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Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Μάιος 2016 -

**Κρατίστην είναι δημοκρατίαν όπου τοις πονηροίς ουκ
έξεστιν άρχειν και τοις αγαθοις ουκ έξεστιν μη άρχειν.
(Πιττακόσ ο Μυτιληναίος, 7^{ος} - 6^{ος} αιώνας π.Χ.)**

Newsletter of the Hellenic Society of Archaeometry

- May 2016 -

Nr. 182

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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

SUMMER SCHOOL IN ARCHAEO-METALLURGY, INSTITUTE FOR ARCHAEO-METALLURGICAL STUDIES (IAMS), UK, 20 JUNE - 1 JULY 2016

Dear all,

I would like to invite you to the annual Summer School in Archaeometallurgy, organised by the Institute for Archaeo-Metallurgical Studies (IAMS), which will take place in the UK from 20 June to 1 July.

You can find a provisional outline programme below, and more information at www.ucl.ac.uk/iams. Please note that registration is essential, places are limited and typically oversubscribed.

If you have any queries, or you would like to register, please get in touch with Umberto Veronesi (umberto.veronesi.13@ucl.ac.uk)

With best wishes,

Marcos

Week 1 (20-23 June): Bloomery iron smelting: theory, archaeology and experiment

Monday: Foundations of bloomery iron smelting. Archaeological and ethnographic examples. Slag analysis and technological reconstructions (Jane Humphris).

Tuesday-Thursday: Experimental iron smelting workshop. Monkton Up Wimborne, Dorset, UK.

A three-day workshop led by experienced iron smelter Jake Keen, together with archaeometallurgist Jane Humphris. The workshop will focus primarily on the practical aspects of bloomery iron smelting, including ore preparation and roasting, furnace construction, smelting in two types of furnaces (induced and natural draft), slag formation and smithing. Students will be expected to get actively involved in these activities.

[Logistics: Departure from London on Tuesday morning, and return on Thursday evening. Students will spend two nights at the nearby Church Farm camping site, which has showers, electricity and all necessary facilities, but students will be expected to bring their camping gear (tent and sleeping bag). Most of the day activities will take place outdoors, so waterproof clothing and strong boots will be necessary too]

Week 2 (27 June – 1 July): Archaeometallurgy of gold and silver

Monday: Foundations. Gold and silver in nature. Smelting, cupellation, parting (Marcos Martínón-Torres)

Tuesday: Archaeometallurgy of gold and silver in the field: mining technology and smelting sites. Historical sources, field surveys and excavation (Brigitte Cech)

Wednesday: Gold and silver in prehistoric Iberia: chemical analyses, isotopes and provenance (Mercedes Murillo-Barroso)

Thursday: Gold and silver in the Staffordshire Hoard: technology, microanalysis and XRF (Eleanor Blakelock)

Friday: Gold and silver in the Americas, before and after Columbus (Marcos Martín-Torres)

Registration fee:

Week 1: £300 (includes travel, accommodation, and meals during the experimental workshop)

Week 2: £200

Two weeks: £450

Some additional subsidy may be available for students in financial hardship – please contact Marcos Martín-Torres if you would like to discuss this (m.martinon-torres@ucl.ac.uk).

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SASCAR INTERNATIONAL CONFERENCE, **ITALIAN ARCHAEOLOGICAL SCHOOL AT** **ATHENS, 12-14 MAY, 2016**

Dear Friends and Colleagues,

We are pleased to announce the dates of the SASCAR International Conference, which will take place at the Italian Archaeological School at Athens from May 12th to May 14th, 2016. The poster, abstract, and program of the event can be downloaded in a PDF format at the following address: <http://scuoladiatene.it/seminari-e-conferenze-saia.html>

In addition, the program is also attached at the end of this message.

The SASCAR Conference is focused on the Southeast Aegean/Southwest Coastal Anatolian Region and the neighboring areas during the Early and Middle Bronze Age periods. The event is sponsored by the Italian Archaeological School at Athens and the Institute for Aegean Prehistory. Abstracts of individual contributions will be available soon on the Italian School website (see above).

We invite those who may be interested to join us during the three days of the event.

With all best wishes,

The Organizers

Toula Marketou
Ephorate of Antiquities of the Dodecanese
kbepka@yahoo.gr

Salvatore Vitale
University of Pisa
salvatore.vitale@for.unipi.it

SASCAR CONFERENCE **ITALIAN ARCHAEOLOGICAL SCHOOL AT ATHENS, MAY 12TH-14TH, 2016** **PROGRAM**

(20 Minutes of presentation and 10 minutes of discussion are scheduled for each speaker during Sessions I-V)

May 12, 2016

- Greetings, Introduction, and Keynote Address

9.00-9.15 – E. Greco

Greetings by the Director of the Italian Archaeological School at Athens

9.15-9.30 – M. Andreadaki Vlazaki

Greetings by the General Secretary of Culture, Ministry of Culture and Sport of the Hellenic Republic

9.30-9.45 – S. Vitale and T. Marketou

Why a Conference on the Southeast Aegean/Southwest Coastal Anatolian Region? Present Questions and Future Research

9.45-10.15 – B. Horejs and P. Pavúk

Islands on the Horizon. Eastern Aegean and Western Anatolia in the Early and Middle Bronze Age

- Session I. The Southern and Western Dodecanese

Chair: C. Nowicki

10.15-10.45 – T. Marketou

From the Proto-Urban Settlement of Asomatos to the Middle Bronze Age Town of Ialysos. Change or Continuity?

10.45-11.15 – E. Farmakidou

Stone-axes from the Castle of Syme

11.15-11.45 – Coffee Break

11.45-12.15 – I. Nikolakopoulou

Small Island Worlds: South Aegean Routes and Encounters in the Middle Bronze Age

12.15-12.45 – A. Vlachopoulos

Vathy, Astypalaia: An Early Cycladic Site in the Dodecanese

12.45-13.15 – A. Angelopoulou

Astypalaia and the Cyclades: The Early Bronze Age Pottery Evidence from Vathy on Astypalaia

13.15-15.00 – Lunch Break

- Session II. The Northern Dodecanese

Chair: J.L. Davis

15.00-15.30 – M. Benzi

The Island of Kalymnos in the Early Bronze Age

15.30-16.00 – S. Vitale, T. Marketou, C. McNamee, D. Pirisino

The Asklepis Area, the “Serraglio”, and Northeast Kos from the Final Neolithic to the End of the Middle Bronze Age: Site Distribution, Landscape, and Cultural Choices

16.00-16.30 – S. Vitale and J. Morrison

The Final Neolithic, Early, and Middle Bronze Age Pottery from the Asklepis and the ‘Serraglio’ Area on Kos I: Chronology, Fabrics, Function, and Technology

