldn't do 100 years ago."

The synchrotron experiment at Argonne is a modern-day version of 19th-century England's "mummy unwrapping" parties, Walton said. The Northwestern team collaborated with scientists at Argonne and used the extremely brilliant high-energy synchrotron X-rays produced by Argonne's Advanced Photon Source to probe the materials and objects inside the mummy, while leaving the mummy and her wrappings intact.

"From a medical research perspective, I am interested in what we can learn about her bone tissue," Stock said. "We also are investigating a scarab-shaped object, her teeth and what look like wires near the mummy's head and feet."

Prior to its trip to Argonne, the mummy had a CT scan at Northwestern Memorial Hospital in August, also led by Stock. The scan gave the researchers a 3-D map of the structure of the mummy and enabled them to confirm the girl is 5 years old (give or take nine months).

At the Advanced Photon Source, Stock and his team shined the pencil-shaped X-ray beam (about twice the diameter of a human hair) on areas of high-density in the mummy that were identified by the CT scan. They now will use the X-ray diffraction patterns as "fingerprints" to identify each crystalline material. For example, is the black rounded object seen on the CT scan a gold object or a rock?

The findings from the synchrotron experiment, CT scan and other scientific analyses and studies of history conducted by the students will help researchers and historians better understand the context in which the Garrett mummy was excavated in 1911 as well as Roman-period mummification practices. Also, conservators will use the information to best preserve the mummy.

"We're basically able to go back to an excavation that happened more than 100 years ago and reconstruct it with our contemporary analysis techniques," Walton said. "All the information we find will help us enrich the entire historic context of this young girl mummy and the Roman period in Egypt."

Please visit the site: http://popular-archaeology.com/issue/fall-2017/article/first-of-its-kind-mummy-study-reveals-clues-to-girl-s-story

MUMMIES AND LOG HOUSES OF THE DEAD: SCYTHIAN LIFE AND DEATH

Bioarchaeologist Eileen Murphy explains how examining the human remains from burials can help us to understand more about the Scythians.

My adventures with the Scythians began 20 years ago. Professor Yuri Chistov of Peter the Great's Kunstkamera Museum in St Petersburg opened this wonderful world to me when he encouraged me to study the human skeletons from the incredible burial ground of Aymyrlyg. Located at the southernmost end of Siberia, near the border with Mongolia, this vast cemetery contained the burials of some 600 people of the Scythian world. The majority were buried within rectangular tombs made from logs – the log houses of the dead.

Aymyrlyg was a community burial ground used by these Iron Age mobile pastoralists over many generations. During the summer they probably spent their time traversing the steppes with their livestock, returning to the valley in which Aymyrlyg lay during the colder months. A clue to this seasonal pattern of movement can be found in the condition of the bodies, some of which had been treated in such a way that suggested processing for temporary storage. The remains of certain people had been reduced to small parcels and in some cases the soft tissues had been removed. These were the bodies of those who had died far from the cemetery during the summer months and required storage before the autumn journey back to the valley where the dead could then be buried at Aymyrlyg.

We know the Scythians were skilled at mummification processes from the evidence apparent in the bodies of those buried in the spectacular royal tombs at Pazyryk in the Altai region of southern Siberia. These individuals had been trepanned, disembowelled and, in some cases, had soft tissues removed from various parts of the body. Evidence of coarse stitching is still visible in the mummies.

In Book IV of his Histories, the fifth-century BC writer Herodotus gives the impression that the Scythians were a bloodthirsty bunch who spent much of the time marauding in bands across the steppe lands.
Among the Aymyrlyg population there were clearly those who had suffered a violent death, particularly from a lethal battle-axe blow to the skull – this weapon displays a marked similarity to the modern-day ice pick and was highly efficient in dispensing death.

The man from Barrow 2 at Pazyryk displayed evidence for at least two such blows to his head as well as very early, but indisputable, evidence for scalping. We should not be surprised at all by this finding. Herodotus tells us, with what might be detected as a certain amount of glee, that the Scythians scalped their enemies and hung the scalps on their horse harnesses as a symbol of battle prowess.

While most of those who had died violently were adult males, some females and teenagers at Aymyrlyg also displayed weapon injuries. The suggestion of warrior women should again be of no surprise to us since Herodotus described in detail the Amazons – a

tribe of female steppe warriors. Indeed, numerous burials of women accompanied by weapons have been discovered across the Eurasian steppe lands.

While the evidence for violent death is certainly compelling, it needs to be appreciated that relatively few people buried at Aymyrlyg had died in this manner – around 3% of the adults. In many ways it was even more interesting for me to find potential evidence of care and community support within the burial ground that somehow didn't quite fit with the stereotypical image we have of the Scythians. Certain individuals displayed serious physical impairments or evidence of chronic disease that would have made it difficult for them to have fully embraced daily tasks necessary for survival. Two women displayed evidence for the same congenital hip defect that would have rendered their affected legs practically unusable. In both cases the affected limbs had wasted away through lack of use and the women would have needed supports to help with their mobility. Another woman had evidence of a long-standing substantial soft-tissue growth in one of her eye sockets. Undoubtedly her sight would have been affected and she may also have suffered from other impairments invisible to us. The lives of these three women would no doubt have been particularly challenging.

The Scythians may have left us with amazing works of art and great inventions but for me it is these individual stories that make the study of their past so rewarding.

Please visit the site: https://blog.britishmuseum.org/mummies-and-log-houses-of-the-dead-scythian-life-and-death/ [Go there for pix and figs]

HOMESICK PHOENICIANS IMPORTED PLANTS, ANIMALS TO NEW SICILIAN ISLAND HOME 3,000 YEARS AGO DNA ANALYSIS OF SEEDS AND BONES UNEARTHED ON THE TINY ISLAND OF MOTYA SHOW THAT THEY CAME FROM THE ANCIENT LEVANT, BROUGHT BY THE PHOENICIANS TO SICILY,
BY PHILIP BOHSTROM

Over 3,000 years ago, as the Phoenicians spread west from the Levantine coasts of the Mediterranean to Sicily and beyond, it turns out they had not only animals on board, but plants and tableware too, bringing with them the taste of home.

Archaeologists excavating a village the seafaring Phoenicians established on the tiny island of Motya, on the western tip of Sicily, found plant seeds and animal bones that they had brought from home, possibly the coast of today's Lebanon.

The Phoenicians seem to have first landed on Motya, an island with protected anchorage and with access to mainland agriculture, sometime in the 10th to 11th century B.C.E. By the late 9th century B.C.E., they had developed it into a proper colony, thanks to no small part to the safe harbor.

In fact, the very name “Motya” in Phoenician meant “twisted,” which possibly refers to the ropes tied around ancient poles set into the sea-bottom of the Marsala Lagoon. Second-millennium B.C.E. anchor stones found there testify to the ancient frequentation of the island, which, crucially, also had strategic springs of fresh water.

Excavations carried out by students and experts from Sapienza University of Rome and the Superintendence of Trapani of Sicily since
2002 have shown that the Phoenician settlers brought typically Levantine plants, such as chickpeas, lentils, barley, wheat but also grapes, onion, garlic, sage, basil, fennel, anise, and papyrus – all typical ingredients of Sicilian cuisine today (except for the papyrus).

"They wanted to enjoy all the commodities and comforts they had in the east by bringing them to the west," says Prof. Lorenzo Nigro, excavation director.
Analysis of bones on Motya finds that they also brought sheep, goats and dogs, and possibly other animals with them. The dogs look like the breed known as Pharaoh hounds, which the doting modern Maltese have named kelb tal-fenek, or rabbit hound.
Despite their name, Pharaoh hounds, by the way, did not originate in ancient Egypt, or modern Egypt, and the legend has it that it was the Phoenicians who brought them to Malta in the first place. The presence of similar hounds in ancient Motya could reinforce that origin myth.

Dog remains, similar to the breed known as Pharaoh hounds, which the doting modern Maltese have named kelb tal-fenek, and a cat tooth found at Motya. Sapienza Expedition to Motya Another find was the tooth of a cat, which had apparently long since become firmly established as a household species (archaeological evidence indicates cats were kept as pets as much as 10,000 years ago).

As for the Phoenicians on Motya, they apparently traded in salt, a precious commodity at the time that is exported from the west coast of Sicily to this very day.

As said, by the 9th century B.C.E., the Phoenician immigrants were already well established on their wee island. Impressive remains of temples and shrines have been unearthed. Their distinctive pottery, their hallmark ivory and their storage jars for wine and olive oil have been found all over the island.

Especially intriguing was the discovery of a circular area featuring a central courtyard, a spacious temple with a dedicatory inscription to Baal as well as standing steles and a stone obelisk, all connected to the nearby pool, the kothon.

The kothon of Motya was first investigated by the archaeologist Joseph Whittaker in 1909. He interpreted the area as a dock for loading boats, and the basin as a harbor. (Hence the name "kothon," a Greek word which Roman authors used to designate the circular-shaped harbor of Carthage.)

Alternatively, Nigro suggests that the pool was a freshwater reservoir for cult purposes, and/or, based on the discovery of three ritual steles that he says are aligned to the stars, that it may have served in celestial observations needed by seamen, and/or worship of the sun and/or moon.

"[Various] finds, building technique and water capture devices, as well as geological analyses have demonstrated that the pool is fed with pure freshwaters by the phreatic aquifer," says Nigro, adding that following its colonization, the area became sacred to the Phoenicians.
After drying out the pool, the archaeologists discovered a podium in the basin's middle, with the base of colossal statue on top of it.

In the pool's southern corner they found an Egyptian greensand statue of a baboon. In Egypt the baboon was sacred to Thoth, the ibis-headed god of Hermopolis, master of wisdom, knowledge and writing, often associated in Phoenician imagery with astral representation.
Early-morning screaming by baboons had been thought to be a secret language that only adepts (including pharaohs) could understand, Nigro notes.

Why these teeth were deposited is anybody’s guess. What is sure is that, in keeping with the Phoenicians' religious predilections, the island is littered with votive offerings and burials of sacrificed humans. In the Tophet alone (the sanctuary devoted to burying the incinerated remains of children, apparently sacrificed), more than 2,000 urns and stelas were found.
Fine dining and a gambling habit

The statue of Melqart (or Hercules) dedicated in the Temple to the god (also known as the "Cappiddazzu" Temple) at Motya, in about 475 B.C.E.
Sapienza Expedition to Motya
By the 5th century B.C.E., Motya had become a large, thriving town, surrounded by massive city walls and guard towers. Large villas several floors in height and exquisite Attic pottery attest to the material wealth of the island inhabitants.

"These are residents of rich merchants who wanted to be part of the Greek cultural sphere," says Nigro. "They showed their status by buying pottery directly from Athens, not from Syracuse, which produced imitation Greek Attic ware but of lesser quality."

The Greek historian Diodorus Siculus describes the richness of Mozia in his work, Library of World History: “This city was embellished artistically to the last degree with numerous fine houses, thanks to the prosperity of the inhabitants.” (14.48.2)

Perhaps the most tantalizing expression of the inhabitants' wealth, and admiration of the Hellenes, is the so-called Motya Charioteer, that was unearthed in 1979. The sculpture, made of Parian marble and created between 480 and 470 B.C.E., may depict the victorious Phoenician god Melqart (equivalent to the Greek's Hercules) as he ascends to Olympus. The youthful, athletic divine charioteer is one of the finest examples of Greek sculptures preserved from that time so long ago.

But nothing lasts forever, and in the year 397 B.C.E., Dionysus I, the tyrant of Syracuse, had grown weary of the Phoenician descendants. In a campaign directed at the Carthaginian powerbase on Sicily, the island was attacked. The grim struggle went on for several days, until a Greek commando detachment, under the protection of darkness, gained strategic positions. The Phoenician and even Greek populace was slaughtered, and the city was sacked and left in ruins, which were never to be rebuilt.

Please visit the site: https://www.haaretz.com/archaeology/1.825589 [Gp there for many pix and better formatting]

ARCHAEOLOGICAL ENIGMA RESOLVED: METEORITES WERE THE ORIGIN OF ALL THINGS IRON PREDATING THE IRON AGE, BY RUTH SCHUSTER

Archaeologists had long been puzzled by iron tools dating thousands of years before iron smelting developed, but no, there was no precocious smelting, geochemists have concluded.

The enigma of iron tools that predate the Iron Age has long puzzled archaeologists. Over decades evidence accrued that the iron was of meteoric, not terrestrial, origin. Now Albert Jambon of the French Museum of Natural History has reanalyzed a collection of artifacts going back as much as 5,000 years in age, and found that every single one was made of meteoritic metal.

Based on an innovative geochemical approach, enabling distinction between terrestrial from extraterrestrial forms of iron, he found zero evidence of precocious smelting during the Bronze Age, Jambon reports in the Journal of Archaeological Science.

Of course, ancients might have been smelting iron earlier than we think. Perhaps we simply haven't found the evidence. But it is now abundantly clear that before the Iron Age, ancient artisans would help themselves to iron from meteorites, which they would hammer into shapes that could be quite elaborate.

The Iron Age is generally considered to have begun roughly 3300 years ago in what is today southern Turkey or the Caucasus. In other words, over two thousand years before that, people had discovered iron, albeit of extraterrestrial origin.

Ancient Egyptians were famously among those exploiting meteoric iron-nickel alloys, hammering the material into beads over 5,000 years ago in Gerzeh. Over a thousand years later, meteoric metal would be fashioned into elaborate artifacts for the 18th Dynasty pharaoh Tutankhamen, who ruled from 1332 to 1323 B.C.E., about a century before the Iron Age began.

His iron treasures included parts of a dagger, a bracelet and a headrest. Metallurgic analysis showed back in the 1960s (and confirmed in 2016) that those were of meteoric origin, a finding reconfirmed now by Jambon.

In fact, the iron work found with Tutankhamen's remains had been of such high quality that latter-day archaeologists speculated the ancient Egyptians had achieved "significant mastery" of iron-working, centuries before the Iron Age began.

Jambon also re-analyzed the beads, which are the oldest metalwork found to date. Their somewhat deteriorated remains had been discovered at Gerzeh in southern Egypt. He also revisited a dagger from the Neolithic settlements at Alaca Höyük, central Turkey tentatively dated to about 4500 years ago, a pendant found in Syria dating to 2,300

B.C.E., items found in ancient Ugarit, including an axe, and several Chinese artifacts from the Shang dynasty, about 3,400 years old.

His analyses revealed that each of these Bronze Age artifacts had been made using meteoric iron.

When large celestial bodies like Earth are forming, nearly all nickel, being a heavy element, drifts towards the molten iron core. Nickel is extremely rare on the planet surface. But at least some meteorites were created by planets being destroyed and shattered.

Almost all the meteorites that have crashed on earth so far, which were identified and analyzed, consisted mainly of stony iron, alloyed with a small proportion of nickel – which is still greater than the concentration of nickel found in any known rocks on earth's surface.

Meteorites typically contain trace cobalt as well and may contain other rare elements, such as gold.

The point is, the proportionate concentrations of metal in meteors do not exist on Earth. They are atypical. So if we found that a powerful pharaoh had a knife or gadget made of this atypical metal, we can conclude that his people hammered it for him from meteoric iron.

Jambon points out that conveniently for ancient metallurgists, meteoric iron is already in a metal state, ready for use, while extracting iron from terrestrial requires smelting – the process of reduction, removing oxygen atoms bound to the metal.

Once smelting was discovered, says Jambon, since iron ore is very common, people stopped making artifacts from meteoric iron.

In fact, having discovered a more common source of iron than meteorites, people began using iron very quickly throughout the Near East, as iron weapons proved a lot tougher than bronze, which became relegated to the stuff of decorations – as iron had beforehand.

Please visit the site: https://www.haaretz.com/archaeology/1.826890

A NEW STUDY BY A TEAM OF SCIENTISTS AND ARCHAEOLOGISTS NOW PROPOSES THE NATUFIAN'S HAD FAR MORE DIVERSE AND COMPLEX ORIGINS THAN ORIGINALLY BELIEVED, BY DANIEL K. EISENBUD

The hunter-gatherers of the Natufian culture – spread over modern-day Israel, Jordan, Lebanon and Syria approximately 11,500 to 15,000 years ago – were among the first people to build permanent houses and cultivate edible plants.