16.30-17.00 – S. Vitale, I. Iliopoulos, J. Morrison, K.-S. Passa, and T. Marketou

The Final Neolithic, Early, and Middle Bronze Age Pottery from the Asklopis and the 'Serraglio' Area on Kos II: An Experimental Study of Natural Resources and Potting Practices

17.00-17.30 – Coffee Break

17.30-18.00 – S. Vitale, I. Moutafi, E. Vika
Human Osteological Remains and Burial Practices at the Early Bronze Age 2 Cemetery of the Asklopis on Kos

18.00-18.30 – T. Marketou
The Early Bronze Age Settlement at Serayia (Seraglio) on Kos

18.30-19.00 – S. Souvatzi and T. Marketou
The Cave of Aspri Petra on the Island of Kos: Meanings of Space, Landscape, and Connectivity from the End of the Neolithic to the End of the Early Bronze Age

May 13, 2016

- Session III. Samos and the Southwest Anatolian Coast

Chair: W.-D. Niemeier

9.00-9.30 – O. Kouka, S. Menelaou, and Y. Maniatis
Filling in the Puzzle: A Holistic Approach on the Early Bronze Age at the Heraion on Samos

9.30-10.00 – O. Kouka and Y. Maniatis
The Middle Bronze Age at the Heraion on Samos: A Bright Epilogue in the Settlement History at the Heraion?

10.00-10.30 – O. Kouka
At the Mouth of the Maeander River: The Early Bronze Age in Miletus

10.30-11.00 – J. Hilditch and C. Knappett
Early and Middle Bronze Age Ceramic Fabrics from Miletus

11.00-11.30 – Coffee Break

11.30-12.00 – F. Bertemes
Tavşan Adası: Minoans in Asia Minor?

12.00-12.30 – K. Eckert
The Middle Bronze Age Ceramics of Tavşan Adası in Their South Aegean Context

- Session IV. Special Topics

Chair: W.-D. Niemeier

12.30-13.00 – J. Cutler
Weaving Connections: Textile Technology in the Southeast Aegean/Southwest Coastal Anatolian Region and Neighboring Areas in the Early and Middle Bronze Age

13.00-13.30 – M. Massa

South-Western Anatolia and Its Relations with the Dodecanese, Crete and the Cyclades During the Late 4th and 3rd Millennium BCE: A Funerary Perspective

13.30-15.30 – Lunch Break

- Session Va. Contacts with Other Areas: The Northeast Aegean and Northwest Coastal Anatolia

Chair: L. Hitchcock

15.30-16.00 – S. Ünlüsoy

Troy and the South Aegean During the Early and Middle Bronze Age: An Ambiguous Relationship

16.00-16.30 – M. Cultraro

Passive Periphery or Transcultural World? Poliochni on Lemnos and the Neighboring Areas During the Early and Middle Bronze Age

16.30-17.00 – C. Boulotis

The Middle Bronze Age Settlement of Koukonisi on Lemnos: Ceramic Identities, Peculiarities, and Interconnections. Asking Questions About Chronological Boundaries and Transitions

17.00-17.30 – Coffee Break

17.30-18.00 – V. Şahoğlu

Çeşme – Bağlararası: A Bronze Age Harbour Settlement in Coastal Western Anatolia

18.00-18.30 – B. Horejs and M. Mehofer

Çukuriçi Höyük: An Early Metallurgical Center in the Central Aegean Coast of Anatolia

May 14, 2016

- Session Vb. Contacts with Other Areas: Cyprus and the Cyclades

Chair: P. Sotirakopoulou

9.00-9.30 – G. Graziadio

The Aegean and Cyprus from the End of the Early Bronze Age to the End of the Middle Bronze Age and the Role of the Dodecanese in the Cypro-Aegean Interaction

9.30-10.00 – M. Marthari

Some Observations on the Contacts Between the Cyclades and the Southeastern Aegean from the Early Bronze Age to the Early Late Bronze Age

10.00-10.30 – N. Abell

The Cyclades and the Southeastern Aegean Before the Late Bronze Age: A Keian Perspective

10.30-11.00 – Coffee Break

- Session Vc. Contacts with Other Areas: Crete and the Greek Mainland

Chair: S. Voutsaki

11.00-11.30 – L. Bonga and S. Ferrence

Pelekita Cave, Kato Zakros, Crete: Late Neolithic and Minoan Interactions with the Dodecanese

11.30-12.00 – S. Todaro and P. Tomkins

Friends Across the Water? Connectivity and Cultural Interaction Between Crete and the Southeast Aegean from the Neolithic to the Early Bronze Age

12.00-12.30 – A. Van de Moortel

Ships and Seafaring in the Chalcolithic, Early Bronze Age, and Middle Bronze Age Aegean: The Role of the East Aegean and Crete

12.30-13.00 – J.B. Rutter

Slim Pickings from the Far West? Evidence for Southeastern Aegean Interactions with the Greek Mainland, ca. 4500-2000 BCE.

13.00-15.00 – Lunch Break

- Discussants' Contributions and Final Discussion Among All Participants

15.00-15.30 – L. Hitchcock

15.30-16.00 – P. Sotirakopoulou

16.00-16.30 – C. Nowicki

16.30-17.00 – S. Voutsaki

17.00-17.30 – Coffee Break

17.30-18.30 – Final Discussion

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

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

Student participation encouraged!

Topics include:

Facilities: new, upgraded, present & future

Ion sources and interfaces

Advances in AMS techniques

Reference material, carriers, comparisons

Preparation and analysis of:

-Normal & small ¹⁴C samples

-Cosmogenic isotopes

-Radio-halide (³⁶Cl, ¹²⁹I)

-Actinide elements

-Other isotopes, elements

New AMS applications

Please visit the site: www.ams.uOttawa.ca/AMS14

**6TH INTERNATIONAL CONFERENCE ON
CULTURAL HERITAGE- EUROMED 2016,
31ST OCTOBER - 5TH NOVEMBER 2016,
CYPRUS**

Dear Colleagues,

On behalf of the Organising Committee, I have the honor to invite you to the 6th International Euro-Mediterranean Conference (EuroMed 2016).

Cyprus is the third largest Mediterranean island at the crossroads of three continents, located in one of the most famous archeological areas of the world. Its civilization starts around the 10th millennium BC and has a high number of monuments and sites registered on the UNESCO WHL. Cyprus cultural heritage is the most important living treasure of its people. It is through this that its identity can be expressed and an awareness of its historical continuity through time can be created.

From the 31st of October until the 5th of November 2016 we will have the opportunity to come together, exchange our know-how and experiences in the Cultural Heritage research as well as the current and future worldwide developments in this area.

Protecting, preserving and presenting our Cultural Heritage are frequently interpreted as change management and/or change the behavior of the society. Joint European and international research produces a scientific background and support for such a change.

We are living in a period characterized by rapid and remarkable changes in the environment, in the society and in technology. Natural change, war conflicts and man-made changes, including climate, as well as technological and societal change, form an ever-moving and colorful stage and a challenge for the society. Close cooperation between professionals, the policy makers and authorities internationally, is necessary for research, development and technology in the field of cultural heritage.

Scientific projects in the area of cultural heritage have received national, European Union or UNESCO funding for more than thirty years. Through the financial support and cooperation, major results have been achieved and published in peer-reviewed journals and conference proceedings with the support of professionals from many countries. The European Conferences on cultural heritage research and development and in particular the biannual EuroMed conference have become regular milestones on the never-ending journey of discovery in the search for new knowledge of our common history and its protection and preservation for the generations to come. They also provide a unique opportunity to present and review results, and to draw new inspiration.

The agenda of this unique conference will include hundreds of excellent oral and poster presentations, as well as workshops and demonstrations from academia and industry, reflecting the wide scope of our work in the area of cultural heritage. We are expecting policy makers, professionals, students and delegates from more than 60 countries of the

world to attend this special Euro-Mediterranean conference which is dedicated to the protection, preservation and e-documentation of the Cultural Heritage.

The ultimate aim of the 6th EuroMed conference will be to bring together as many stakeholders as possible from different backgrounds in order to achieve a high level of mutual understanding of the needs, the requirements and the technical means of meeting them. Therefore, our common goal is to focus on interdisciplinary and multi-disciplinary research on tangible and intangible Cultural Heritage, the use of cutting edge technologies for the protection, preservation, conservation, massive digitalisation and visualization/presentation of the Cultural Heritage content (archeological sites, artifacts, monuments, libraries, archives, museums, etc). At the same time, the event is intended to cover topics of research ready for exploitation, demonstrating the acceptability of new sustainable approaches and new technologies by the user community, SME's, owners, managers and conservators of cultural patrimony.

It is very important that policy makers and a wide public are involved in management of the cultural heritage, and it is useful to inform European citizens about recent developments and scientific achievements in this area. The entire poster exhibition as well as special conference sessions will be dedicated to awareness (outreach) of the public in the whole field of Cultural Heritage.

We are looking forward to welcoming you to this particular international conference. We are confident that everyone will greatly benefit from this event.

Dr. Marinos Ioannides

Conference Chair

Please visit the site: <http://www.euromed2016.eu/index.php/welcome>

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

LECTURESHIP/SENIOR LECTURESHIP IN
ARCHAEOLOGICAL MATERIAL SCIENCE
AT NEWCASTLE UNIVERSITY

Dear all,

This could be of interest to list members – a recently advertised Lectureship/Senior Lectureship in Archaeological Material Science at Newcastle University. Feel free to circulate the call widely.

<http://www.jobs.ac.uk/job/AUE115/b36290a-lecturer-senior-lecturer-in-archaeological-materials-science/>

Best wishes,

Andrea

Dr Andrea Dolfini (Mr)
[Lecturer in Later Prehistory](#)
[Director of CIAS](#)

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[Bronze Age Combat: an experimental approach](#)
[Case Bastione Archaeological Project](#)

**RESEARCH ASSOCIATE (ASSISTANT
DIRECTOR: ACCELERATOR MASS
SPECTROMETRY RADIOCARBON
FACILITY)**

Campus/Location: University Park Campus

Date Announced: 03/07/2016

Job Number: 62283

Classification: Exempt

Work Unit: Vice President for Research

Department: Penn State Institutes of Energy and the Environment

Description

Penn State Institutes of Energy and the Environment (PSIEE), in the Office of the Vice President for Research at The Pennsylvania State University (PSU), seeks a highly qualified Research Associate as an Assistant Director for the newly established Accelerator Mass Spectrometry (AMS) Radiocarbon (^{14}C) Facility. The laboratory is devoted to studying human interactions with the environment in the past and present. Candidates must have a Ph.D. degree in chemistry, physics, geosciences or archaeology and have a strong and active research program employing AMS ^{14}C . This includes a demonstrated ability to publish high profile academic papers and acquire extramural funding for research. The successful applicant must be reliable, quick learning, innovative, highly organized, self-motivated, detail oriented, and possess excellent communication and interpersonal skills. The assistant director will report to the scientific director and be responsible for: 1) participating in the development and implementation of a forward thinking inter-disciplinary vision of AMS ^{14}C at Penn State; 2) executing cutting-edge, independent research using AMS ^{14}C ; 3) writing grants to advance state-of-the-art AMS ^{14}C research; 4) working collaboratively with researchers from multiple disciplines; 5) publishing high impact academic papers; 6) developing new applications and experimental techniques using AMS ^{14}C ; 7) managing the day-to-day operations of the facility; 8) operating and helping to maintain the Accelerator Mass Spectrometer (1.5SDH-1, Pelletron Accelerator, National Electrostatics Corporation, <http://www.pelletron.com/>), 9) supervising and training technicians and students in the preparation of materials of different types for radiocarbon analysis (e.g., charcoal, bone, air, water, shell, biofuel); 10) establishing, monitoring, and improving process chains for different sample types; 11) establishing quality controls and acquiring standards; 12) leading workshops, short courses and credit programs to advance AMS ^{14}C knowledge.

This is a fixed-term appointment with an excellent possibility for renewal.

To apply, submit a brief cover letter, curriculum vita, and the names and contact information of at least three references.

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS
FITCH LABORATORY BURSARY AWARDS
2016-17

Dear all,

The Fitch Laboratory, British School at Athens, invites applications for two Fitch Bursary Awards 2016-17.

For further information, please visit the relevant section in the BSA's website (http://www.bsa.ac.uk/index.php?option=com_content&view=article&id=254:fitch-laboratory-bursary-awards-2016-17&catid=14&Itemid=101).

Many thanks for your help in circulating the information.

With kind regards,

Zoe Zgouleta

Applications are invited from graduate students or young scholars for an award to support research at the Fitch Laboratory, British School at Athens (BSA) for up to 3 months in the academic year 2016-17 in any of the fields in which the Laboratory is active (e.g. ceramic studies, archaeometallurgy, geophysical prospection, zooarchaeology, archaeobotany, soil micromorphology, ethnoarchaeology, landscape archaeology, archaeology of technology; normally in the context of Aegean/Mediterranean archaeology). Preference may be given to research on bioarchaeology and soil micromorphology. The Bursary includes a monthly stipend (400€), BSA membership and accommodation at the BSA Hostel in Athens and, if required for research purposes, also in Knossos. The award holder will be required to submit a report on her/his research at the Laboratory to the Laboratory's Subcommittee and Director.