These innovations were likely crucial to the subsequent emergence of agriculture during the Neolithic era which followed.

While previous research suggested that the center of this culture spread from the Mount Carmel and Galilee region, a study by a team of scientists and archeologists now proposes that the Natufians had far more diverse and complex origins than originally believed.

The study, published in Nature Scientific Reports by a team of scientists and archeologists from the Weizmann Institute of Science in Rechovot and the University of Copenhagen, challenges the long-held "core region" theory.

According to the researchers, the study is based on evidence from a Natufian site located in Jordan, some 150 km. northeast of Amman. The site, called Shubayqa 1, was excavated by a University of Copenhagen team led by Dr. Tobias Richter from 2012-2015.

The excavations uncovered a well-preserved Natufian site, which included, among other findings, a large assemblage of charred plant remains. The botanical remains, which are rare in many Natufian sites in the region, enabled the Weizmann-Copenhagen team to obtain the largest number of dates for any Natufian site yet in either Israel or Jordan.

Utilizing an accelerator mass spectrometer (AMS), Prof. Elisabetta Boaretto, head of the Dangoor Research Accelerator Mass Spectrometry
(D-REAMS) lab in the Weizmann Institute, was able to accurately date the charred remains.

"This is one of the few labs in the world that works with the technology and methods that can analyze even the smallest organic remains from a site and precisely date them," the institute said Thursday.

"With the lab's specially-designed spectrometer, Boaretto was able to reveal the amount of carbon-14 in a sample as small as a single atom.

Based on the half-life of the radioactive carbon- 14 atoms, the dating done in her lab is accurate to around 50 years, plus or minus."

To ensure the highest accuracy, the team selected only samples from short-lived plant species or their parts – for example, seeds or twigs – to obtain the dates.

"Over 20 samples from different layers of the site were dated, making it one of the best and most accurately dated Natufian sites anywhere,"
the Institute continued. "The dates showed, among other things, that the site was first settled not long after the earliest dates obtained for northern Israel."

Based on the findings, the researchers concluded that either Natufians spread very rapidly into the region, or, more probably, that the settlement patterns emerged more or less simultaneously in different parts of the region.

"The early date of Shubayqa 1 shows that Natufian hunter-gatherers were more versatile than previously thought," said Richter.

"Past research had linked the emergence of Natufian culture to the rich habitat of the Mediterranean woodland zone. But the early dates from Shubayqa 1 show that these late Pleistocene hunter-gatherers were also able to live quite comfortably in more open parkland steppe zones further east."

Richter noted the researchers determined that a portion of the Natufians' subsistence appears to have relied heavily on the exploitation of club rush tubers as well as other wild plants, and the hunting of birds, gazelle and other animals.

According to Boaretto, the "core area" theory may have come about, in part, because the Mount Carmel sites have been the best preserved and studied – until now.

"In addition to calling into question the idea that the Natufians originated in one settlement and spread outwards, the study suggests that the hunter- gatherers who lived 15,000 to 12,000 years ago were ingenious and resourceful," said Boaretto.

The authors concluded that their findings support the view that there were many pathways to agriculture and "the Neolithic way of life" was a highly variable and complex process that cannot be explained on the basis of single-cause models.

Please visit the site: http://www.jpost.com/Israel-News/New-research-challenges-origins-of-ancient-Middle-East-Natufian-culture-517349 [Go there for pix]

NEW MYSTERIOUS FINDINGS IN EXCAVATIONS AT KISSONERGA-SKALIA OF PAPHOS, CYPRUS

The Department of Antiquities, Ministry of Transport, Communications and Works of Cyprus announces the completion of the 2017 season of archaeological excavations at the Bronze Age settlement of Kissonerga-Skalia near Paphos, conducted by a University of Manchester mission, under the direction of Dr Lindy Crewe (Director, Cyprus American Archaeological Research Institute). The site exhibits a long Bronze Age sequence, and earlier Late Chalcolithic occupation, beginning before 2,500 BC until abandonment around 1600 BC.

The aims of the season were to continue to expose the latest phases of occupation preserved at the site. In the north of the area under excavation, the preserved occupation dates to the Chalcolithic period.
Here an interesting area of Chalcolithic pit graves was revealed.
Although there were no grave goods to securely date the four burials excavated, sherds within the deposits indicate a likely Middle Chalcolithic date. This is important as it was previously thought that the burials at the neighbouring settlement of Kissonerga-Mosphilia were all associated with houses.

Further southwards, a building complex dating to Middle Cypriote III–Late Cypriote IA1 was revealed. There is no later occupation indicated during the Bronze Age. This final phase at the site is characterised by the construction of a large complex of over 1.200m2 devoted to industrial activities, including beer production and large-scale cooking or firing. Other activities undertaken include spinning fibres and grinding grain. This complex was built over the ruins of earlier Bronze Age houses and appears to indicate a community-wide effort of construction. This unusually large open space may have been used for gatherings or another unknown function.

In Area P/B2 an area of 55m2 was exposed. Two parallel long walls, seen on upper and lower part of Figure 1, appear to form a contained space. On the interior faces of both walls we have investigated wall tumble and superstructure collapse, suggesting that this area may have been roofed. A sounding dug between the walls revealed an underlying area of destroyed building material and extensive ashy deposits. The sequence of events suggests a deliberate destruction of an earlier Bronze Age built feature.

Further areas of stone wall tumble were associated with the wall seen upper left in Figure 1. The wall tumble was removed to reveal a series of two floor deposits. Lying beneath wall collapse and above the upper surface, the upper portion of a terracotta figurine was retrieved (Figure 2). This figurine is unusual but it is probably of Middle Cypriot date. Very few figurines of this period are known and all have variable characteristics. Its decoration is of local Kissonerga style, comprising impressed circles with a central dot and lines framing a row of dots. The figurine has a very elaborate hat and triple pierced ears.

There are still areas of the final phase complex to be revealed at Kissonerga-Skalia. It is hoped that in future seasons evidence for the nature of the occupation and the activities being undertaken at the site will be revealed. Outstanding questions remain: why was such a large complex constructed and only occupied for maybe one or two generations? What was the function of the large open area and why were so many large-scale heating/burning installations constructed?

Please visit the site: http://www.tornosnews.gr/en/greek-news/culture/28670-new-mysterious-findings-by-archaeological-excavations-at-kissonerga-skalia-in-cyprus.html

ARCHAEOLOGICAL DIG PROVIDES CLUES TO HOW FEASTING BECAME AN IMPORTANT RITUAL, BY NATALIE MUNRO

This holiday season millions of families will come together to celebrate their respective festivals and engage in myriad rituals.
These may include exchanging gifts, singing songs, giving thanks, and most importantly, preparing and consuming the holiday feast.

Archaeological evidence shows that such communally shared meals have long been vital components of human rituals. My colleague Leore Grosman and I discovered the earliest evidence of a ritual feast at a 12,000-year-old archaeological site in northern Israel and learned how feasts came to be integral components of modern-day ritual practice.

First, what are rituals?
Rituals involve meaningful, often repeated actions. In modern-day practices they are expressed through rites such as the hooding of a doctoral student, birthdays, weddings or even sipping wine at Holy Communion or lighting Hanukkah candles.

Ritual practice may have emerged along with other early modern human behaviors more than 100,000 years ago. However, proving this with material evidence is a challenge. For example, researchers have found that both Neanderthals and early modern humans buried their dead, but scholars weren't certain whether this was for spiritual or symbolic reasons and not for something more mundane like maintaining site hygiene. Likewise, the discovery of 100,000-year-old symbolic artifacts like pierced shell ornaments and decorated chunks of red ochre in caves in South Africa, was not sufficient to prove that they were part of any ritual activities.

It was only when archaeologists found these artifacts, placed in graves going back 40,000-20,000 years, that it was confirmed they were part of ritual practice.

The first feasts
We had a similar experience during our research. When Leore Grosman and I first embarked on the excavations at Hilazon Tachtit in the late 1990s, we were only hoping to document the activities of the last hunter-gatherers in Israel, at what appeared to be a small campsite.
It was only over several seasons of excavation that it slowly became clear to us that this was not a site where people had lived. Rather it was a site for rituals.

No houses, fireplaces or cooking areas were recovered. Instead the cave yielded the skeletal remains of at least 28 individuals interred in three pits and two small structures.

One of these structures contained the complete skeleton of an older woman, who we interpreted as a shamanbased on her special treatment at death. Her grave stood apart due to its fine construction – the walls were plastered with clay and inset with flat stone slabs. Even more remarkable was the eclectic array of animal body parts buried alongside of

her. The pelvis of a leopard, the wing tip of an eagle, the skulls of two martens and many other unusual body parts surrounded her skeleton.

The butchered remnants of more than 90 tortoises buried in the grave and the leftovers of at least three wild cattle deposited in a second adjacent depression excavated in the cave floor represent the remains of a funeral feast.

The outstanding preservation of the grave enabled us to detect multiple phases of a ritual performance that included the consumption of the feast, the burial of the woman, and the filling of the grave in several stages, including the intentional deposition of garbage from the feast.

Feasting at the beginning of agriculture Archaeologists have found other sites that show evidence of ritual feasting. Many of these date to the time when humans were beginning to farm.

One of the most striking is the site of Göbekli Tepe in southeastern Turkey, dating slightly later than Hilazon Tachtit. It includes multiple large structures adorned with benches and giant stone slab carved with exquisite animal depictions in relief dating to 11-12,000 years ago. Perhaps, these were very early communal buildings. The archaeologists who excavated Göbekli Tepe argue that massive quantities of animal bones associated with the structures represent the remains of feasts.

Twelve thousand years ago humans were still hunter-gatherers, subsisting entirely on wild foods. Nevertheless, these people differed from those who went before – they were sitting on the brink of the transition to agriculture, one of the most significant economic, social and ideological transformations in human history.

Sickle blades and grinding stones used to harvest and process cereal grains are found at Hilazon Tachtit and other contemporary archaeological sites. These findings indicate that these ritual feasts started around the same time that people adopted agriculture. When people began to rely more heavily on wild cereals like wheat and barley, they became increasingly tethered to landscapes that were ever more crowded and began to settle into more permanent communities. In other words, feasting became a part of their life, once they moved away from nomadic life.

Rituals that bind
These feasts had an important role to play. Adapting to village life after hundreds of millennia on the move was no simple act. Research on modern hunter-gatherer societies shows that closer contact between neighbors dramatically increased social tensions. New solutions to avoid and repair conflict were critical.

The simultaneous appearance of feasting, communal structures and specialized ritual sites suggest that humans were seeking to solve this problem by engaging the community in ritual practice.

One of the central functions of ritual in these communities was to provide a kind of social glue that bound community members by promoting social cohesion and solidarity. Feasts generate loyalty and commitment to the community's success. Sharing food is intimate and it builds trust.

Communal rituals would have provided a shared sense of identity at a time when social circles were increasing in scale and permanence. They reinforced new ideologies that emerged out of a dramatic reorganization of economic and social life.

Role of feasts today
Feasting plays the same essential role today. Like the earliest feasts, our holiday celebrations are replete with actions that are repeated year after year.

The holiday feast today builds family traditions. By cooking and sharing food together, telling stories of past holidays and exchanging intergenerational wisdom, holiday rituals bond extended families and give them a shared identity.

Please visit the site: https://phys.org/news/2017-12-archaeological-clues-feasting-important-ritual.html

EUROPE'S PREHISTORIC CAVE-PAINTERS HAD ROOTS IN THE MIDDLE EAST, ARCHAEOLOGISTS SAY

Dating of prehistoric layers in Manot Cave, northern Israel supports theory that early human culture developed in the Middle East more than 45,000 years ago before expanding to Europe By Ariel David

The early prehistoric culture that left us spectacular cave paintings, exquisite statuettes and expertly-crafted bone tools across western Europe does seem to have sprung from an earlier, similar human culture of the Middle East, based on evidence in a cave in Israel that has been occupied for tens of thousands of years.

The Ahmarian culture of the Levant and Aurignacian culture of Europe certainly coexisted for thousands of years. But did one predate the other? Did the advanced Aurignacian culture stem from the primeval Ahmarian culture, or did it develop independently?

Ahmarian and Aurignacian were not identical. Both cultures involved morphologically modern humans, but the primeval Ahmarians continued to make tools chiefly from stone, while Aurignacians began making tools from bone.

Also, all the prehistoric cave-art found to this day has been in Europe, created by Aurignacians. None is known from Ahmarian stomping grounds.

Now precise dating of archaeological layers in Manot, northern Israel, shows that the cave housed Ahmarians who lived thousands of years before the advent of the Aurignacians, in fact they predated most other known Ahmarian sites in the Levant too.

The finding supports the theory that the Aurignacian culture arose from the Ahmarian, which began spreading from the Middle East toward Europe some 45,000 years ago.

In other words, there is a breadcrumb trail of progressively younger sites from the Levant that suggests the Ahmarians moved out of the Middle East and slowly evolved into the Aurignacians on their way to Europe.

There and back again

There is also evidence that while expanding through Europe, some Aurignacians returned to the Middle East some 38,000 years ago. In some cases they reoccupied the same caves their ancestors had used thousands of years before, including Manot Cave itself, according to the study published last month in the journal Science Advances.

"Think of it like this: they went to northern Europe, made a U-turn and came back," jokes Omry Barzilai, an archaeologist with the Israel Antiquities Authority and one of the lead excavators at Manot Cave, a site near Israel's border with Lebanon.

Manot Cave, discovered by chance in 2008, contains layer upon layer of flint tools, animal bones, hearths and other remains of human habitation spanning tens of thousands of years. Specifically, it seems to have been occupied from about 55,000 years ago to at least 30,000 years ago.

Now, using the charcoal remains from the ancient hearths, scientists from D-REAMS (the Dangoor Research Accelerator Mass Spectrometry
Laboratory) at the Weizmann Institute in Rehovot were able to radiocarbon date the archeological layers with rare precision.

The scientists dated levels containing tools typical of the Aurignacian culture, as well as remains belonging to the Ahmarian, says Elisabetta Boaretto, director of the Kimmel Center for Archeological Science at Weizmann.

According to the archaeologists, the Ahmarian levels in Manot date to between 46,000 to 42,000 years ago, which predates the earliest Aurignacian sites in Europe.

This supports the idea that the Aurignacian grew out of the Ahmarian as humans migrated out of the Middle East through Lebanon, Turkey and the Balkans – areas which also host Ahmarian and early Aurignacian sites that are progressively younger in age.

“Once we see a sequence from the Levant to Europe, from the older to the younger, we can confirm that the dispersal model of the Ahmarian-Aurignacian is right,” says Barzilai. “If in the Levant this culture is 46,000 years old and in Europe it’s 40,000 then it makes sense to say that the direction is from the Levant to Europe.”

The clear chronological sequence from Manot cave, he added, weakens the competing theory according to which the Ahmarian and Aurignacian developed contemporaneously and in parallel without any direct contact, similarly to how agriculture was established independently in China and the Levant, or how pyramids were designed in both Egypt and Mesoamerica.

As the glaciers moved south

Aurignacian layers in Manot dated from 38,000 to 34,000 years ago, confirming that the Levantine form of this culture occurred later than the full-blown Aurignacian in Europe. The archaeologists explain this as the likely result of a back-migration from Europe.

We cannot know with certainty whether this return of the Aurignacian to the Middle East was caused by contact between neighboring groups of people, or actual migrations of entire populations, since we don’t have enough human remains in the Middle East with well-preserved DNA to conduct genetic tests, Boaretto says.

However, looking at the archaeological record, it is safe to assume that this back-migration did occur, given the strong similarities between the European and Levantine Aurignacian finds, says Barzilai, the IAA archaeologist.

“The tools they created are exactly like the tools the Europeans make,” Barzilai told Haaretz in an interview. “They used a lot of bone tools, especially from deer antlers. In

all of prehistory in the Middle East, only the Aurignacians use it, and it's a material that is very common in northern Europe, where there are many deer."