The successful applicant will be expected to use the facilities of the Fitch Laboratory (including analytical equipment and reference collections) as well as the BSA library to further on-going work, in the context of a postgraduate degree or postdoctoral research. The award carries no other formal obligation, although involvement in the academic life of the BSA (for example in the form of a seminar) is welcome.

Applications should include a covering letter (indicating the preferred length and period of stay), a Curriculum Vitae, a statement of the proposed programme of research (up to one page) and the names and contact details of two referees. Applicants should ask referees to send their recommendations by the deadline. The successful applicant will be responsible for acquiring on time any required permits for study and transfer of archaeological material to the Fitch Laboratory. Applicants are also advised to contact the Laboratory Director if the use of analytical facilities is necessary for the proposed research.

Applications and reference letters should be submitted by **Friday 27 May 2016** via e-mail to Mrs Tania Gerousi, the BSA administrator (school.administrator@bsa.ac.uk). Candidates will be informed on the selection outcome by the end of July.

Potential applicants may contact Mrs Gerousi (school.administrator@bsa.ac.uk), or Dr Evangelia Kiriatzi, the Laboratory Director (e.kiriatzi@bsa.ac.uk), for further information. Additional details about the School and the Laboratory can be also found at <http://www.bsa.ac.uk/>.

NEWCASTLE UNIVERSITY AND CIAS **MASTERCLASSES 2016**

Newcastle University and the Cluster for Interdisciplinary Artefact Studies (CIAS) are pleased to offer a series of single-day material skills workshops from 3 to 10 June 2016. The courses will provide archaeology students, researchers, and those working in the commercial and heritage sector with interdisciplinary training in artefact analysis and related subjects.

Details of the workshops can be found at <http://research.ncl.ac.uk/cias/masterclasses/>.

With apologies for any cross-posting.

Yours faithfully,
Dr Thea Ravasi
CIAS Coordinator
cias.ncl@gmail.com

CIAS 2016 Masterclasses

- Incorporating Small Finds into your Research (Dr Rob Collins)
 - Human Osteology (Tori Park)
 - Introduction to Zooarchaeology (Don O'Meara)
 - Roman and Byzantine Coinage (Dr James Gerrard)
 - Lithic Technologies (Dr Rob Young)
 - Metalwork Use-wear Analysis (Dr Andrea Dolfini)
 - Palaeography of English scripts c.1500-1900 (Sally Gerrard)
-

ADVANCED MASTER COURSE IN STRUCTURAL ANALYSIS OF EXISTING BUILDINGS, MONUMENTS AND HISTORICAL CONSTRUCTIONS

Dear Colleagues,

Please find below information about the Advanced Master Course in Structural Analysis of Existing Buildings, Monuments and Historical Constructions (call 2).

I kindly invite you to disseminate this information to anybody who could be interested in applying.

SCHOLARSHIPS FOR THE ADVANCED MASTERS IN STRUCTURAL ANALYSIS OF MONUMENTS AND HISTORICAL CONSTRUCTIONS

Applications for the **Advanced Masters in Structural Analysis of Monuments and Historical Constructions**, approved by the European Commission within the framework of the Erasmus Mundus Programme, are opened up to May 20, 2016 (call 2).

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Course Coordinator

Editor of the International Journal of Architectural Heritage: Conservation, Analysis, and Restoration

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BROMECC, the Bulletin of Research on Metal Conservation, requests research abstracts (max. 400 words) and professional meeting announcements (max. 75 words) for BROMECC 36, to be published online.

BROMECC keeps you up to date with metals conservation research activities between the triennial ICOM-CC Metal Working Group meetings.

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Thank you.

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INTERNET SITES

AN ANIMATED GUIDE TO THE BRONZE AGE TECHNIQUE OF LOST-WAX CASTING, BY CAREY DUNNE

Lost-wax casting, a sculpting technique dating to the Chalcolithic period, is an elaborate process. Its many steps include spruing, slurring, burnout, and metal chasing — terms lost on your average sculpture 101 student. Why go to all the trouble? The process allows for the creation of exact, hollow (and therefore lightweight) metal copies of existing marble sculptures, which weigh a ton and are otherwise difficult to reproduce.

The ingenious ancient technique is beautifully illustrated in a new video that combines stop motion and 2D animation. Renana Aldor and Kobi Vogman made the film to accompany the current exhibit Hadrian: An Emperor Cast in Bronze at the Israel Museum, which brings three surviving bronze portraits of the much-loathed Roman Emperor Hadrian (117–138 CE) together for the first time in Jerusalem. The animators visited a bronze casting workshop and collaborated with the curator and the restoration department of the museum. The floating head used here is a plaster replica of the original Hadrian bronze bust found in Tel-Shalem, Israel.

Watch the video here, but don't try this at home, unless your home is a bronze casting workshop.

Please visit the site: <http://hyperallergic.com/286780/an-animated-guide-to-the-bronze-age-technique-of-lost-wax-casting> [Go there for link to video]

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS
GREEK ART AND ARCHAEOLOGY C. 1200-30
BC, BY DIMITRIS PLANTZOS

304 pages (580 col photos and 45 architectural plans and reconstructions)

11 x 8 inches

Lockwood Press

Paperback (March 2016)

ISBN-13 9781937040574

ISBN-10 1937040577

\$49.95

This lavishly illustrated volume presents a systematic survey of Greek art and archaeology from the collapse of Mycenaean civilization to the dissolution of the Ptolemaic realm.

The book begins with an introductory chapter covering the basic principles of archaeological research as well as a concise survey of the developments that led to the establishment of classical archaeology as an academic discipline. Four chapters follow, covering developments in Greek art and archaeology in the Early Iron Age, the Archaic, Classical, and Hellenistic periods respectively. Through concise, systematic coverage of the main categories of classical monuments, the reader is taken on a tour of ancient Greece through the most important period in its history, the first millennium BC. Architecture and city planning, sculpture, painting, pottery, metallurgy, jewelry, and numismatics are some of the areas covered. The book caters primarily to the nonspecialist looking for the essential in ancient Greece. The text is divided into accessible, user-friendly sections including case studies, terminology, charts, maps, a timeline, and full index. Designed as an academic textbook, the volume will interest anyone seeking an inclusive and detailed survey of the most important material remains of ancient Greek civilization.

Originally published in Greek by Kapon Editions (Athens 2011), Greek Art and Archaeology is now expanded with additional material and illustrations specially provided for this edition, and in a translation by Nicola Wardle.