Such population shifts were likely triggered by climate fluctuations during the Ice Age, which in turn changed the migratory patterns of the animals that humans hunted. "As the glaciers moved southward, they pushed down with them the animals, and the people followed," Barzilai said.

Spears vs. arrows

The Ahmarian and Aurignacian were the first distinctively modern human cultures. They slowly developed after Homo sapiens made their last big exodus from Africa some 60,000 years ago, on the way to populate the entire planet.

Both these cultures were vastly different from the so-called Mousterian technological complex, which was used indistinguishably by Neanderthals, Denisovans and early Homo sapiens who had left Africa in previous migratory waves.

"The Aurignacians are the people who begin the sequence of cultures of modern humans in Europe, who develop cave paintings and elaborate jewelry," Barzilai explains. "They are completely different from the Neanderthals and their toolkit is very distinguishable from the Mousterian."

The newcomers from Africa and the Middle East developed thinner blades and smaller, finer points (made with flint by the Ahmarians and bone by the Aurignacians), which could be used as arrowheads. "Neanderthals used spears to hunt, while the Ahmarians and Aurignacians also used projectiles," Barzilai noted.

In fact, he added, this change in hunting technology is the focus of one of (many) theories that attempt to explain why the Neanderthals went extinct just as Homo sapiens reached their European heartlands around 40,000 years ago. Projectiles could have given our ancestors an edge in lean times, allowing them to hunt smaller game, like rabbits and birds, which are harder to catch with a spear, the archaeologist says.

But the Aurignacians – so named by modern scholars after the southwestern French village of Aurignac, where remains from this culture were first identified in the 19th century – are remembered not just for their brush with the Neanderthals, but for their extraordinary artistic talent.

Neanderthals too may have had a symbolic culture, possibly burying their dead. They may also have used ochre to paint. But it was the European Aurignacians who produced the perfectly preserved scenes of animal life in Chauvet cave in France, the ivory sculpture of the Lion-man of Hohlenstein-Stadel and the corpulent figurine known as the Venus of Hohle Fel in Germany, as well as some of the earliest musical instruments ever found.

For many researchers, these works represent evidence of abstract thinking and of what could possibly be the earliest forms of religious belief and cultic practices, making the Aurignacian culture, and its Middle Eastern precursor, a key turning point in the evolution of modern humans.

Please visit the site: https://www.haaretz.com/archaeology/.premium-1.831692 [Go there for pix]

FROM BIBLICAL LAYERS TO NEANDERTHAL DIETARY SECRETS: THE BEST ARCHAEOLOGY STORIES OF 2017, BY RUTH SCHUSTER

Revisit 12 months of amazing discoveries, from human remains where none were expected to a vast pagan sanctuary in northern Israel to a long-lost Byzantine city: Dig a little deeper with our review of the year

The year 2017 was a banner year for archaeological discovery. It will also go down as the year we realized how little we understand our own history: "How 2017 Rewrote the Book on Human Evolution."

In the face of the mounting evidence, we had to junk some pet theories – one being that Homo sapiens evolved in east Africa some 200,000 years ago. In June, a modern skull about 315,000 years old was discovered on the other side of the continent, in Jebel Irhoud, Morocco. It had some archaic traits but was clearly human. A new theory arose: Homo sapiens didn't suddenly spring into being in some sub-Saharan Eden, but evolved all over the continent.

Another theory to bite the dust in 2017 was that all men alive today arose from a single mass exodus from Africa around 65,000 years ago.
One snag is finding much earlier skeletons of Homo sapiens in Eurasia.
Maybe they are remains of earlier human migrations that went extinct, but traces of archaic DNA have been detected in some peoples existing today. Also, there is the nature of the man-beast, who a couple of hundred thousand years ago, wouldn't be likely to traipse en masse after some prehistoric, beetle-browed Moses, but meandered in small, nomadic hunting-gathering groups: "Man Has Been Trickling Out of Africa for 120,000 years, Archaeologists Say"

Or could Homo sapiens be even older? In "400,000-year-old 'School of Rock' Found in Prehistoric Cave in Israel," Ariel David suggests that, based on unexpectedly complex stone-tool work, modern man may have begun to evolve much earlier than thought.

And in other spheres too; here are some of the best archaeology stories of 2017.

***December**
Archaeology of Dogs: Were They First Domesticated in the Middle East?
Read more

Sheep bones found at Hazor from 3700 years ago: Everybody else back then cultivated goats. Read more

Major Early Christian Church Found in Beit Shemesh Splendid mosaics, iconic Christian architecture and crosses found when digging to build a new neighborhood.
Read more

Archaeological Enigma Resolved: Meteorites Were the Origin of All Things Iron Predating the Iron Age Read more

***November**

Fortress of Ashdod Yam. Behind it is southern Ashdod Kobi Refaeli Archaeologists May Have Found Long-lost Byzantine City Azotos Paralios, or Ashdod Yam, identified thanks to a groveling Latin dedication.
Read more

Archaeologists Startled to Find Remains of Pregnant Woman Buried in King Solomon's Mines Given that the Timna copper mines are in an armpit of the Negev, archaeologists thought the site couldn't support a community but was occupied by male miners. Not so.
Read more

Stones cover the body of the first remains of a woman found at King Solomon's Mines in Timna - and she was pregnant. Central Timna Valley Project Are 4-million-year-old Stone-knife Marks on Bones a Croc?
Observing the marks that crocodile bites leave on bones indicates that 'evidence' of stone-tool use in Ethiopia millions of years ago is nothing of the sort.
Read more

Lioness in basalt, found at Tell el-Araj Dr. Mordechai Aviam Perfect Lioness Carving From 1,500 Years Ago Discovered in a Pile of Dirt in Israel Some people wouldn't notice an elephant statue in the room. Others glance at a pile of dirt and see ancient carvings of cats.
Read more

Two cultic incense altars from a 2,200-year-old Edomite temple found in Israel Michal Haber, Israel Antiquities Authority Drone Spots 2,200-year-old Edomite Temple in Israeli Live-fire Zone Latest in the series: Only in Israel.
Read more

Earliest Evidence of Eggplants in Israel Found in 1,000-year-old Jerusalem Garbage Pit Saba ganouche?
Read more

A researcher puts ancient seeds found in a dump in Jerusalem into test tubes, which contain, from the left, lentils, various pumpkins, fig, Christ's thorn jujubes and eggplant. Eliyahu Yanai/City of David 2,000-year-old Sundial Changes Perception of Ancient Rome One day around 2,000 years ago, a Roman named Marcus Novius Tubula ordered an elaborate sundial.
Read more

Earliest Wine in World Found in 8,000-year-old Neolithic Georgia Prehistoric Caucasians may also have, inexplicably, invented the unsteady giant wine jar.
Read more

The sundial ordered by Marcus Novius Tubula Faculty of Classics, Cambridge University

***October**

Biblical Record of Eclipse 3,200 Years Ago May Rewrite Pharaonic Era in Ancient Egypt Joshua said the sun and moon stood still, but there are other explanations.
Read more

Family Finds Roman-era Stables Beneath Their Garden And then arrests were made for looting.
Read more

***September**

Startling Genetic Diversity Indicates That Ancient Papuans Didn't Even Mix With Each Other They came over 50,000 years ago, scattered into the highlands and lowlands, and that was that.
Read more

Oldest Evidence of Food-Storage Ritual: 7,200-year-old Model of Silo Found in Israel Why would anybody in their right mind build an elaborate toy storage facility over 7,000 years ago?
Read more

Israelite Refugees Found High Office in Kingdom of Judah As we discover from seals with Israelite, not Judahite, names found in Jerusalem.
Read more

Dr. Joe Uziel with the seals discovered in the City of David during the 2017 digging season. The seals date to the First Temple era.
Eliyahu Yanai, City of David

A modern bas-relief depicting St. Peter and St. Paul baptizing their jailers in the Roman prison. Ariel David

***August**

The Real Ark of the Covenant May Have Housed Pagan Gods If there was an ark, who brought it to the Temple in Jerusalem – King David or, as the archaeological evidence is starting to indicate, King Josiah? And what exactly was in it?
Read more

Archaeologists Reveal Secrets of Roman Prison That Held Both Christian Saints and Jewish Rebels One of the world's oldest and most terrifying prisons, reserved for ancient Rome's fiercest enemies – now open for you.
Read more

1,500-year-old 'Boutique Hotel' Found in Jerusalem And it was cheesy then, too.
Read more

'In the time of our most pious emperor Flavius Justinian, also this entire building Constantine the most God-loving priest and abbot, established and raised, in the 14th indiction' Assaf Peretz, IAA Scientists Debunk Claim That Copper Smelting Was Invented 8,500 Years Ago in Turkey Based on observation that "green is pretty."

Read more

The palace at Knossos. Minoan architecture and art had been so advanced that historians assumed they came from somewhere else.
Bernard Gagnon
It's All Greeks to Me: Mystery of Where the Minoans Came From Solved Three guesses: a) Outer space b) Turkey c) They were there all along.
Read more

***July**
Bodies Discovered in Biblical Gezer From Fiery Destruction 3,200 Years Ago The pharaoh boasted of burning Gezer to the ground. He really did.
Read more

An adult on its back, arms above the head, from the destruction of Gezer by Egypt's Pharaoh Merneptah 3,200 years ago. Tandy Institute for Archaeology Unique Kiln Used by Judean Potter Fleeing the Romans Found in Israel Thing is, this guy set up shop selling oil lamps 1,900 years ago that were not of the local style.
Read more

The Babylonian destruction layer in the City of David is the dark bit with bits of embedded pottery around the middle of the picture.
Eliyahu Yanai, Courtesy of the City of David Archive Archaeologists Find Destruction Left by Babylonian Conquest of Jerusalem Some 2,600 years ago, the Babylonians razed Jerusalem. Now the remains have been found.
Read more

Large Pontic amphorae that date to the Roman Period, found in the Fourni archipelago. Vasilis Mentogianis Pirates, or Storms? Archaeologists Find Ships Graveyard in Greek Archipelago Discovery of eight more ancient wrecks by Fourni brings count of ships sunk off this uninhabited island to 53.
Read more

On the Banks of the Jordan River, Neanderthals Ate Smelly Turtles 60,000 Years Ago Why? Hunting an elephant with spears is exhausting and dangerous, while hunting down a tortoise involves seeing it, bending over and picking it up.
Read more

***June**
Archaeologists Find Monumental Mikveh at King Herod's Palace in Jordan Vast and probably highly necessary purification bath found in Machaerus – King Herod's fortress in Jordan, where Salome danced and John the Baptist was killed – which was razed by the same Roman legion that destroyed Masada.
Read more

Two re-erected columns, one Doric (right, stumpier) and one Ionic, standing atop Machaerus with the Dead Sea in the background. Courtesy of the Hungarian Archaeological Mission to Machaerus Skulls From 11,500-year-old Ancestor Cult Found in Oldest Temple in the World Maybe they worshipped ancestors. Or maybe they just really liked hanging skulls on the wall in Gobekli Tepe.

Read more

Microscopic magnification (x60) of woolen textile from Timna dyed in red and blue stripes (photo taken with Dino-Lite microscope). Dr.
Naama Sukenik, Israel Antiquities Authority

A tentative reconstruction of a modified skull from Göbekli Tepe. Gresky / DAI Brightly Dyed, 3,000-year-old Textiles From King David-era Found in Timna We like red. They liked red.
Read more

Archaeologists Uncover 1,700-year-old Roman Villa With Stunning Mosaics in Libya Ptolemaic-era manse shows Achilles dressed as a girl. Find out why.
Read more

***May**
Tomb of Unknown Saint Found in Israel, Archaeologists Deduce A church in ancient Hippos-Sussita contained a mysterious sarcophagus with a hole drilled into the stone, through which the faithful could have touched the deceased. Or poured olive oil on it. Who knows?
Read more

Homo naledi skull, younger than the archaeologists had anticipated.
John Hawks, Wits University
Pre-humans Buried Their Dead 300,000 Years Ago, Cave Finds Indicate Bones of small-brained hominins called Homo naledi were discovered in incredibly hard-to-reach chambers in a vast cave system in South Africa, leading to the theory that they were ceremoniously burying their dead a quarter-million years ago.
Read more

***April**
Archaeologists Find Roman Emperor's 1,900-year-old Summer Home in Turkey So much for images of lounging nobles being fed grapes by seminude servants.
Read more

***March**
Circus Maximus, Rome: The marble columns in the foreground are remains of the second Arch of Titus. The tower behind was part of a medieval fortification. Ariel David Second Monumental Arch of Titus Celebrating Victory Over Jews Found in Rome Gloating, much? It wasn't enough for the Romans to enslave the Jews, plunder Judea, conquer Jerusalem, destroy the Temple and then erect a massive triumphal arch to commemorate those feats of war for millennia to come: They had to build a second, even larger monument to celebrate their victory.
Read more

***February**
The Legend of the Amorites
Why were the biblical peoples so terrified of migrant shepherds that they described them as raw-meat-eating, ancestor-abusing giants?
Read more

***January**
Iklaina tablet, with government record, written in Linear B. Michael Cosmopoulous Unknown Monumental Palace Rewrites Ancient Greek History Major discoveries that Iklaina was no backwater, but a major Mycenaean center predating complex polities in Greece by centuries.
Read more

Archaeologists Find Vast Pagan Sanctuary Outside Roman City in North Israel The archaeologists were looking for a bathhouse-theater, as archaeologists do. What they found was mounting evidence of a vast pagan worship complex, adoring the Roman gods, in Hippos-Sussita.

Please visit the site: https://www.haaretz.com/archaeology/1.831181 [Go there for pix, embedded linx, and better format]

HARVARD STUDENT HELPS CRACK MYSTERY OF INCA CODE, BY JON CHASE

Manny Medrano displays a model of khipu knots, an information system that the Inca used to tally and record data, by Cristela Guerra

It's a mystery that has left many scholars flummoxed.

For all the achievements of the Inca Empire, including a massive roadway system, sophisticated farming methods, and jaw-dropping architecture, it was the only pre-Columbian state that did not invent a system of writing.

Instead, the Inca, whose civilization originated in Peru and grew to include peoples and cultures all along the west coast of South America from 1400 to 1532, relied on knotted strings to encode information, a system so complex that scholars still struggle to make sense of it.

Which is what makes the work of Harvard student Manny Medrano all the more remarkable. The young student provided new insight into how the Inca recorded information by analyzing the colors and the direction of the knots placed on the strings, known as khipus.

The discovery could be a first step to unlocking far more Inca history.

Three years ago, freshman Medrano was working as a research assistant for Gary Urton, the Dumbarton Oaks Professor of Pre-Columbian Studies and chair in the Department of Anthropology at Harvard University.
Medrano, then just 19, decided to spend his spring break analyzing the data from six khipus that were found in the collection of an old Italian count who'd lived in Peru.

The Inca used khipus — the colorful, three-dimensional string systems — as record-keeping devices to tally census data, inventory resources, and record narratives such as royal histories, myths, and songs.

Anthropologists believe that the codes would contain insights into the Inca's way of life, if they could be broken. Furthermore, it would be the first history of the Inca told from the perspectives of the indigenous peoples themselves.

"The only history we have of the Inca Empire are ones that were written by Spaniards after they conquered the Incas," said Urton. "And those have all sorts of problems about the Spaniards writing from their own viewpoint and with their own prejudices. It seemed to me that the khipus represented the Incas's own histories of themselves."

Alas, there is no Rosetta Stone for khipus, no translation for what the patterns of knots represent, and no match between the Spanish documents and the khipus themselves. What did exist was the Harvard Khipu Database Project, which Urton established in 2002 to collect all known information about khipus into one centralized repository.

Medrano set to work. Though he was most interested in studying mathematics and economics, he also had a strong interest in archeology.

"We think of language as either spoken or written down," Medrano said.
"But the khipu really takes that and breaks that boundary and makes language something that can be felt, something that can be touched, and something that can be handled."

He made graphs and compared the knots on the khipu to an old Spanish census document from the region when something clicked.

"Something looked out of the ordinary in that moment," Medrano said.
"It seemed there was a coincidence that was too strong to be random."