Dimitris Plantzos is a classical archaeologist, educated at Athens and Oxford. He is the author of various articles and books on Greek art and archaeology, archaeological theory and classical reception, show more

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CHAPTER 2: The Early Iron Age (1100-700 BC)

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CHAPTER 4: The Classical Period (480-336 BC)

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CLIMATE AND ANCIENT SOCIETIES

Bryn Mawr Classical Review 2016.04.23

Susanne Kerner, Rachael J. Dann, Pernille Bangsgaard, Climate and Ancient Societies. Copenhagen: Museum Tusulanum Press, University of Copenhagen, 2015. Pp. 352. ISBN 9788763541992. \$52.00.

Reviewed by Benoît Rossignol, Université Paris 1 Panthéon-Sorbonne (<mailto:Benoit.Rossignol@uni-paris1.fr>)

Table of Contents: < <http://www.mtp.hum.ku.dk/rwfolder/fm/203596.pdf> >

Ce volume se propose d'éclairer les rapports entre le climat et l'histoire des sociétés antiques. Issu d'une journée d'études en mémoire de Stine Rossel (1975-2007), jeune zooarchéologue prématurément disparue, il s'ouvre sur l'évocation émue de sa biographie et de ses travaux, en particulier en Égypte, par Richard H. Meadow. Présentant les enjeux de l'ouvrage, Rachael J. Dann choisit un titre volontairement provocateur : « Can Archaeology Save the World ? » afin de souligner l'actualité du sujet. Elle retrace aussi la place de l'environnement dans l'histoire de la discipline, interroge son rapport aux sciences de la vie et de la terre, sa place dans la société. La voie est étroite, et parfois dure à tracer entre le besoin de répondre à des demandes sociales et celui de rester rigoureux dans les démarches scientifiques, de ne pas sacrifier leur spécificité. C'est par leur méthodologie et par leur regard sur la longue durée que les archéologues peuvent le mieux contribuer à répondre aux défis climatiques modernes.

Quinze articles suivent, répartis en quatre parties. Par-delà leur diversité, l'ouvrage témoigne d'un consensus : face aux variations climatiques les réponses humaines des sociétés passées étaient complexes et non linéaires. Toutefois l'environnement est un vrai facteur historique : l'étude des sociétés antiques ne peut se passer de sa connaissance, les actions humaines doivent être replacées dans leur contexte écosystémique. Les articles se retrouvent dans un refus général du déterminisme, dans une insistance sur les variabilités géographiques et sociales. Les méthodes sont toutes attentives aux niveaux d'échelles. Le volume met globalement en avant la nécessité de la démarche comparative, l'importance de considérer la perception de l'environnement par les acteurs historiques, ainsi que les rapports à l'environnement des enjeux sociaux et culturels. La question de l'effondrement (« collapse »), en particulier à travers les cas de l'âge du bronze, est récurrente. Elle paraît l'incarnation la plus visible de la réaction au changement climatique, signe sans doute de nos inquiétudes contemporaines, de l'expression de demandes sociales, mais aussi des difficultés que nous avons à percevoir des changements plus positifs ou même plus mesurés. Le volume rassemble des sujets divers couvrant un domaine chronologique et géographique particulièrement varié et étendu. Il reste toutefois centré sur le Proche-Orient aux périodes pré-classiques, s'intéressant notamment aux zones marginales et aux écotones. S'il ne couvre pas tout le champ que le titre aurait pu laisser espérer, l'orientation méthodologique de beaucoup des contributions en rend la lecture profitable même pour qui ne s'intéresse pas directement aux régions et aux périodes concernées. On trouvera donc dans cet ouvrage des points de comparaisons nombreux et surtout des réflexions méthodologiques stimulantes largement transposables au monde « classique ».

La première partie, « Holocene Climate Reconstruction », s'ouvre par un bref article de Roberts sur les changements climatiques et leurs conséquences archéologiques, en particulier dans le bassin oriental de la Méditerranée. Différents proxys sont rapidement passés en revue afin d'examiner, d'un point de vue méthodologique, la question de la mise en évidence des relations de cause et d'effet entre le climat et les cultures archéologiques. Roberts insiste sur la nécessité d'être attentif aux échelles, temporelles ou spatiales, et de ne pas répondre à un problème posé à une échelle par des éléments relevant d'une autre. Sa conclusion rejette les deux positions naïves, celle d'un déterminisme climatique qui expliquerait tout, comme celle d'un déni de tout rôle des variations climatiques dans l'histoire passée des sociétés humaines. Les réponses des sociétés passées au stress environnemental, ou aux opportunités, dépendaient de contraintes humaines multiples : culturelles, économiques, sociales, politiques.

Sørensen et Casati dressent le bilan des établissements de chasseurs-cueilleurs de Bornholm (Danemark) entre la fin du Paléolithique et le Mésolithique, lors des profonds changements environnementaux liés aux cycles glaciaires. La fin du Boréal où s'établit l'insularité de Bornholm voit ces communautés décliner. Le changement environnemental affectait aussi les conditions des interactions sociales des groupes humains, la zone devenait marginale.

La deuxième partie de l'ouvrage est consacrée aux réponses apportées par les sociétés complexes aux variations climatiques. Dans un article justement nuancé Ur compare trois sites urbains de Mésopotamie du Nord au troisième millénaire avant notre ère. Il expose la diversité des réactions des sociétés et insiste pour qu'elles soient considérées à l'échelle des acteurs humains qui prirent les décisions. Comprendre les réponses sociales au changement environnemental suppose d'abord de ressaisir la perception de ce changement par les acteurs du passé. De même il interroge le concept d'effondrement (« collapse ») et ses ambiguïtés. La complexification d'une société peut améliorer sa capacité de réponse, mais inversement elle peut aussi parfois diminuer sa résilience et la rendre vulnérable à un changement environnemental somme toute ordinaire : les causes sont donc autant sociales qu'environnementales. Développant l'exemple du changement climatique placé vers 2200 BC, dont les conséquences sur les sociétés de l'Orient ancien sont discutées depuis un peu plus de vingt ans désormais, et dont la nature et le rythme même restent aussi très débattus, Ur se concentre sur les sites d'Hamoukar, Tell Brak et Tell Leilan qui témoignent de destins très différents : l'ampleur de l'événement 4,2ka a été vraisemblablement surestimée. La raison de ces différents destins repose en grande partie dans les différentes techniques agraires de ces populations, techniques dont l'adoption pouvait être indépendante du changement climatique. On ne doit pas croire pour autant que l'histoire globale de la région ne s'est pas ressentie des changements climatiques du troisième millénaire, mais la réponse des sociétés humaines a été non-linéaire et très hétérogène.