He realized that, like a kind of textile abacus, the number of unique colors on the strings nearly matched with the number of first names on the Spanish census.

For example, if there were eight "Felipes," all were indicated by one color, while "Joses" were indicated by another color.

"There were so many different combinations of colors, whether solid colors or two colors spun together," Medrano said. "This looked like there was enough diversity in here to encode a language."

The khipus were similar and came from a burial site in a river valley on the north coast of Peru. Urton had previously discovered that the Spanish document referenced 132 taxpayers in a village.

Altogether, the six khipus had 132 six-cord groups.

As a result of Medrano's discoveries, Urton and Medrano produced a paper, which will be published in the academic journal Ethnohistory in January. Medrano, now a junior, is the lead author of the article, "Toward the Decipherment of a Set of Mid-Colonial Khipus from the Santa Valley, Coastal Peru."

The paper states that what Medrano found is "the first instance of 'reading' information from khipu attachment knots."

Medrano plans to continue his research. He has decided to major in applied mathematics and minor in archeology.

"There are hundreds of khipus that could encode stories and also hundreds if not thousands of Spanish documents from the period that also contain transcribed stories," Medrano said. "But, we need a link [to connect them.]"

"Being able to look at the past not just as Indiana Jones or trying to discover a golden idol in a cave," Medrano said, "but to help the process of getting history told from the perspective of the people who have been conquered."

Please visit the site:

http://www.bostonglobe.com/metro/massachusetts/2017/12/26/how-harvard-freshman-helped-crack-mystery-inca-code/asr6ifIpLoFXNQHA3AQdwO/story.html

CREMATED SOLDIER FOUND IN COOKING POT AT VAST ROMAN CAMP IN ISRAEL, BY PHILIPPE BOHSTROM

The camp discovered by Armageddon is the only full-scale Roman legionary base found so far in the East: It housed the 'Ironclad'
Sixth Legion, a cremated comrade in a cooking pot, and a Sacred Eagle, whose birdly squawks would be interpreted as portents of war

A monumental gate and dedicatory inscription in Latin are among the finds unearthed at the vast Roman military encampment discovered at Legio, near Tel Megiddo in northern Israel. The huge gate led to the principia, or headquarters.

The existence of the camp categorically proves the assumption, which had been based on multiple sources, that ancient Rome maintained a massive military presence in the Galilee some 1,900 years ago.

The camp at Legio (also known as Lajjun) dates to the 2nd and 3rd centuries C.E. Today covered by crops, then it was home to the famous Sixth Legion.

The Legio camp is the only full-scale imperial Roman legionary base found so far in the eastern empire, Matthew J. Adams, director of the W.F. Albright Institute and co-director of the dig, told Haaretz.

Camps of the sort are familiar from the western empire, and given the extent of local Roman presence, other major bases are likely to eventually be found in the east.

For example, a full-scale Roman Legion was known to have been based in Aelia Capitolina, the colony Emperor Hadrian had built on the ruins of Jerusalem following the city's destruction in 70 C.E. However, that legion's base hasn't been found, at least yet.

The base that has been found, at Legio, was about 300 by 500 meters in area and housed the Legio VI Ferrata, a.k.a. the "Ironclads,"
a.k.a. the Roman Sixth Legion.

The legion's task was to secure Rome's hold over Syria-Palaestina, guard vital imperial roads, and maintain order in the region. It was probably also involved in quelling Jewish uprisings, such as the fateful Bar-Kokhba Revolt that began in 132 C.E. and would end three years later, in categorical Roman victory.

Meanwhile, the camp by Tel Megiddo, which has been explored from 2014 to 2017 by Dr. Yotam Tepper of Haifa University and the Israel Antiquities Authority, sheds light on how the Roman army organized its affairs in the east as well.

The bloody history of the Ironclad Legion

The entire might of Rome was based on its legions. These were independent units, each a complete army in itself, rather than a specialized portion of a greater force.

Sometimes legions fought together, merging their resources and strength under a central command, as when four legions combined under Titus for the siege of Jerusalem, 70 C.E. to crush the Jewish rebels once and for all. But usually each legion stood alone with its individual commission of duty.

The number of legions serving Rome varied at different times, from 25 or less to as many as 33. Likewise, the number of soldiers comprising the legion fluctuated from about 4,000 to 6,000. In the second and third centuries C.E., the force usually numbered 5,000.

In the Levant that long ago, around 1,900 years, cities with 5,000 people would be considered large.

A Roman tile from Legio, bearing the footprints from legionary sandals Yotam Tepper As for this region specifically, by the reign of the Roman emperor Hadrian (117-138 C.E.), two imperial legions were stationed in the consular province of Judea: the Legio X Fretensis in Aelia Capitolina, and Legio VI Ferrata in the Galilee – the so-called "Ironclad" Legion.

“The Sixth Roman Legion Ferrata had a great and bloody history going back to the days when Julius Caesar first recruited it in northern Italy," says Barry Strauss, professor of History and Classics at Cornell University. "The legion fought in some of Caesar’s most famous battles in what are today France, Greece and Turkey, including the victory that Caesar immortalized with the words, 'I came, I saw, I conquered.'"

Originally stationed in Syria, the Ironclad Region had served under Marcus Antonius. Commonly known as Marc Antony, the Roman general was famed for military exploits and his close relationship with Julius Caesar, following whose death he ruled Rome as part of a trimvurate, with Caesar's adopted son Octavian and another general, Marcus Aemilius Lepidus.

Octavian took over command of the Ironclads after the Battle of Actium in 31 B.C.E.

For his part, Antony was also famed for marrying Emperor Octavian's sister Octavia but was especially famed for committing adultery with the Egyptian queen Cleopatra. He would die in 30 B.C.E.

In any case, the legion had moved from Syria to the Legio base well before the Bar-Kokhba revolt in 132 C.E. Legio is quite near the Jewish-Samaritan village of Kefar 'Othnay, where an excavation conducted by Tepper, on behalf of the Israel Antiquities Authority, revealed the earliest Christian prayer hall in the Holy Land (dating to the early third century C.E.), and perhaps in the entire region.

The prayer hall may well have served early converts to Christianity among the Roman centurions, Tepper says.

This Sixth Legion also fought for Septimius Severus, the winner in the civil war of 193 C.E., who would rule as Roman emperor from that year to 211.

By the time Constantine took power in 306 C.E., the legion had been relocated to what is today, Jordan. But wherever it was based, it was sent to serve as needed: from road-building duty in North Africa to fighting in various eastern campaigns in Armenia and Mesopotamia, says Strauss. But before that, through much of the 2nd and 3rd centuries C.E., the fearsome Legio VI Ferrata was stationed in Judea.

Consulting the Sacred Eagle

The 2017 summer excavation season unearthed the monumental gate to the military base headquarters, the so-called principia.

The principia was the heart of the Roman military base, a huge complex some 100 meters by 100 meters. Grand in size and in design, it had a huge colonnaded façade as well as a grand colonnade inside.

“The principia was not just the legionary commander’s headquarters; it was also the legion’s shrine. It included an open courtyard that housed a sanctuary for the legion’s standards, the revered symbol of the unit,” Strauss told Haaretz.

The sacred eagle of the legion, which was venerated during daily activities, was held in a room in the back center. When a commander or a priest was performing aguere, i.e., consulting the birds, hoping for omens in preparation for battle, all was performed in the principia.
How the birds' vocalizations were interpreted is not clear.

The principia was also the site of the treasury, the armory, and was where the scribes worked.

In front of the gate, the archaeologists found a stone mark, a typical decoration on the the principia façade – and a dedicatory inscription.
“The inscription contains several names, all with the name Flavius in them,” Teppers says, adding that the inscription is badly damaged and broken, and is still undergoing investigation – which doesn't stop us from speculating that inscription could have been erected to mark the building's construction. It could be listing camp commanders, or celebrating heroes of the Sixth Legion, Adams suggests.

Latrines yield golden nuggets

Another remarkable find was the discovery of the military headquarters' latrines, which, whatever else they had held, were rich in material. Mainly, in the sewers underneath the latrine, the excavators found numerous Roman coins, as well as glass, pottery and animal bones. No, they had not been excreted. “This is where much of the garbage of the camp inevitably ended up,” Adams explains.

Over 200 Roman coins dating to the 2nd and 3rd century C.E. have been unearthed in the dig.

The excavators also found a man-made cave dug inside the Legio base.

Inside it, they found a Roman cooking pot with the remains of a cremated individual, probably a soldier.

“Cremation burials in cooking pots were a common practice among Roman soldiers at that time. We found this kind of burial all around the site," Tepper told Haaretz.

tile bearing the stamp of the Sixth Legion Ferrata Jezreel Valley Regional Project Finding one's final resting place in a cooking pot was not atypical of Roman burial practices at other Roman military sites, in Israel and around the Mediterranean, Tepper added.

Excavations in previous seasons, in 2013 and 2015, unearthed large numbers of ceramic roofing tiles bearing the mark of the Sixth Ironclad Legion, and even some bearing the footprints from the legendary legionnaires' sandals.

The archaeologists also found fragments of scale armor, hollow headed nails that had been attached to the soldiers' sandals, clay pipes, sewer channels, and several buildings, all of which attest to the high level of planning at the site.

Its end was well planned too. Towards the end of the 3rd century C.E., during the reign of Diocletian, the Ironclad Legion was redeployed to the eastern frontier and the base was decommissioned and dismantled.

Please visit the site: https://www.haaretz.com/archaeology/1.831317 [Go there for pix and better format]

DISCOVERY OF A 4,000-YEAR-OLD MILITARY NETWORK IN NORTHERN SYRIA

Analysis of aerial and satellite images has enabled the discovery of a vast structured dating from the Middle Bronze Age.

The discovery of more than a thousand sites in Syria has revised our understanding of the settlement of the steppes during all periods in the history of the Near East. Recently, analysis of aerial and satellite images has enabled the discovery of a vast structured surveillance and communication network dating from the Middle Bronze Age (2nd millennium BCE). This research, led by researchers from the Archéorient laboratory (Environnements et sociétés de l'Orient ancien – CNRS/Université Lumière Lyon 2) and the Directorate-General of Antiquities and Museums of Syria, was published in the journal Paléorient on December 19, 2017*.

The region explored by the Franco-Syrian mission "Marges arides de Syrie du Nord" is located to the east of Hama and extends across approximately 7,000 km2. Positioned at the threshold of the densely populated sedentary regions of the Fertile Crescent to the west, and the arid, nomad-inhabited steppes to the east, it has not been continuously exploited by the region's inhabitants. Here, the multidisciplinary team from the geo-archaeological mission has discovered particularly well-preserved sites, including a fortified surveillance network over the territory dating from the second millennium (2000 to 1550 BC). It is the first time that such an extensive fortified system has been discovered in the territory.

This structure, exceptional in its extent and designed to protect urban areas and their hinterlands, is composed of a series of fortresses, small forts, towers, and enclosures that run along the mountainous ridge which dominates the steppes of central Syria. The researchers' work suggests that the fortresses were made from large blocks on unsculpted basalt and formed walls several meters wide and high. In addition, each fortified site was positioned in such a way to ensure that it could see and be seen by others. The spatial organization of this network thus depended on the ability to communicate through light (or smoke) signals in order to rapidly convey information to the major centers of power. The purpose of this regional network would have been to defend the territory, to surveil and protect transport corridors and, above all, to protect the most attractive lands.

These results consolidate field observations conducted prior to the exploration. These had already enabled the sites to be dated using ceramics collected on site. The access to aerial and satellite observations, from 1960 to the present day, made it possible to reconstruct the network beyond the limits of the zone under exploration. It has thus been identified across a north–south distance of around 150 km.

Please visit the site: http://popular-archaeology.com/issue/winter-2018/article/discovery-of-a-4-000-year-old-military-network-in-northern-syria

JOSEPHINE QUINN: THE PHOENICIANS NEVER EXISTED, BY PUP AUTHOR

The Phoenicians traveled the Mediterranean long before the Greeks and Romans, trading, establishing settlements, and refining the art of navigation. But who these legendary sailors really were has long remained a mystery. In Search of the Phoenicians by Josephine Quinn makes the startling claim that the "Phoenicians" never actually existed. Taking readers from the ancient world to today, this monumental book argues that the notion of these sailors as a coherent people with a shared identity, history, and culture is a product of modern nationalist ideologies—and a notion very much at odds with the ancient sources. Read on to learn more about the Phoenicians.

Who were the Phoenicians?
The Phoenicians were the merchants and long-distance mariners of the ancient Mediterranean. They came from a string of city-states on the coast of the Levant including the ports of Tyre, Sidon, Byblos, and Beirut, all in modern Lebanon, and spoke very similar dialects of a language very similar to Hebrew. Their hinterland was mountainous and land connections were difficult even between these neighboring cities themselves, so the Phoenicians were very much people of the sea. They had a particular genius for science and navigation, and as early as the ninth or tenth century BCE, their ships were sailing the full length of the Mediterranean and out through the straits of Gibraltar to do business on the Atlantic coast of Spain, attracted by the precious metals of the west. Levantine migrants and traders began to settle in the Western Mediterranean at least a century before Greeks followed suit, founding new towns in Spain, Sardinia, Sicily, and North Africa. Their biggest Western colony was at Carthage in modern Tunisia, a city which eventually eclipsed the homeland in importance, and under its brilliant general Hannibal vied with Rome for control of the Mediterranean: when Carthage was eventually destroyed by Roman troops in 146 BCE, it was said to be the wealthiest city in the world.

But doesn't your book suggest that the Phoenicians didn't even exist?
Not quite! The people we call Phoenician certainly existed as individuals, and they often have fascinating stories, from the Carthaginian noblewoman Sophonisba, who married not one but two warring African kings, to the philosopher Zeno of Kition on Cyprus, who moved to Athens and founded the Stoic school of philosophy. But one of the really intriguing things about them is how little we know about how they saw themselves—and my starting point in this book is that we have no evidence that they saw themselves as a distinct people or as we might say, ethnic group.

"Phoenician" is what the Greeks called these people, but we don't find anyone using that label to describe themselves before late antiquity, and although scholars have sometimes argued that they called themselves "Canaanite," a local term, one of the things I show in my book is how weak the evidence for that hypothesis really is. Of course, to say that they didn't think of themselves as a distinct people just because we don't have any evidence for them describing themselves as such is an argument from silence, and it could be disproved at any moment with the discovery of a new inscription. But in the meantime, my core argument is when we don't know whether people thought of

themselves as a collective, we shouldn't simply assume that they did on the basis of ancient or modern parallels, or because ethnic identity seems "natural."

So how did the Phoenicians see themselves?
This is the question I'm most interested in. Although there is no surviving Phoenician literature that might help us understand the way these people saw the world, Phoenician inscriptions reveal all sorts of interesting and sometimes surprising things that people wanted to record for posterity. They certainly saw themselves as belonging to their own cities, like the Greeks: they were "Byblians," or "Sidonians," or "Sons of Tyre." But one of the things that I suggest in my book is that in inscriptions they present themselves first and foremost in terms of family: where a Greek inscription might give someone's own name and that of their father, a Phoenician one will often go back several generations—16 or 17 in some cases. And then Phoenician-speaking migrants develop new practices of identification, including regional ones. We see particularly close relationships developing between neighboring settlements in the diaspora, and between people who are from the same part of the homeland. But we also see new, Western identities developing—'Sardinian,' for instance—which bring together Phoenicians, Greeks, and the local population.

And I think we can get further by looking at the evidence for cultural practices that Phoenician speakers share—or don't share. So child sacrifice rituals seem to be limited to a small number of Western settlements around Carthage, but the cult of the god Melqart, the chief civic deity of Tyre, is practiced by people of Levantine origin all over the Mediterranean. And on my interpretation, Melqart's broad popularity is quite a late development—in the fifth or fourth century BCE—which would suggest that a sense of connectivity between Phoenician-speakers in the diaspora got stronger the longer people had been away from their homeland. But at the same time, the cult reached out to other Mediterranean populations, since Melqart was celebrated by Greeks (and later Romans) as the equivalent of their own god Herakles.

Politics played a part in the construction of identities as well, and this is particularly apparent in one episode where an attempt seems to have been made to impose the notion of 'being Phoenician' on other people. By the late fifth century BCE Carthage was the dominant power in the western Mediterranean, controlling trade routes and access to ports, taxing defeated enemies, and beginning to acquire overseas territory as well, at the expense of other Levantine diaspora settlements. And at pretty much exactly this time they begin to mint coinage, and their very first coins have an image of a palm tree—or, in Greek, a phoinix, which is also the Greek word for Phoenician. It's hard to resist the impression that celebrating a common 'Phoenician'
heritage or identity put a useful political spin on the realities of Carthaginian imperial control.

If there's so little evidence for genuine Phoenician identity in the ancient world, where does the modern idea of "the Phoenicians" come from?
The name itself comes from the Greeks, as we've already said, but they didn't use it to delineate a specific ethnic or cultural group: for them, "Phoenician" was often a pretty vague and general term for traders and sailors from the Levant, there wasn't a lot of cultural or ethnic content to it. You don't get the same kind of detailed ethnographic descriptions of Phoenicians as you do of, for instance, Egyptians and Greeks. And the Romans followed suit: in fact, their particular focus on Carthage meant that the Latin

words for "Phoenician"—poenus and punicus—were often used to mean 'North African' in general.

It wasn't until the modern period that the idea of the Phoenicians as a coherent ethnic group fully emerged, in late nineteenth century European histories of Phoenicia that relied heavily on new and specifically European ideas about nationalism and natural cultures.
This is when we first find them described as a racial group, with an "ethnic character." And these notions were picked up enthusiastically in early twentieth century Lebanon, where the idea that the Lebanese had formed a coherent nation since antiquity was an important plank of the intellectual justification for a new Lebanese state after the collapse of the Ottoman empire—another story I tell in the book.

A more recent example of this comes from Anthony D. Smith's wonderful
1988 book, The Ethnic Origins of Nations, which argues that although true nations are a modern phenomenon, they have precursors in ancient and medieval ethno-cultural communities. Among his ancient examples are what he sees as 'pan-Phoenician sentiments' based on a common heritage of religion, language, art and literature, political institutions, dress and, forms of recreation. But my argument is that in the case of the Phoenicians at least we are not dealing with the ancient ethnic origins of modern nations, but the modern nationalist origins of an ancient ethnicity.

Is there any truth to the stories that the ancient Phoenicians reached America?
I'm afraid not! It's an old idea: in the early eighteenth century Daniel Defoe argued, not long after he published Robinson Crusoe, that the Carthaginians must have colonized America on the basis of the similarities he saw between them and the indigenous Americans, in particular in relation to "their idolatrous Customs, Sacrificings, Conjurings, and other barbarous usages in the Worship of their Gods."
But the only real evidence that has ever been proposed for this theory, an inscription "found" in Brazil in 1872, was immediately diagnosed by specialists as a fake.

The idea that Phoenicians got to Britain, and perhaps even Ireland, makes more sense. Cornish tin could certainly have been one attraction. There's no strong evidence though for Phoenician settlement on either island, though the possibility captivated local intellectuals in the early modern period. One of the chapters I most enjoyed writing in this book is about the way that scholars in England concocted fantasies of Phoenician origins for their homeland, in part as a way of differentiating their own maritime power from the more territorial, and so "Roman," French empire—at the same time as the Irish constructed a Phoenician past of their own that highlighted the similarity of their predicament under Britain's imperial yoke to that of noble Carthage oppressed by brutal Rome.

These are of course just earlier stages in the same nationalist 'invention of the Phoenicians' that came to fruition in the nineteenth century histories we've already discussed: stories about Phoenicians helped the British and the Irish articulate their own national identities, which in turn further articulated the idea of the Phoenicians themselves.

Why did you write this book?

One reason was I really wanted to write a book about the ancient Mediterranean that wasn't limited to Greece and Rome—though plenty of Greeks and Romans snuck in! But there's another reason as well:
"identity" has been such a popular academic topic in recent decades, and I wanted to explore its limits and even limitations as an approach to the ancient world. There are lots of reasons to think that a focus on ethnic identity, and even self-identity more generally, is a relatively modern phenomenon, and that our ideas about the strength and prevalence of ancient ethnic sentiments might be skewed by a few dramatic but unusual examples in places like Israel and perhaps Greece. I wanted to look at a less well-known but perhaps more typical group, to see what happens if we investigate them not as "a people,"
but simply as people.

Josephine Quinn is associate professor of ancient history at the University of Oxford and a fellow of Worcester College. She is the coeditor of The Hellenistic West andThe Punic Mediterranean

Please visit the site: http://blog.press.princeton.edu/2017/12/15/josephine-quinn-on-in-search-of-the-phoenicians/

OLDER THAN THE PYRAMIDS AND AS MYSTERIOUS AS STONEHENGE: THE UNEXPLAINED STONE CIRCLE IN ISRAEL'S GOLAN HEIGHTS

The stone circle at Rujm el-Hiri remains one of the most neglected archaeological finds in Israel. Experts are calling for it to be turned into a national park – even though it isn't connected to the area's Jewish past By Moshe Gilad

Rujm el-Hiri in the heart of the Golan Heights deserves a place of honor on the list of most forgotten archaeological sites in Israel.

It may even deserve to stand on the podium's peak. Few tourists have visited the ancient site and even those who come find to difficult to absorb its marvelous qualities, since from ground level all you see is piles of stones.

But in order to truly understand its value and beauty, four visitors crowded around a computer screen this week, watching footage from the drone that flew overhead and filmed the site.

The moment the drone reached a height of 20 meters (65 feet), we groaned with pleasure. The pile of gray basalt stones suddenly looked like a perfect circle. A maze of ruins with an unclear shape turned into a wondrous site (and sight), on a par with the most exciting places on the planet.

Comparisons with Stonehenge in England, the pyramids in Egypt, the Nazca Lines in Peru and even the huge statues on Easter Island are not unfair.

The question that keeps cropping up on every visit to Rujm el-Hiri is a simple one: how is it possible that such a fascinating site exists in Israel yet remains neglected, distant, inaccessible and almost unknown to Israeli hikers and foreign tourists?

Very little has changed there and in the surrounding area in the past 50 years. A great deal is about to change in the near future, though, and the big question is whether one of the most interesting places in Israel will survive.

Rujm el-Hiri was discovered in 1968. A survey mission headed by Shmarya Gutman was surveying the Golan and marking sites of interests.
Last week, Itzhaki Gal, who participated in that original survey, recalled the excitement he felt when he realized, with the help of an aerial photograph, what lay in the heart of the Golan Heights. Several days later, he plucked up the courage and told Gutman about it. Gutman wanted to travel in the middle of the night to see this circle of stones.

The Israelis called the place Gilgal Refaim (Wheel of Giants), connecting the site to Og, king of Bashan and the legendary kingdom of giants ("Refaim"). The relevant quotation is in Deuteronomy 3:13: "And the rest of Gilead, and all Bashan, the kingdom of Og ... is called the land of Rephaim [sic]."

The Arabic name Rujm el-Hiri apparently refers to "the stone heap of the wildcats" – a phrase that, like other things at the site, arouses endless debate.

An empty site

Significant archaeological excavations were conducted at the site in the late 1980s and early '90s, as part of the archaeological dig headed by Prof. Moshe Kochavi in the biblical Land of Geshur Regional Project (covering the area of the southern Golan, the east coast of Lake Kinneret and the northern bank of the Yarmouk River). Five central sites from the Bronze Age and Iron Age were investigated: the Levia compound, Rujm el-Hiri, Tel Hadar, Tel Ein Gev and Tel Soreg.

Prof. Yonathan Mizrachi, who wrote his Harvard doctorate about Rujm, discovered a burial compound containing several pieces of gold jewelry in the central structure. But the mystery of the stones was not
solved: the findings were dated to the Bronze Age (in other words, about 3,500 years ago) – about 1,000 years or more after the construction of the original site.

There was another study at the site later in the '90s by the Israel Antiquities Authority, headed by Prof. Moshe Hartal. Dr. Michael Freikman of the Hebrew University recently completed his doctorate on study of the site. Speaking to Haaretz last week, he explained that the most unique fact about Rujm el-Hiri is that it's an "empty" site.
There are almost no findings of dated material – potsherds, coins, etc, – that could indicate the period when it was cultivated.

In order to overcome this obstacle, Freikman decided to analyze the landscape. He believes the site is an impressive monument that was constructed in order to be seen.

He estimates that there are some 50,000 tons of basalt stones at the site. Its construction required hundreds of thousands of workdays – maybe even a million, he says. According to his calculation, if 100 laborers worked at the site, construction would have taken about 25 years. A tremendous and terribly expensive effort.

The data for Rujm el-Hiri are incredible: Five circles of basalt stones, built to a height of about 3 meters, which surround a central structure about 5 meters in height. The diameter of the outer circle is 150 meters, and its shape is perfect. The interior circles are 80 and 110 meters in diameter. The circles of stones are connected to additional walls. Between them are traces of flooring. There are two openings in the outer circle – one facing northeast, the other southeast.

If you stand in the center of the site at sunrise on the longest day of the year (June 21), you see the sun rising in the center of the northeastern opening. I have tried it several times to test its validity. It is true, but the opening is very wide so there's a sense of frustration: The sun also rises there on the previous day and the following days as well.

We must also note that there is no similar phenomenon at the southeastern opening on the shortest day of the year, December 21. The sun won't rise in the center of this gate, but next to it. This disappoints those who believe the site is a ritual star observatory, or an agricultural calendar shrine. None of this has prevented many from claiming that the site – like many other stone circles worldwide – has "unique energies."

I can't confirm that because I don't understand anything about unique energies, but every time I've been there I've felt happy.

We can discount the occasionally cited view that the place was built by aliens, who arrived from the far end of the galaxy and landed among the cow droppings of the Golan – although the cows probably believe that version. Last week, too, many of them gazed optimistically upward and then continued to graze in the pasture.

The tempting comparison to Stonehenge in Wiltshire, southern England, relies on the planning and astronomical circular structure of the site, as well as its estimated age. Scholars' estimates for the site cover a large time span – from 4,000 years (about the age of the Egyptian pyramids and Stonehenge) to 6,000 years ago. Views on what the site was built for are also split, though scholars agree that at some point in the past it served as a ritual site for some form of tribal or social gatherings.

The giants return?

I was accompanied on my visit to Rujm el-Hiri by Sharon Levy, whose remit at the Israel Nature and Parks Authority covers the Golan Heights. He believes the place should be declared a national park.

Levy says the preservation of this large open space in the heart of the Golan is of huge importance, because the pressures on the environment are multiplying and intensifying.

The most urgent problem, he says, is the plan to build a wind farm at Tel Fares, some 5 kilometers to the northeast. The present plan includes the construction of 42 giant wind turbines, each 150 meters high. Such a farm would totally change the open space surrounding Rujm.

But Levy is even more disturbed by another problem the turbines will cause: endangering the lives of the few vultures that remain in the Golan, and at the nearby Gamla site in particular. He quotes studies pointing to certain death for at least five vultures a year if the turbines are installed, threatening the near-extinction of the species in the region. Another environmental problem is the preparation of 3,500 dunams (865 acres) near Rujm for agricultural use. "Where will the irrigation water for these areas come from?" he asks in concern.

The national park Levy wants to introduce would cover a large area of some 5,000 dunams. The development he proposes is minimal: simply preparing a paved road to the site, which would make it accessible without special vehicles. In addition, he recognizes the need for a high observation point that will enable visitors to enjoy an aerial view of the site.

Two options have been floated as a possible solution: one proposes operating a hot-air balloon tied with a cable, which would enable visitors to observe the site from a height of several dozen meters; the second, more modest one, is building a 20-meter-high observation tower at the edge of the outer circle.

Dr. Noam Lidar, the INPA's chief ecologist, is a self-confessed "strange places freak," and is therefore smitten with Rujm el-Hiri.

The uniqueness of the place, he explains, lies less in its scientific aspect and more in the "story," meaning it has tremendous potential.

He says the story is historical and astronomical, but also broader – and deals with the open spaces in the Golan, which are under threat due to agricultural development and the wind turbines. He believes that preserving these spaces is a vital task for Israel's environmentalists.

Lidar says another key problem is preserving the darkness at nighttime. Israel has very few places left where you can see starlight and truly study the stars. The Golan Heights, he explains, is one of the last refugees of darkness remaining to us outside of the Likud Party (OK, he didn't say that last bit). Despite his pensive tone, he conjures up a beautiful sentiment: "It's important to leave in this place a naive taste of remoteness and of adventure stories that have disappeared. We lack such positive stimuli, and we have no mystery."

Itzhaki Gal doesn't like the word "mystery" that is often attached to Rujm el-Hiri. "It's an important site on a global scale," he says enthusiastically, "but when you say 'mystery' you are undervaluing it.
You have to think about it scientifically. The mystery is nonsense that causes us to deviate from the subject, and because of that almost nothing happened here.

"All over the Golan," he continues, "they've invested tens of millions in developing sites – especially ancient synagogues – but they aren't investing a shekel in the Canaanite period. There aren't even normal roads leading to those sites. What's the problem? You aren't sure the land is ours? We can invest in the Canaanite period without undermining patriotism."

When asked what he would like to see happen at the site, Gal replies with typical brio: "We have to excavate in a few more places, carry out restoration and preservation, pick up stones from the collapsed rocks so the walls will occupy a position similar to their previous one. We have to restore the walls to a height of about 4 meters, so the visitors will see a wall and not fallen rocks. If they invest in excavating in the area of the gates, it will be possible to prove the astronomical issue. And of course, we have to allow visitors to see the site from above. A tower is a good option."

Mizrachi, head of the sociology and anthropology department at Jezreel Valley Academic College, excavated at Rujm for several years. At present, together with Gal, he is writing a book based on his studies at the site. Mizrachi says the most obvious reason for the fact the site has not benefited from broad recognition and development in the 50 years since its discovery is that it isn't connected to the Golan's Jewish past. Synagogues in the Golan – like the one at Umm el-Kanatir – are undergoing massive development, but other sites don't receive similar budgets.

Another point he raises is that, in the past, many people assumed that the Golan Heights would eventually be returned to Syria as part of a diplomatic agreement, and therefore they didn't invest in developing its tourism sites. Today, the situation has changed. Nobody believes the Golan will be returned to Syrian hands in the near future.

"It's very important to preserve the wild and remote beauty of the place," explains Mizrachi. "We shouldn't do any restoration or rebuild the walls. That's part of the beauty of this place. We have quite good scientific answers to most of the questions the site presents.
Whenever we deal with the past, we build a certain puzzle of knowledge and remain with mysterious components. The mystery is part of the charm here. It may be worthwhile to build a small visitors center in Rujm, which will demonstrate the process of deciphering the mystery.

"The beauty of the site lies in its interdisciplinary nature," he adds. "It presents us with questions in astronomy, archaeology, the history of the region's climate and the methods of irrigation used by ancient settlers. All these create a wonderful mystery. It's important to enable many people to enjoy it."

The light fades early at this time of year and several large flocks of starling hover above Rujm. They look like a black cloud that approaches and moves away in a coordinated movement: Alfred Hitchcock and Indiana Jones meet near Ramat Magshimim. When I attempt to film them, says they are disappearing. There used to be 2 million starlings in Israel, but fewer than 200,000 are left today. The numbers are depressing. It's preferable to think about aliens with aching backs, arranging thousands of basalt stones in perfect circles.

Please visit the site: https://www.haaretz.com/archaeology/.premium-1.830768

PREHISTORIC BLING? AESTHETICS CRUCIAL FACTOR IN DEVELOPMENT OF EARLIEST COPPER ALLOYS

New study suggests 'golden hue' crucial to development of world's earliest tin bronze artefacts. Using experimentally made copper alloys and colorimetric analyses, original colour of artefacts c. 6,500 years old can now be seen.

While studies of ancient gold metallurgy and the colour characteristics of gold alloys are well supported by modern research, the colour properties of prehistoric copper alloys, such as tin bronzes or arsenical copper, the most abundant type of metal artefacts in prehistory, have largely been understudied. Until now.