L'article suivant (Akkermans et al.) présente les prémices d'un projet visant à éclairer, grâce au site exceptionnel de Tell Sabi Abyad (Syrie), l'impact du « 8.2 event » (changement climatique observé vers 6200 avant notre ère) sur les sociétés du néolithique.

Biehl se confronte au même problème à partir du fameux site de Çatalhöyük en Anatolie centrale et d'un bilan à l'échelle de la Méditerranée orientale. Des changements sociaux,

économiques et symboliques rapides semblent bien attestés à Çatalhöyük aussi, même si les questions restent nombreuses.

Ertsen et Kapteijn confrontent hydrologie et problématiques sociales à partir du cas de l'irrigation dans le bassin de la Zerqa (Jordanie). Par une démarche comparative entre plusieurs époques, présentant chacune un type d'irrigation et de culture particulier, ils montrent l'importance des enjeux sociaux : le contexte politique et économique est alors plus déterminant que le climat.

Kaniewski et alii envisagent le rôle du climat dans les difficultés de la fin de l'âge du bronze au Levant : le lecteur retrouvant une période présentée comme un moment d'effondrement (Late Bronze Age Collapse). La perspective adoptée est aussi celle d'un site test, Gibala-Tell Tweini, dans le royaume d'Ugarit. Détruit sans doute par les peuples de la mer vers 1190 av. n. è. le site est réoccupé au tout début de l'âge du fer. Il y eut donc sans doute une continuité d'occupation mais la prospérité passée fut longue à revenir. Aridification et sécheresses récurrentes jusque vers 825 av. n. è. coïncident avec les troubles de la période. Si ce changement semble avoir pu initialement causer l'effondrement, les populations de l'âge du fer à Gibala furent ensuite cependant capables de répondre à la nouvelle situation climatique.

Bárta présente le cas du déclin de l'Ancien Royaume égyptien vers 2200 av. n.è. Son effondrement est vu comme un processus de longue durée déclenché par des crises internes où le climat eu un rôle déterminant. Le recoupement de sources variées semble mettre en évidence une détérioration climatique plus précoce que ce que l'on envisageait, cette aridification accompagna deux siècles durant le déclin du royaume et l'érosion graduelle du pouvoir central.

La troisième partie intitulée « Archaeological Evidence for Pollution and its Ecological Implications » rassemble des contributions très diverses sans grande unité. Chaix et Honegger étudient la domestication du bétail et le pastoralisme dans la région de Kerma (nord du Soudan). La diffusion rapide de l'économie pastorale semble correspondre à un moment de changement climatique. La synthèse reste difficile et les hypothèses fragiles : entre la rédaction et la publication, une des hypothèses, avancée au demeurant avec toutes les réserves possibles, à propos du site de Nabta Playa s'est vue infirmée. Les sujets traités n'invitent pas aux affirmations péremptoires, et il importe dans ces domaines de prendre conscience des lacunes de nos données et de la jeunesse du champ scientifique.

La domestication est aussi au cœur de l'article de Arbuckle qui ne traite que très marginalement du climat. Il revient, de manière stimulante, sur l'hypothèse courante qui lie domestication et épuisement des ressources en gros gibier. Les données disponibles montrent qu'un tel schéma n'est pas soutenu par les faits en dehors du cas particulier du Levant. La domestication ne s'explique pas uniquement en terme économique de disponibilités du gibier. En conséquence, il faut comparer les dividendes en termes économiques mais aussi sociaux de la chasse et de l'élevage. Les rapports possibles à un environnement donné et à son évolution sont multiples.

À partir du cas d'un squelette d'adolescent possiblement victime de lathyrisme à Bouqras, Merrett et Meiklejohn soulèvent la question de l'impact des variations climatiques sur la santé des populations dans les environnements marginaux où faire

reposer son alimentation sur des plantes cultivées exposait, en cas de sécheresse, à des vulnérabilités nouvelles comme l'effet neurotoxique des nourritures de famine (pois carrés ou gesse commune). L'adaptation à une aridité croissante n'était pas sans contraintes fortes pour les sociétés antiques.

Wright et Makarewicz analysent les pratiques pastorales durables en Asie centrale. Les mouvements des pasteurs sont déterminés de manière complexe par l'état de la pâture, la perception de cette dernière par le pasteur, en fonction de son expertise, mais aussi par son réseau social. Adoptant une perspective de temps long, ils approchent les réseaux des nomades à partir des céramiques. L'âge du Bronze montre des réseaux moins étendus : le pastoralisme retrouve une histoire et n'est pas une forme figée et aboutie dès son apparition. La réponse aux crises environnementales émerge de nombreuses décisions de court-terme prises par des individus et affectées par de nombreux facteurs, la prise en compte du risque se fait à travers un réseau social local.

La dernière partie rassemble des analyses isotopiques. S'appuyant sur plusieurs exemples, Riehl s'intéresse au caractère parfois non-soutenable des pratiques agraires anciennes dans un but méthodologique clair : sortir des interprétations déterministes pour accepter un raisonnement en termes de « variability principle », de processus multicausal. La diversité régionale des systèmes agraires passés impose une intégration croissante des données archéologiques et environnementales, des études locales nombreuses. Seules des démarches multidisciplinaires permettent alors de multiplier les approches et les explications. Les changements climatiques s'expriment différemment selon les régions, les actions humaines elles-mêmes s'étendent sur un vaste spectre qui dépend des perceptions des conséquences du changement : la recherche d'une cause unique au destin des sociétés antiques est illusoire.

Fiorentino et Caracuta estiment le stress hydrique sur la végétation des sites d'Ebla et Qatna, en Syrie au troisième millénaire avant notre ère, à partir d'analyses des isotopes du carbone par spectrométrie de masse par accélérateur. Les résultats obtenus à partir de ce proxy sont mis en regard des évolutions des sociétés humaines. Une différence nette apparaît entre les deux sites. Si l'histoire d'Ebla semble corrélée de près aux fluctuations environnementales, Qatna semble avoir fait preuve de plus d'adaptabilité et s'être montrée plus résiliente.

Frei présente, à partir du cas des trouvailles du site d'Huldremose au Danemark (âge du fer pré-romain) une nouvelle méthode pour étudier les provenances des textiles anciens à partir des isotopes du strontium. Malgré son intérêt l'article est très éloigné du sujet général de l'ouvrage.

Illustré par de nombreux schémas, cartes et graphiques l'ouvrage est particulièrement bien produit pour un prix raisonnable. Il représente une contribution bienvenue dans un champ scientifique récent en développement constant.

Please visit the site : <http://bmc.brynmawr.edu/2016/2016-04-23.html>

ARCHAEOLOGIA BULGARICA XX 2016 #1

The 58th issue of Archaeologia Bulgarica will be published in a week.
Its contents follows.

More information at: www.archaeologia-bulgarica.com

Best,

Lyudmil Vagalinski
editor

Archaeologia Bulgarica XX 2016 #1

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A TEST OF TIME AND A TEST OF TIME REVISITED: THE VOLCANO OF THERA AND THE CHRONOLOGY AND HISTORY OF THE AEGEAN AND EAST MEDITERRANEAN IN THE MID-SECOND MILLENNIUM BC

Bryn Mawr Classical Review 2016.04.06

Sturt W. Manning, *A Test of Time and A Test of Time Revisited: The Volcano of Thera and the Chronology and History of the Aegean and East Mediterranean in the mid-second Millennium BC*. 2nd Edition (first edition 1999). Oxford; Philadelphia: Oxbow, 2014. Pp. xxxiii, 494. ISBN 9781782972198. \$84.00.

Reviewed by Manfred Bietak (<mailto:manfred.bietak@univie.ac.at>)

This book deals primarily with the debate about the date of the Minoan eruption of the Thera volcano in the 2nd millennium BC. While scholarly consensus places this event during a late stage of Late Minoan (LM) IA, the absolute date is a matter of controversy. While archaeological evidence fixes the event towards the second half or even at the end of the 16th century BC, radiocarbon analysis dates the eruption to the second half of the 17th century BC.

Over 500 pages of the book are a reprint of the author's *A Test of Time* (1999, rev. Bietak, *BiOr* LXI, 2004, 199–222) and the remaining 202 pages are a ten-chapter update that provides a history of this chronological debate and his response to criticisms of the original version. A postscript offers an update of the update! This publication is hardly welcome because it is as repetitive and confusing as its predecessor. In fact, one can find a more concise, straightforward and up-to-date presentation by the author (with co-authors) on more or less the same issues in *Antiquity* 88, 2014, 1164–79.

Manning's strategy is to close the gap between radiocarbon and archaeological/historical dating and to offer a case for synchronizing the eastern Mediterranean and Egyptian chronologies in agreement with his high date for the eruption in the late 17th century BC. The author relies largely on ¹⁴C dates and their evaluation using Bayesian statistics, which employs the IntCal09 calibration curve (the postscript uses IntCal13). The core of his evidence indicates that the date falls between 1632 and 1614 BC with a probability of 68.2%. The author concedes, however, that there is also a nearly 20% probability that this event fell between 1581 and 1536 BC.

The author finds support for his chronology in the dating of a Thera olive tree branch (Friedrich et al. *Science* 312, 2006, 548), which is now calibrated using IntCal13 to between 1630–1615 BC (68.2%). This range is at the lower end of the date of the eruption proposed by the author, but as the branch's bark is missing and the cavity in the tephra in which the branch was embedded was larger than that branch, suspicion remains that its outer part is missing and that the measurements could predate the eruption by many decades (see *Antiquity* 88, 2014, 267–91). One wonders why the dating of a

second and larger branch from the same environment has still not been published nine years after its discovery.

In order to dismiss the possibility of an influence of volcanic CO₂ vents on the 14C-ages of the Thera samples, the author offers similar results for the LM IA period from other parts of the Aegean. One has to question, however, the chronological value of the tsunami deposits at Palaikastro (Crete), since high-energy flood deposits may also include eroded older materials, which would explain the 80-year difference for cattle bones whose carriers should have presumably died at the same catastrophe.

Additional support for the Thera eruption dates is sought in the long stratigraphic 14C-series from Aegina Colonna (Wild et al., Nuclear Instruments and Methods in Physics Research B 268, 2010, 1013–1021). There, the samples of Late Helladic (LH) I (Phase K) could predate the eruption by nearly 100 years. However, two samples of four: VERA A4633: 1689 (97.4%) 1527 BC and A4631: 1695 (87.9%) 1529 BC, fall fairly well into either the 17th or the 16th century, and one (the only cereal among animal bone samples) even largely into the 15th century: VERA A4033: 1539 (90.2%) 1393 BC. The eruption happened, however, early in LH II (Phase L) from which only a single sample has been analysed and its date range is equally divided between the 17th and the 16th centuries (VERA A 4630). How can one use such evidence to support a 17th century date for the eruption!?!?

Greater correspondence with Thera short-lived samples can be found with results of LM IA contexts from Miletus, Kommos, Trianda/Rhodes, but nearly all of these samples are charcoal and one cannot rule out the old wood effect. The three Tzoungiza/Nemea samples show results falling in the 16th century and are younger than the later samples from this site for the transition to LM IB. The series is continued with analyses of short-lived samples of LM IB from Chania, Myrtos Pyrgos, and for LM II from Knossos.

The author has thus far failed to present a convincing case for the high Aegean chronology from archaeological sources, but he is not alone in such efforts. In similarly repetitive articles and lectures Höflmayer has tried to dismantle the framework of the Tell el-Dab'a stratigraphy and chronology by attacking the datum lines within its succession of occupation (see also *Antiquity* 88, 1174). He casts doubt that the stele, dated to the 5th year of Senusert III, is from the temple of 'Ezbet Rushdi (Phase K), although it was found by Shehata Adam at the site of this temple during excavation. Not only is the temple mentioned in this document, but the text defines, with 26 mh (2600 cubits² = 711.17 m²), precisely the plot of the older phase of this temple including a 3-cubit-wide stripe around the temple-house (Bietak, *Egypt and the Levant* 8, 18; Czerny, *Tell el-Dab'a XXII*, 85). The pottery from this phase fits this date perfectly, reinforcing this datum.

The Hyksos Khayan is associated with phases late E/1 and D/3 by seal impressions. They were found in offering pits and on a fireplace (not in secondary positions) of a later phase of a Hyksos palace and are not considered by us as a datum line. The evidence is repeated at a new excavation at 'Ezbet Rushdi, where only one seal impression of this king seems to originate from phase E/1 and all the others from Phase D/3 contexts (Reali, *Egypt and the Levant* 22/23, 71). While these seals represent only *termini post quem*s, their position within the stratigraphy and ceramic chronology fits the position of Khayan as assessed by text analyses (Ryholt, *OLA* 192, 122-4; Schneider, *ÄAT* 42/1, 74;

Hornung et al. Chronology, 194). The only name in the Manethonian kinglist of the 15th Dynasty fitting Khayan is Apachnan, who ranges at the third or fourth position of the six kings of this dynasty. His son Yanassy is to be identified with the Manethonian Iannas who was late in this dynasty, even after Apophis. Khayan cannot be placed at the beginning of the 15th Dynasty. The first king in the Manethonian list is Salitis (perhaps Shalek on the Memphite priest list) to be followed by Bnon. The archaeological argument by N. Moellers et al., *Egypt and the Levant* 21, 2011, 87-121, that sealings of Khayan and Sebekhotep IV of the 13th Dynasty found in the same context at Tell Edfu in association with pottery of the late Middle Kingdom make these two kings nearly contemporaries, is unacceptable. Already Ilin-Tomich, *JEH* 7, 2014, 143-93, has dismantled this theory, for which I present a short resume.