In a study published today in the Journal of Archaeological Science an international team of Serbian and UK researchers have developed a Cu-As-Sn (Copper-Arsenic-Tin) colour ternary diagram to uncover the original colours of archaeological artefacts now patinated through age and exposure.

The study was prompted by the discovery of the world's earliest tin bronze artefacts four years ago in Serbia and the ongoing debate into what significance colour played in the advancement of metal-making technologies.

Dr Miljana Radivojevic, lead author and researcher at the McDonald Institute for Archaeological Research, University of Cambridge, said "Given the acknowledged importance of aesthetics in ancient metallurgy, we decided to experimentally replicate the most common prehistoric alloys, made of binary and ternary combinations of copper, arsenic and tin and produce a colour chart that comes the closest to showing the true 'bling' of such artefacts in the past. We were inspired by modern jewellery making where similar colour charts are used to explore properties of gold-copper-silver alloys."

Professor Zeljko Kamberovic, leader of the Serbian team from the University of Belgrade Faculty of Technology and Metallurgy said, "Our laboratory is one of the few in Europe to hold a license to experiment with arsenic, which is why we were approached to develop the study and produce 64 metal samples of variable copper-tin-arsenic compositions."

"The copper-tin-arsenic ternary colour charts enabled us to re-evaluate the claim that early tin bronzes in the Balkans had a distinctive golden hue", said Radivojevic. She added that it is "now highly likely that the production of this new alloy in the Balkans at the same time as gold could have been dictated by the demand for the 'exotic' golden hue, or its closest imitation".

"This research, although driven by the case study in the Balkans, yielded a valuable representation of colour of the most commonly produced prehistoric alloys worldwide. We now have the means to bring shine to the items that have lost their original aesthetic appeal during several millennia of deposition below ground", stated Professor Martinón-

Torres from the UCL Institute of Archaeology, where chemical and colorimetric analyses for this study were conducted.

Dr Radivojevic added that she anticipates these colour charts being widely used in teaching or museum exhibits, "helping students and museum visitors to imagine how the majority of ancient metal objects looked a couple of thousands years ago."

~~~~~~~~~~~~~~~~~~~~~~

The original article is: Radivojevic, M., et al., Experimental design of the Cu-As-Sn ternary colour diagram, Journal of Archaeological Science (2017), https://doi.org/10.1016/j.jas.2017.12.001

Please visit the site: https://www.arch.cam.ac.uk/prehistoric-bling-aesthetics-crucial-factor-in-development-of-earliest-copper-alloys
~~~~~~~~~~~~~~~~~~~~~~

LOST ANCIENT TEXTS RECOVERED AND PUBLISHED ONLINE THROUGH INTERNATIONAL PARTNERSHIP, BY KATHY BROWN

Arcadia funds project of St. Catherine's Monastery, the UCLA Library, and Early Manuscripts Electronic Library

Previously unknown classical Greek mythological and medical works, newly discovered classical scientific texts preserved only in Syriac translation, religious writings in extinct languages, an ancient Christian poem describing Old Testament figures in Homeric style and detailed illustrations of plants, buildings and people have re-emerged for the first time in centuries through the Sinai Palimpsests Project.

The five-year collaboration is the largest effort of its kind to recover erased or obscured information from historical source material. Seventy-four palimpsests totaling some 6,800 pages in 10 languages contain erased layers of writing from the fifth to the 12th centuries. They are accessible to students, scholars and the public at sinaipalimpsests.org.

"By revealing these long-hidden materials and preserving them for future generations, this project makes possible advanced research and scholarship by scholars around the world," said UCLA Norman and Armena Powell University Librarian Ginny Steel. "We are extremely grateful to Arcadia for its visionary support of this international effort."

A UNESCO World Heritage site located in a region that is sacred to Christianity, Islam and Judaism, St. Catherine's Monastery is the oldest continuously inhabited Christian monastery in the world. Access to its collection of ancient and medieval manuscripts, considered second only to that of the Vatican Library, has often been difficult due to its remoteness and the region's volatile political climate. In addition to revealing hidden content and making it accessible, this project has also preserved these fragile materials.

Anthea Case, principal adviser to the Arcadia Fund, says, "We are enormously proud to have supported the project at St Catherine's Monastery from its very beginning to successful completion."

Among the palimpsests are texts in Ethiopic and Latin, demonstrating the monastery's centrality in the world of medieval Christendom; previously unknown texts in the extinct language Christian Palestinian Aramaic, including a newly discovered story of an early Christian martyr; and early biblical texts in numerous languages.

There are also the earliest surviving copies of several Hippocratic medical treatises and a previously unknown mythological poem from ancient Greece that mentions Zeus, Hades, Hera, Hermes and Persephone.
In addition to the oldest surviving illustration in a secular Latin manuscript, illustrations include medicinal herbs, human faces and figures and portions of buildings. There are a number of double palimpsests from parchment that was re-used multiple times.

Michael Phelps, EMEL project director, states, "With the gracious collaboration of the monks of St. Catherine's Monastery, this project has not only recovered individual texts of historical significance; it is also restoring the voices of whose literatures have been mostly lost."

The spectral imaging process involves illuminating a manuscript with successive wavelengths of light from ultraviolet through the visible spectrum to infrared. The raw data is then processed to generate derivative images that maximize the legibility of erased content. The UCLA Library previously partnered with an international team on a similar project focused on the papers of the famous explorer David Livingston.

Arcadia Fund is a charitable fund of Lisbet Rausing and Peter Baldwin.
Arcadia serves humanity by preserving endangered cultural heritage and ecosystems. Because knowledge should belong to all, Arcadia also promotes open access, seeking to make information available without barriers of cost or distance.

Arcadia has a history of support for education and research at UCLA.
Its major gifts to the Library include $5 million to support transformative change in print and digital collections and $3.4 million to capture and provide online access to international ephemeral materials.

As one of the world's leading research libraries, the UCLA Library is globally recognized as an innovator in library collections and services. Last year, more than 20 million people accessed the UCLA Library's digital and online resources, which now include the largest collection of spectral images in the world. By preserving global cultural heritage, the Library fuels the transfer of knowledge across generations and around the world.

EMEL uses digital technologies to preserve and provide access to ancient and medieval manuscripts. It specializes in the design of systems to support fragile manuscripts during digitization and in the recovery of text from damaged, deteriorated or erased manuscripts. Arcadia provided EMEL a grant of $2.1 million in support of this collaboration with St. Catherine's Monastery to recover erased texts among its many palimpsests.

Please visit the site: https://www.library.ucla.edu/news/lost-ancient-texts-recovered-published-online-through-international-partnership

5,000-YEAR-OLD COSMETICS, JEWELRY SHOW RISE OF ANCIENT JERICHO, BY PHILIPPE BOHSTRÖM

Eyeliner and scarabs from Egypt discovered at one of the world's oldest cities show its growing power and reach, say archaeologists.

The city of Jericho was wealthy and well connected long before its walls came tumbling down in an attack that has been associated with a well-known passage in the Bible.

A joint Italian-Palestinian team has been conducting archaeological digs at the site of Tell es-Sultan, 13 miles northeast of modern Jerusalem in the West Bank, since 1997. During their latest excavation season, the team made an extraordinary discovery in a home occupied some 5,000 years ago—five mother of pearl shells, stacked one on top of the other, that could only have come from the Nile.

Two of the shells still contained the residue of a dark substance, which a laboratory analysis identified as manganese oxide. That powdered mineral was the main component of a cosmetic known as kohl, used as an eyeliner in ancient times.

“The discovery confirms a close commercial relationship, already in the early third millennium B.C., between the ancient city in Palestine and Egypt,” says lead archaeologist Lorenzo Nigro of the Sapienza University of Rome. “It also shows the rise of a sophisticated local elite in Jericho.”

An Ancient, Connected Oasis City

The city of Jericho, in what is today the West Bank, grew around an abundant spring. As far back as 10,500 B.C., people began to gather at this oasis. Eventually they settled down, cultivated crops, and domesticated animals.

At the beginning of the third millennium a fortified city arose, and then a ruler’s palace. The city’s most precious resource, its constant supply of fresh water, made it prosperous and allowed it to trade for luxuries from other lands.

The latest excavation season also revealed evidence of continuing ties between Jericho and Egypt several centuries later than the cosmetic find—a unique burial dating to about 1,800 B.C., the time of Egypt’s Middle Kingdom.

This elite burial chamber held the remains of two people—a nine- or 10-year-old girl adorned with jewelry, and an adult female who was presumably an attendant. The bones of two young sacrificed animals—a gazelle and a goat—as well as six pottery vessels were also discovered by the archaeologists.

The most interesting vessel was a small black burnished jug that was found next to the skull of the younger female. It contained a perfume or an ointment and may have been left in this spot so the deceased could smell sweet aromas throughout eternity.

Get inspiration from these 9 ancient sites.
The young aristocrat's ornaments included two pairs of bronze earrings, a bronze bracelet, a bronze pin on the left shoulder that probably closed her robe, a bead necklace with a carnelian set between pairs of rock crystals, and a bronze signet ring with a local type of scarab that was inscribed with protective signs.

A second stone scarab, resting on the girl's chest, bore hieroglyphics that testify to Egypt's cultural influence on Jericho's elites.

The grave goods found inside the young noblewoman's tomb include bronze jewelry, a beaded necklace, and a burnished jug, left, which may have once held perfume.

Two signs on the scarab, 'dj and mr, represent a well-known Egyptian title "administrator of canals." Dating back to Egypt's Old Kingdom (2,575-2,150 B.C.), the title may have been appropriated by the rulers of Jericho some three centuries later. The title would have been especially appropriate in this city, where people had learned to harness the agricultural power of water—and benefited greatly from that—as the ancient Egyptians had also done.

Two more signs on the scarab, a crouching lion and the sun rising over a hill, represent rw and ha, which form the name Rwha, or Ruha. No such personal name has ever been identified among Egyptians or the local Canaanite population, says Nigro, but it may well have been the ancient name of Jericho. If that's the case, this young royal was likely laid to rest wearing a scarab that bore the title of the city's ruler.

The end of this thriving, international era at Jericho came in about 1,550 B.C., when a violent attack reduced the city to a heap of smoldering ruins. The city would not be rebuilt until several centuries later, and its destruction was so violent that it became embedded in the collective memory of the Canaanite peoples, resounding in the biblical narrative of Joshua and his destruction of the city according to God's command.

Please visit the site: https://news.nationalgeographic.com/2017/12/jericho-ancient-archaeology-egypt-bible/ [Go there for pix]

WAS TRADING BY NOMADS CRUCIAL TO THE RISE OF CITIES?
BY ANDREW LAWLER

Nearly 4000 years ago, in the royal palace of the Mesopotamian city of Mari, King Zimri-Lim awoke from a nightmare in which nomads from the surrounding desert had captured his beloved wife. Archaeologists have long thought that that Zimri-Lim's fear, described in a cuneiform text, reflects the key roles that nomads played in early urban life.

These mobile marauders, powerful enough to trouble the sleep of rulers, were tolerated for the exotic goods they carried from faraway places. Traveling hundreds of kilometers in search of grazing land, pastoralists have long been seen as likely architects of the long-distance trade networks that helped spur the rise of the world's first civilization around 3000 B.C.E., in what is now Iraq.

Because physical traces of ancient pastoralists are often all but invisible, researchers relied heavily on comparative studies of 20th century Middle Eastern nomads in building this picture. But archaeologists are increasingly using new methods to read the faint clues left by ancient nomads. Armed with data from animal dung, bones, dental calculus, and plant remains, these researchers suggest herders mainly stuck close to and served the needs of specific urban areas, rather than migrating between far-flung cities. "They were not traveling long distances, so they are not the natural conduit for trade," says Emily Hammer, an archaeologist at the University of Pennsylvania.

That assertion, which Hammer and archaeologist Ben Arbuckle of the University of North Carolina in Chapel Hill lay out in a forthcoming paper in the Journal of Archaeological Science, has touched off intense debate about how early urban life flourished. To Abbas Alizadeh of the University of Chicago in Illinois, who has spent decades studying pastoralists such as the Bakhtiari of southwest Iran, Hammer and Arbuckle "are completely wrong—I bet they've never even seen a nomad in their life."

Archaeologists generally agree that not long after humans started farming in the Near East about 10,000 years ago, pastoralists began caring for newly domesticated sheep, goats, and cattle. But researchers debate just when these groups began to travel vast distances in a seasonal cycle to seek greener pastures.

Alizadeh and archaeologists such as Yale University's Frank Hole assert that pastoralists on the fringes of Mesopotamia migrated hundreds of kilometers as early as 7000 B.C.E. They base this conclusion on the movements of modern pastoralists who drive flocks of sheep and goats up and down the steep valleys of the Zagros Mountains in Iraq and Iran. The researchers also point to excavations of seasonal villages and graves that hint at a prehistoric roving life.

Once the first urban areas arose, valuable stones, metals, and timber from Afghanistan, Iran, and Anatolia poured into southern Mesopotamia.

By 2000 B.C.E., an organized trading system supplied materials from as far east as the Indus civilization and as far west as the Levant to the wealthy city-state of Ur. Although archaeologists have long thought nomadic herders were a key conduit, few early texts record who moved these goods. “Trade is textually almost invisible,” says Piotr Michalowski, a cuneiform specialist at the University of Michigan in Ann Arbor. “We don’t know how they got their stuff.”

The new techniques now suggest that before 1000 B.C.E., pastoralists in Jordan, Syria, Turkey, and Iran stayed too close to home to have served as international middlemen. At a site in Amman, for example, Cheryl Makarewicz, an archaeozoologist at Germany’s University of Kiel, analyzed sheep and goat tooth enamel dating to about 7000 B.C.E.
for ratios of carbon and oxygen isotopes. Because those isotopes can reflect local soil and water, they provide a geographic fingerprint of where an animal grazed. She discovered that the animals fed in the vicinity, rather than in distant grasslands. At the 7000 B.C.E. town of Çatalhöyük in eastern Turkey, another team analyzed carbon and nitrogen isotopes from sheep and goat teeth collagen and found that there, too, the animals grazed nearby. Their dung also revealed that they ate more fodder than wild grass, a sign the animals lived mainly in pens rather than wandering long distances.

Later, as cities arose, Hammer and Arbuckle, along with archaeologist Dan Potts of New York University in New York City, argue that pastoralists stayed largely on the outskirts to meet urban demand for meat and milk, as well as the wool that helped drive the Mesopotamian textile industry. “There are livestock processing centers,” Hammer notes. “You can’t take the animals too far.”

If nomads weren’t the long-distance traders of the ancient world, most goods must have moved by other means—and discoveries in the past decade suggest one possibility. Archaeologists have found that cities and towns were far more common in the Bronze Age Middle East than once thought. That would have allowed trade to be sustained through social networks, created by royal marriages and traveling merchants, rather than nomads, Potts says.

Texts from around 1900 B.C.E. found at the Anatolian town of Kanesh describe how merchant families organized donkey caravans that crossed 1000 kilometers to reach Assur, a city south of today’s Mosul in Iraq.
“These are urban people, and there is no reason to think this wasn’t going on in 3000 B.C.E. or even 3500 B.C.E.,” Potts adds. Michalowski
agrees: “There were a lot of entrepreneurs, and trade seems to have been mainly in private hands. … You don’t have to invoke mobile pastoralists.”

Only when domesticated dromedary camels appeared in the first millennium B.C.E. did nomads begin long seasonal treks, Hammer, Arbuckle, and Potts say. “We are not denying pastoralists exist,”
Hammer says. “Only that they were traveling long distances and living in tents. And we have the bones, the campsites, and the paleobotany to show this.”

Many of their colleagues remain unpersuaded. “If true, this is very revolutionary,” says Guillermo Algaze, an archaeologist at the University of California, San Diego. But he still thinks that mobile pastoralists were the glue that held together extensive trade networks in early urban societies. Steve Rosen, an archaeologist at Ben-Gurion

University of the Negev in Beersheba, Israel, praises Hammer and Arbuckle's approach. But he has found a string of archaeological sites in the Negev Desert indicating that, at least there, pastoralists used donkeys to cross more than 100 kilometers of harsh terrain as early as 3000 B.C.E.

New data from Mesopotamia, such as analyses of animal bones and dung from the renewed excavations at Ur, where Hammer has recently been working, could help settle the debate. Whether marauding nomadic tribes or local ruffians provoked Zimri-Lim's nightmare may finally become clear.

Posted in: Archaeology
doi:10.1126/science.aar8102

Please visit the site: http://www.sciencemag.org/news/2017/12/was-trading-nomads-crucial-rise-cities

ST CATHERINE'S LIBRARY AND MOSAIC OF TRANSFIGURATION INAUGURATED AFTER RESTORATION, BY NEVINE EL-AREF

Work on restoring the library of St Catherine's Monastery began in 2014

Minister of Antiquities Khaled El-Enany, South Sinai Governor Major General Khaled Fouda, and St Catherine's Monastery Archbishop Dimetriose have inaugurated the first phase of the St Catherine's Library conservation project, including restoration of the Mosaic of Transfiguration.

The opening ceremony was attended by a number of ministers along with members of parliament and ambassadors of foreign countries in Egypt, as well as representatives of Pope Tawadros II and Al-Azhar Grand Imam Ahmed Al-Tayeb.

El-Enany described St Catherine's as "a source of inspiration that radiated across civilisation, both regionally and globally." He added:
"St Catherine's Monastery combines Judaism, Christianity and Islam.
This is what we could call the genius of Egypt and its reflection on the harmony between its components and its great people."

The monastery was registered as a world heritage site since 2002.

"I would like to extend my thanks and appreciation to the distinguished audience and would also like to express my great gratitude to all those who contributed to this work and to your generous support," El-Enany said.

"I am very happy to share in the inauguration of the restored library, which is the third library ever in the world," Major General Fouda said in a press conference held at the monastery today.

Mohamed Abdellatif, assistant to the minister of antiquities and head of the Coptic and Islamic Antiquities sector at the ministry, told Ahram Online that conservation work was carried out under the supervision of the ministry with funds provided by the monastery.

The restoration project began in 2014 after approval of the Permanent Committee of Islamic and Coptic Antiquities. It includes the development of the eastern side of the library, upgrading the architecture of the library facade as well as consolidating and conserving the Justinian Wall, which dates back to the 6th century AD.

Abdellatif pointed out that the ministry announced a month ago that during conservation work restorers uncovered the "Palmist" manuscript, which dates back to the fifth or sixth century AD. It is a manuscript written on leather and shows medical texts from Hippocrates, as well as three other medical texts by an unknown writer.

As for the Mosaic of Transfiguration, he explained that an Italian-Egyptian team headed by Italian expert Nardi Guviani carried out restoration of the Mosaic.

Ahmed Al-Nimr, a member of the Scientific Office of the ministry of antiquities, said that the mosaic is one of the oldest and most beautiful and largest mosaics in the Middle East. It dates to the ninth century AD. It covers a surface of about 46 square metres, painted with precious materials such as gold and silver.

The mosaic includes an image of Jesus and the prophet Elijah and the prophet Moses. Below, the prophets John and Jacob prostrate. The mosaic is surrounded by 31 medallions containing pictures of messengers and prophets, in addition to two medallions representing Jonah and the Virgin Mary.

Please visit the site:
http://english.ahram.org.eg/NewsContent/9/42/285457/Heritage/Coptic/St-Catherines-Library-and-Mosaic-of-Transfiguratio.aspx [Go there for pix]

THE GRIM REALITY OF THE BROTHELS OF POMPEII

Brothels in Pompeii were decorated with murals depicting erotic and exotic scenes: but the reality was far more brutal and mundane. Thomas Shahan/Wikimedia Commons, CC BY Marguerite Johnson Professor of Classics, University of Newcastle

Like the anxious men who began excavations at Pompeii in the 18th century and discovered more about the ancient Italians than they had bargained for – such as phallic-shaped lamps– historians of sex are regularly confronted with case studies from the past that challenge their own ethics. Those who worked the streets of Pompeii and served clients in the brothels lived hard lives, yet many of the murals that survive depict the women as erotic and exotic.

Murals from brothels and buildings that served as brothels (such as inns, lunch counters, and taverns) show fair-skinned women, naked (except for the occasional breast band), with stylised hair, in a variety of sexual positions with young, tanned, athletic men. The figures sport on beds that are sometimes ornate and festooned with decorative quilts.

In buildings identified as brothels, the murals may have been intended to arouse clients. They may also have functioned as pictorial menus or even served as instruction manuals for more inexperienced customers.
In buildings identified as private residences, the scenes were most likely decorative but also designed, perhaps, for titillation.

Contrary to the idealised images, the brothels themselves provide evidence that the women worked in cells, usually only big enough for a narrow bed. The absence of windows in most attests to the darkness of the cells, as well as limited air flow.

Excavations also suggest that the cells were usually without doors, which implies that the rooms may have been curtained. They have also revealed stone beds. Wooden beds as well as pallets were likely also used, but would have perished in the eruption of Mount Vesuviusin AD 79.

The conditions in which the women worked were of no concern to brothel owners, clients or anyone else for that matter, as most sex workers in ancient Italy were slaves. As the ancient attitude towards slaves was one of indifference at best, and violent disdain at worst, the lives of women were no source of empathy to those outside their class.

The sex workers fulfilled a utilitarian function and nothing else.
Confined to the premises by (usually) male pimps who provided them with only their most basic needs, the women were essentially cut off from the outside world. This rendered them vulnerable to the whims of both pimp and client alike.

Women who worked the streets in Pompeii often waited around archways and other standard locations such as graveyards and public baths. In larger towns and cities, where control of the sex trade was harder to manage, some of these women may have worked

without pimps. Those who made up this percentage of workers were mostly freed slaves and poor freeborn women.

Stories from graffiti

The preservation of graffiti on the walls of Pompeii's buildings also provides historians with details of the sex trade. Most of it is extremely graphic. It includes information on specific services and prices, clients' appraisals of certain women and their abilities (or lack thereof), and some sexual advice.

Some graffiti are straight to the point:

Thrust slowly

Others are advertisements:

Euplia was here
with two thousand
beautiful men

Or list prices:

Euplia sucks for five dollars*

Often the names of slaves and, by default, sex workers, had Greek origins. The name "Euplia", for example, comes from a Greek word meaning "fair voyage". Sex workers' names sometimes denoted the function or physical features of the individual in question. In this case, Euplia promised her clients a fair voyage.

Graffiti also attests to male sex workers in Pompeii. As with the writings concerning women, this graffiti lists specific services offered and sometimes prices. As freeborn women were not permitted to have intercourse with anyone but their husbands, the clients who accessed male sex workers were almost exclusively men. The sexual mores of ancient Rome, catered for male-to-male sexual encounters if certain protocols were maintained (a citizen could not be penetrated, for example).

The few literary records that suggest there may have been female clients of sex workers are questionable, as they were usually written for satiric or comedic purposes. Still, it would be naïve to discount instances of wealthy, freeborn women accessing male sex workers or household slaves.

Similarly, it would be naïve to assume that male clients did not seek other men with whom they could participate in acts deemed socially unacceptable (essentially acts in which the citizen male would occupy a submissive role).

Society and the sex trade

At the time of the eruption of Vesuvius, Pompeii was a town of modest size, with a population of around 11,000, and a thriving community with sophisticated architecture and infrastructure. Located in Campania, some 23 kilometres southeast of Naples, and near the port of Pozzuoli, it enjoyed robust trade and economy, and had a multicultural demographic.

The prosperity of the town and the continual presence of merchants ensured a strong market for sex. Indeed, the sex trade was integral to the successful functioning of society, particularly marriages.

As marriages, particularly those among the elite classes, were arranged and predominantly for the birth of male heirs, a husband would not seek sexual pleasures from his wife. Rather, out of respect for her, a man would pay for pleasurable sex, especially those acts that were not expected to be performed by a respectable woman.

Indeed, the graffiti attests to five different types of sex for sale:
intercourse, cunnilingus, fellatio, active anal sex, and passive anal sex. Thus the sex trade performed a type of social and moral policing of the institution of marriage, as well as the preservation of an adult male's reputation and masculinity. As sex work was not illegal (being predominantly structured around slavery) but adultery was outlawed, this was another reason for paying for sex.

The layers of volcanic materials that covered Pompeii and most of its population to a depth of 25 metres left extensive evidence of the ancient Italians, their lifestyles, and their environments.
Ironically, the eruption that trapped the inhabitants in both time and place has bestowed a strange immortality upon them.

These people whisper to us, and their tales are varied, joyous and sad. Their stories are sometimes shocking and even heartbreaking, but, like the lives of the sex workers, worthy of remembrance.

Please visit the site: https://theconversation.com/the-grim-reality-of-the-brothels-of-pompeii-88853 [Go there for pix]

NEW UNDERWATER DISCOVERIES IN GREECE REVEAL ANCIENT ROMAN ENGINEERING

Underwater excavations at Lechaion, the ancient harbour of Corinth, provide insight into engineering by the Roman Empire

New archaeological excavations at the ancient port of Corinth have uncovered evidence of large-scale Roman engineering. Named Lechaion, the port was one of a pair that connected the city of ancient Corinth to Mediterranean trade networks. Lechaion is located on the Gulf of Corinth, while Kenchreai is positioned across the narrow Isthmus of Corinth on the Aegean Sea. These two strategic harbours made Corinth a classical period power, but the Romans destroyed the city in 146 BC when conquering Greece. Julius Caesar rebuilt the city and its harbours in 44 BC, ushering in several centuries of prosperity. Recent excavations by the Lechaion Harbour Project have revealed the impressive engineering of the Roman Empire.

Caesar's Corinthian colony developed into one of the most important ports in the eastern Mediterranean. Ships filled Lechaion with international goods and Corinth became so well known for luxury and vice that a Greek proverb stated, "not everyone can afford to go to Corinth." However, while ancient coins depict a formidable harbour with a large lighthouse, visible remains of Lechaion are scarce.
Visitors to the coastline today can see the foundations of two large structures forming the outer harbour, but otherwise the remains are buried under centuries of sediment. The excavations are beginning to reveal the secrets of this largely forgotten port.

The team has found a complex harbour that changed over time. In the 1st century AD, Lechaion had a large outer harbour of 40,000 square meters and an inner harbour of 24,500 square meters. The basins, as well as the approach to the harbour, were delineated by large moles and quays constructed of stone blocks weighing five tons each, including one mole that is 45 metres in length and 18 metres wide. A number of monumental buildings once graced Lechaion, such as a lighthouse that is depicted on coins and a monumental structure on an island in the middle of the inner basin. The island monument remains a mystery, but archaeologists speculate that it could be a religious sanctuary, the base of a large statue, or a customs office. However, the island was used for only a brief period. "The island monument was destroyed by an earthquake between 50 and 125 AD. It may well be the first evidence of the earthquake of circa AD 70 under the emperor Vespasian mentioned in ancient literary sources," says Guy Sanders, who previously directed excavations at Corinth. By the 6th century AD, a new basin measuring approximately 40,000 square metres had to be constructed to service Byzantine Corinth. Sediment had filled areas of the earlier basins and a huge earthquake lifted the area around Lechaion by over a metre.

The stone block structures are impressive feats of engineering, but the project is revealing information about the process of harbour construction through wooden caissons and pilings used as foundations.

Wooden elements rarely survive the centuries, but buried underwater deposits are one of the few places where organic materials can be preserved. “For almost two decades I have been hunting for the perfect archaeological context where all the organic material normally not found on land is preserved” says director Bjørn Lovén. While much can be inferred from the stone remains, the discovery of wooden elements provides more insight into the ancient engineering process. Wood is the holy grail for archaeologists and some of the artifacts discovered at Lechaion are so well preserved that they appear as though they were cut yesterday. Lovén says, “I was joking that I would rather find a wooden spoon than a statue, and we did find archaeological layers where almost everything is preserved.” Besides wooden infrastructure, the team excavated delicate organics finds including seeds, bones, part of a wooden pulley, and carved pieces of wood.

The archaeologists are also finding evidence of everyday life in ancient Corinth. They have found ceramics that transported trade goods that originate from Italy, Tunisia, and Turkey. Maritime items like anchors and fish hooks tell of life along the seaside.

The work at Lechaion is located in shallow water, but it presents several significant challenges. It is a highly active marine environment, which causes the excavation trenches to fill quickly with sediment from wave action. Overnight several tons of sand can build up in the excavation areas. The team is also pushing boundaries with the latest methods scientific methods. Geoarchaeologists used core drilling and drone surveys to map the coastal changes in the area, resulting in the surprising discovery of a new harbour basin. The sediment study is showing how the harbour silted over time and which areas would have been accessible in different periods. The project is using DNA analysis to understand the “genetic landscape” of the trees, plants, and animals that inhabited the region 2,000 years ago. The information from these different scientific methods may one day allow for a reconstruction of Lechaion in each time period.

The project is a cooperation between the Danish Institute at Athens, University of Copenhagen, and the Greek Ephorate of Underwater Antiquities. It is directed by Dr Bjørn Lovén and Dr Dimitris Kourkoumelis, as well as assistant directors Paraskevi Micha and Panagiotis Athanasopoulos. The excavation is funded by Her Majesty the Queen Margrethe II’s Archaeological Foundation, Augustinus Foundation, and Carlsberg Foundation. The excavation will continue next year and it is expected to reveal more information about ancient engineering.
“The potential for more unique discoveries is mind blowing” says Lovén.

Please visit the site: https://www.theguardian.com/science/2017/dec/14/new-underwater-discoveries-in-greece-reveal-ancient-roman-engineering [Go there for pix]

KING TUT'S DAGGER IS 'OUT OF THIS WORLD', BY TOM METCALFE

Daggers, axes and jewelry made from rare iron during the Bronze Age are literally out of this world, according to new research finding that ancient artisans crafted these metal artifacts with iron from outer space carried to Earth by meteorites.

The finding upends the idea that a few artisans during the Bronze Age in the ancient Near East knew how to make iron by smelting it from Earth's crust.

Instead, it appears that Bronze Age metalworkers sought out meteorites to make these treasures, said study author Albert Jambon, a French archaeo-metallurgist and a professor at the Pierre and Marie Curie University, in Paris.

"Iron from the Bronze Age are meteoritic, invalidating speculations about precocious [early] smelting during the Bronze Age," Jambon wrote in the study.

Jambon tested the ancient iron daggers, including one from Pharaoh Tutankhamun's tomb in Egypt, iron axes and pieces of iron jewelry from the ancient Near East and China with X-ray scans to identify their metals.

Last year, a study using X-ray fluorescence (XRF) spectrometry determined that Tutankhamun's dagger was made with iron containing nearly 11 percent nickel and traces of cobalt: a characteristic of extraterrestrial iron found in many of the iron meteorites that have rained down on Earth for billions of years.

Most of the iron meteorites that smash into Earth each year are thought to have formed in the metal-heavy cores of planetesimals — small bodies in the protoplanetary disk of debris that orbited the sun during the early stages of the solar system.

As a result, these meteorites contain high levels of nickel or cobalt.
In contrast, iron smelted from terrestrial iron ores, which are mined from our planet's outer crust, contain less than 1 percent nickel or cobalt, far less than the levels found in iron-rich space rocks.

Jambon used a portable XRF analyzer to scan other ancient iron objects and iron meteorites in museums, as well as iron in private collections in Europe and the Middle East.

His research showed that all the iron in the tested artifacts came from meteorites, and not from terrestrial smelting, he told Live Science in an email.

The findings suggested that iron meteorites were the only source of that metal until the discovery of smelting iron from terrestrial iron ore, probably in Anatolia and the Caucasus around 3,200 years ago, Jambon said.

Ancient iron

Jambon examined some of the most ancient iron objects ever found, including sheet-iron beads from Gerzeh in Egypt, dated to 3200 B.C.; an ax from Ugarit on the coast of northern Syria, dated to 1400 B.C.; a dagger from Alaça Höyük in Turkey, dated to 2500 B.C.; and three iron objects from Tutankhamun's tomb, dated to 1350 B.C. — a dagger, a bracelet and a headrest.

Some archaeologists have proposed that these early iron objects could have been created by "precocious" smelting of iron ore nearly 2,000 years before the technology became widespread in the early Iron Age — perhaps by accident, or through experimentation.

But Jambon said his research found no evidence that smelted iron was known until the Iron Age dawned in the Near East, around 1200 B.C.
The oldest-known furnace for smelting iron ore, at Tell Hammeh in Jordan, dates to 930 B.C., he noted. [Photos: Ancient Burial and Metal Tool from Southern Levant]

"We know from texts that during the Bronze Age, iron was valued 10 times as much as gold," Jambon said. "[But] in the early Iron Age, the price fell dramatically to less than that of copper, and this is the reason why iron replaced bronze quite rapidly."

His analysis also showed that Tutankhamun's dagger, bracelet and headrest were made from the iron of at least two different meteorites, suggesting that an active search was carried out for valuable iron meteorites in ancient times, he said.

Metal from space
Jambon hopes to scan more ancient iron with XRF spectrometry, but access to these items is not always possible, especially in conflict zones like Syria and Iraq. Even studying artifacts in museums can be challenging, he said.

"For obvious reasons, curators are reluctant to carry artifacts to a foreign institution, and this is why we need to travel," he said:
"This is why the portable XRF analyzer changed the deal."

Jambon hopes his research will form the basis of a hunt for the earliest smelted irons on Earth. "The very first irons will be recognized from their chemical composition, which markedly differs from meteoritic iron," Jambon said. "Such analyses should be done for all irons between 1300 [B.C.] and 1000 B.C."

"[This method] opens the possibility of tracking when and where the first smelting operations happened, the threshold of a new era," he wrote in the study, published in the December issue of the Journal of Archaeological Science.

Please visit the site: https://www.livescience.com/61214-king-tut-dagger-outer-space.html

VISITORS FROM THE INTERMEDIATE BRONZE AGE? CRESCENT HEADED FIGURES IN NEGEV ROCK ART, BY LIOR SCHWIMER AND YUVAL YEKUTIELI

The Negev is renowned for its countless examples of rock art, which date from remote proto-history until the modern period. Many of these are difficult to date, but new research suggests that a special class dates to the still enigmatic mid-third millennium BCE. Do they indicate something unexpected about that society?

Over the last five years an extensive documentation project has been conducted in the western Negev Highlands by Lior Schwimer on behalf of the Israel Nature and Parks Authority. The survey's goal is to document and analyze the thousands of petroglyphs scattered in the area. This brief report presents the discovery of a unique type of petroglyphs proposed to be associated with the Intermediate Bronze Age (2500-2000 BCE) and a unique socio-economic system that operated in the region of the Negev, Sinai, and Southern Jordan.

The Western Negev Highlands and Its Rock Art

The Western Negev Highlands includes the basins of Naḥal Zin and Naḥal Nizzana, Ramat Matred, and the Nafḥa and Ḥamran ridge in the center of that plateau. The survey area is comprised of limestone hills; one of its characteristic features is concentrations of rocks with a dark crust or patina, comprised of micro-organisms, clay minerals, and oxides and hydroxides of iron and/or manganese. These rocks appear as layers, outcrops, or separate boulders, and may occur in riverbeds, mountaintops or on the slopes.

A special characteristic of these dark rocks is that when their patina is scratched, the light color of the stone is revealed. Ancient inhabitants of the region were familiar with this and by pecking, incising or carving, removed the patina to create various designs. The etched scenes are clearly visible due to the contrast between the dark patina and the light-colored stone.

Petroglyphs in the Negev were carved over an immensely long period of time, and in many cases individual rock panels were repeatedly incised at different times. But since new patina is continually formed on the rock face, older engravings gradually turn dark until they eventually regain the original color of the patina that covers the entire surface. In cases of multiple engravings on the same rock surface, the different hues of the etched scenes and their overlap may make it possible to discern the order in which the scenes were engraved. In addition, specific images may give clues to absolute dating. For example, since the camel was domesticated in the Negev during the beginning of the first millennium BCE, a carving depicting men riding camels can only be from that date onwards.

During the survey thousands of engraved images, abstract symbols as well as inscriptions, were found. Within this massive corpus, however, we have noticed certain designs that have been rarely described before. Furthermore, certain unique designs cluster consistently, systematically appearing in close association with each other. The most significant is what we label 'crescent headed figures', which come with a customary set of associated emblems and accompanying animals.

The basic shapes of the ‘crescent headed figures’ are finely pecked human figures with an hour glass shaped body, crescent shaped head-cover, and a decoration at its tip. Daggers with crescent pommel handles are secured to their waists, and at times they seem to have additional garments. Moreover, these figures are consistently accompanied by engravings of lions, bulls, or both. This is remarkable, especially since these animals are rarely depicted in other Negev petroglyphs.

Two such compositions provide excellent examples for this artistic

composition: the Har Nafḥa panel, and the Ramat Matred panel. The Har Nafḥa panel is comprised of six superimposed layers of engravings of different ages. The lowermost, oldest layer includes seventeen crescent headed human figures, a lion, canines, and ibexes. Two of the human figures are kneeling, while three seem to be holding a lightning-shaped natural fissure of the rock. Some of the figures hold small recurved bows and some grasp torch-like objects.

The Ramat Matred panel consists of four different layers of engravings. The lowermost, oldest layer presents two crescent headed figures. The figure at the bottom of the panel fires an arrow with a small recurved bow while standing next to a bull. A second figure, in the middle of the scene, is depicted next to a lion. This figure is engraved horizontally, a posture that might suggest death.

How can we date these scenes? For one thing, the crescent headed figures almost always appear in the lowermost (oldest) layers of multi-period panels, thus they originate in a very early phase within the rock art history of the Negev. Supporting the hypothesis of their extreme age is the fact that their hue is always very close to the original dark patina of the rock.

Another indication for the age of crescent headed figures is the fact that they never appear in combination with camels and horses. Since the latter were domesticated and introduced into the Negev in roughly the first millennium BCE (a period where they are frequently depicted in local rock art), the crescent headed figures’ scenes should be older.

One clue for the absolute dating of these compositions might be the uniquely shaped daggers the crescent headed figures carry. Daggers with similar crescent shaped handles have been recovered from burials in Mesopotamia, the southern Levant, the Nile Delta and Sudan, and range in date from 2400 to 1900 BCE. In addition, similar daggers are depicted on tombstones from south Arabia, where there are petroglyphs similar to the crescent headed figures of the Negev Highlands. The South Arabian figures are commonly dated to the Bronze Age (which covers the time from the 4th to the 2nd millennia BCE).

The available evidence suggests that petroglyphs of crescent headed figures in the Negev Highlands should be dated to the second half of the third millennium BCE. This period is commonly designated in the southern Levant as the Intermediate Bronze Age (IBA or Early Bronze IV). The IBA began around 2500 BCE with the collapse of the Early Bronze Age III and its urban system, and ended around 2000 BCE. The archaeological record shows the IBA population rejected life in densely built, highly fortified, and socially stratified cities.
Instead there is a rural settlement pattern that spread all over the southern Levant, including into formerly unsettled regions like the Negev Highlands. The change in settlement patterns was accompanied by other transformations, including mortuary practices and in aspects of material culture such as pottery styles. Archaeologists continue to struggle with these profound changes. Some suggest it was caused by immigration of foreign populations who upset previous social orders.

Others propose epidemics or wars, while some believe climatic change triggered the collapse of the urban settlement system.

Within this 'new order,' the Negev Highlands were also associated with another unique economic enterprise – a large trans-regional system of copper production, processing and distribution. This system witnessed massive copper mining and smelting at Faynan, east of the Arabah valley, and copper being shipped to the Negev Highlands for additional processing, before moving westwards towards the Nile Valley.

Locating the Crescent Headed Figures' Scenes Plotting the find-spots of crescent headed figures on a map indicated that they delineate two lines that cross the Western Negev Highlands in a southeast to northwest direction, one passing along the north edge of Ramat Matred, and a second south of Har Nafḥa.

Broadening the view to include the areas of Edom in the east (within the current borders of Jordan), and Sinai in the west (within the modern borders of Egypt), reveals that these two lines follow a general direction running from Edom, through the Negev Highlands, towards the north Sinai coast. Furthermore, the two lines are along the most topographically sound routes that link the copper mining and smelting sites at Faynan, through the large Negev sites of Ein Ziq, Be'er Resisim and the Naḥal Nizzana, to the cluster of IBA sites discovered in the 1970s in the area of Jiradi, the ancient debouch of Naḥal Nizzana into the Mediterranean.

This observation, connected with the fact that the Jiradi sites yielded ceramic evidence for contacts with Egypt, raises the possibility that the distribution of crescent headed figures is directly linked to the system that moved copper shipments from Faynan to Egypt.

Find-spots of crescent headed figures within the survey area (in red), major IB sites (in blue), and proposed routes linking the Faynan copper mines with north Sinai (in yellow). Modern political borders marked with green lines

Preliminary Conclusions

By assessing the rock art scenes super-position within multiple layer petroglyphs, the color of their patina, parallels for the figures, occurrences of crescent shaped pommel

daggers in the archaeological record of the ancient Near East, and the correspondence between the rock art find-spots and ancient inter-regional routes, we have reached the following conclusions:

The engraving of the crescent-headed figures scenes and their associated designs (mainly bulls and lions) should be dated to the IBA.
Those who engraved these scenes were, among other things, involved in the copper circulation system which was responsible for transporting copper ingots and finalized items from Faynan to Egypt during the IBA.

The very wide distribution of objects, designs and symbolism recurs in the crescent-headed figures' scenes throughout the broader Near East, and suggests that those who engraved them in the Negev Highlands were not necessarily of indigenous southern Levantine origin. Who they might have been remains a question.

Rock art always tells stories. In this case, it may tell of previously unknown newcomers to the Negev. We hope through further research and analysis to discern the rest of the story.

****

Lior Schwimer is with the Planning Division of the Southern District of Israel's Nature and Parks Authority, and a MA student at the Department of Bible, Archaeology and the Ancient Near East, Ben-Gurion University of the Negev. Yuval Yekutieli is a senior lecturer at the Department of Bible, Archaeology and the Ancient Near East, Ben-Gurion University of the Negev.

****

Please visit the site: http://asorblog.org/2017/12/12/visitors-intermediate-bronze-age-crescent-headed-figures-negev-rock-art/ [Go there for maps, pix, and nicer format]

CLEOPATRA, THE FORCES OF NATURE, AND THE FUTURE OF COMMUNICATION PETER COX EXPLORES THE EFFECT OF CLIMATE CHANGE ON POLITICAL STABILITY

Cleopatra is one of the most well-known figures of the ancient world, standing beside Julius Caesar, Alexander the Great and Hannibal. It's an impressive accomplishment considering the male dominated age in which she lived. She was the last of the Ptolemaic rulers, a dynasty descended from Alexander the Great's general Ptolemy I, which lasted for nearly three centuries. Her downfall has been told and retold, most notably by Shakespeare. It is a tale of power, intrigue and sex.
A tragedy of epic proportions, this tale has, until now, been exclusively a human one.

This is often the case with history – we see it through the lens of the academic. A historian tells us about the people, whereas a paleoclimatologist tells us about the climate, or a paleontologist tells us about animal life. These areas are each interesting but only provide single threads of a wider tapestry that, if woven together, can create a more representative picture.

Interdisciplinary studies are one way of bringing these seemingly disparate strands together. Recently an interdisciplinary study from historians and climate scientists has been published in Nature Communications shedding new light on natural factors that may have impacted upon the political and economic stability of Egypt, and perhaps ultimately also contributed to the downfall of Cleopatra and the Ptolemaic dynasty.

In these studies, researchers investigated the effects of volcanic eruptions on the flooding of the Nile. They did this using the Nilometer and ice core records between 622 CE to 1902 CE. The Nilometer is a collection of three ancient buildings on the Nile that measured the height of each year's summer flood, allowing farmers to predict how well their crops would grow, and for the state to know how much tax to levy on farmers. Records go from the year 622 CE until the early twentieth century, when the damming of the Nile moderated the annual flood. The ice cores contain measurable amounts of sulphate from the atmosphere, originating from eruptions. This sulphate is what provides a timeline of past volcanic events. Comparing these two sources of information allowed the researchers to show that the explosive injection of volcanic sulphates into the atmosphere caused a reduction in the monsoon rainfall, that drove the annual summer flooding of the Nile.

Once this was confirmed, the next step was to examine whether the eruptions during the Ptolemaic era and the likely low flooding of the Nile in the following years could be connected to historical evidence of unrest such as the issuing of priestly decrees, revolt or interstate warfare. The researchers found that there was a statistically significant connection between these events and the eruptions, which led them to conclude that the low flooding of the Nile affected the political stability of the region.

However, this study only looked at the short-term effects of volcanic eruptions on the Nile. The Nile also has its own cycles over longer periods of decades to centuries. If flooding increased or reduced over these time periods, the effects of the volcanic eruptions may have been diminished or exacerbated. Dr Francis Ludlow, a climate historian based in Trinity College Dublin who worked on this study says that as of now "not enough is known about the Nile's patterns on a multi-decadal to centennial scale", illustrating just how much more there is still to learn.

We've known about the significance of the Nile to Egypt for a long time. With hardly any local rainfall, the water of the Nile was the lifeline of Egypt. Fed by the monsoon rains over the Ethiopian highlands and drained by the Blue Nile, the Nile's annual summer flooding is what allowed Egypt to be the agricultural giant it was in ancient times. Farmers would plant their crops after the annual flood and many of the population were drafted into helping with the process.

Known as the breadbasket of Rome, the floods allowed the growth of grain that not only supported the population but also solidified Egypt's power. Unsurprisingly, the floods held religious significance as well. It was said that the floods were the tears of Isis and the quality of each year's flood was linked to the quality of the Pharaoh's governance. It is thus understandable how a change in the floods could lead to increased unrest and difficulties for Ptolemaic rulers. What this study brings us, for the first time, is statistical evidence of that effect.

An issue with any study of the past is that they are very often focused on a single aspect of their subject. Historical events are rarely caused by a single factor, but instead are almost always the result of a confluence of factors. This can be seen today in Syria. It would be foolish to say drought caused the region's ongoing issues but it would be equally foolish to say that the severe drought that occurred in the years immediately leading up to the Syrian conflict played no part in it. In Egypt's case there were many aggravating factors leading to the series of revolts against Ptolemaic rule.

Egyptians had reasons to be unhappy with their Ptolemaic rulers, and ethnic tensions were high, given the Greek origins of the Ptolemies.

They had also pushed for a greater focus on the growth of free threshing wheat, a cash crop of the ancient world, that was less resistant to drought than the wheat and barley traditionally grown by the Egyptians.

However, should the rulers have known better? It is studies such as this which show us some of the collective constraints that these rulers faced. Allowing us to understand their dilemmas in all their complexity could help to reveal examples of our present in their past.

It is also possible that interdisciplinary studies could allow for greater accessibility. A real problem for scientists is communicating information effectively. Most communicators agree that people learn through narratives. Bringing together different disciplines achieves just that – it allows people to look at the real effects of environmental change within an accessible human story. It shows us change in a context we can relate to. People, farming, food and water can be understood, whereas charts, figures and the abstract language of scientific papers remove us from many narratives.

Another benefit is suggested by Dr Francis Ludlow's assertion that interdisciplinary studies are better for 'hitting more areas of interest' for the general populace. Drawing historians into science and vice versa. There is the possibility that interdisciplinary studies could also improve people's critical thinking processes. There are a few preliminary studies that show the effects of an interdisciplinary approach on students, with results ranging from an increased interest in their studies to an improved ability in critical thinking skills. If this is true, and I stress that we are a long way from knowing whether it is, more studies like this could be a way of not only improving science communication, but also people's underlying ability to understand it.

Please visit the site: http://trinitynews.ie/cleopatra-the-forces-of-nature-and-the-future-of-communication/