Forty seal impressions of Khayan and six of Sebekhotep IV were found clustered in an abandonment horizon of an administrative building at Edfu, which was used from the Middle Kingdom onwards. The extraordinary claim to make Khayan contemporary with the 13th Dynasty rests on ceramic evidence and a single 14C sample of old wood. Unfortunately, the ceramic development in Upper Egypt is not as precisely studied as in Lower Egypt. Well-dated contexts are missing and one can only say that the Middle Kingdom tradition lasts much longer in the south (Seiler, *OLA* 192, 42-7). Among the only four pottery items presented for the abandonment horizon is a modelled rim jar of Marl A3, dating to the 17th Dynasty (Moeller et al., *Egypt and the Levant* 21, fig. 16/ED2654.3/1; Ilin-Tomich, *JEH* 7, 150) with a seal impression belonging to the Late Palestinian Group that doesn't date before the Hyksos Period and is absent from 13th Dynasty contexts (Ben-Tor, Ms Khayan Conference, Vienna 2014). As it is the latest artefacts that date an assemblage, it is unfeasible to date it to the 13th Dynasty. It is more likely that Sebekhotep IV's seals were still used in the Hyksos Period—a frequent phenomenon during the Second Intermediate Period. Furthermore, there is no evidence from the northern part of Egypt that the 13th and the 15th Dynasty overlapped; ceramic development and seal typology are distinctly different. As Sebekhotep IV still maintained relations with Lebanon, like Neferhotep I, it is unlikely that was possible with the Hyksos ruling in Avaris. Thus, Khayan's position before Apophis within the Hyksos succession remains the same as previously assumed, with perhaps one king in between the two (Yanassy?). Manning seems to overlook that a 13th and 15th Dynasty overlap would shorten the SIP by about 50-80 years. This would enlarge the gap between historical and radiocarbon dates for this period considerably.

Höflmayer also does not accept Tell el-Dab'a/Avaris's abandonment at the end of the Hyksos occupation as a datum line for its conquest during the second decade of Ahmose. Objects with Ahmose's name are missing from this horizon, but one does not know how else to interpret the abandonment level, especially as the ceramic dating fits perfectly with the end of the Hyksos Period; subsequent levels on one part of the ruins date to the 18th Dynasty (Phases D/1, C/2-3). The final level of this occupation (C/2) can be dated by scarabs that were found in a workshop, with Ahmose to Thutmose III and Amenhotep II; the latest seal dates the assemblage. The attempt to separate Phase C/2 from the rest of the stratigraphy because walls of a workshop about the weathered outer phase of the rampart of a Thutmosid palace does not work, because the ceramics of Phases C/2 and C/3 cannot be differentiated typologically; both are typical of the Thutmosid Period. Workshops producing luxury goods such as calcite vessels and inlaid furniture fit a palace household and not ruins. So, the abandonment of the Thutmosid palace happened during the reign of Amenhotep II or later. All the radiocarbon dates of the Tell el-Dab'a

series have an offset of at least 100 years and correspond with historical dating in the 2σ range only when applying the highest possible historical dates for the New Kingdom. Trying to push Phases C/3 and D/1 into the Hyksos Period ignores the fact that the site's chronology is also based on ceramic dating, especially the painstaking seriation analyses of Bader and Kopetzky (Tell el-Dab'a vols. XIII, XIX, and XX) and the work of Aston (vols. VIII, XII); neither Manning nor Höflmayer demonstrate expertise in Egyptian ceramic studies. The discussion of archaeological evidence is this book's weakest part and shows no critical approach to weighing the evidence; instead, the author makes the grave mistake of adducing whatever is convenient. Concerning his downgrading the Low Chronology, particularly the evidence of White Slip I Ware and the stone vessels from the Shaft Graves, see Bietak, *BiOr* XLVII, 220.

The Postscript includes a rerun of Bronk Ramsey's et al. Bayesian modelling of Egyptian chronology using the radiocarbon dating of pharaonic accessions based on known regnal lengths. The author uses for his rerun Aston's new high chronology with the accession date of Thutmose at 1504 instead of 1479 BC, arriving at maximum of 1585 BC (Aston: 1575) for the beginning of the New Kingdom. Even this tour de force only closes the gap between historical and radiocarbon chronology by 35–50 years. While such modelling is capable of excluding the very low chronology of Hornung et al. (*Ancient Egyptian Chronology*, Leiden 2006), this exercise shows that the results of the ^{14}C chronology are strongly influenced by historical chronology because the ^{14}C resolution is so wide that it acts like an accordion, encompassing even unfeasible maximum lengths of reigns for which we cannot account: e.g. maximum reigns of 34 years, which are only theoretically possible, are proposed for Amenhotep II and Thutmose IV. These time spans are at the utmost edge of what is historically possible. Such high chronology models create generations of Egyptian officials serving until an unfeasibly old age. Nevertheless, the author takes an innovative approach that may one day lead to a solution, provided that the radiocarbon research deals with the more difficult factors, such as the variability in the uptake of ^{14}C in the course of a year (Dee et al. *JAS* 37, 2010, 687–93), which would have increased the age of organic matters.

Please visit the site: <http://bmcr.brynmawr.edu/2016/2016-04-06.html>

MEDITERRANEAN HOLOCENE CLIMATE, ENVIRONMENT AND HUMAN SOCIETIES

Dear all,

The following QSR special issue is now available:

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Quaternary Science Reviews 136, 2016

Edited by A. Gogou, A. Izdebski and K. Holmgren

Below an e-table of content with free links to the articles (active until April 21st).

Best regards,

Erika Weiberg

Mediterranean Holocene Climate, Environment and Human Societies

A special issue of the *Quaternary Science Reviews*

Edited by Alexandra Gogou, Adam Izdebski and Karin Holmgren

Introduction

Holmgren, K., Gogou, A., Izdebski, A., Luterbacher, J., Sicre, M.-A., Xoplaki, E.

Mediterranean Holocene climate, environment and human societies.

Quaternary Science Reviews 136, 1–4.

doi:10.1016/j.quascirev.2015.12.014

<http://authors.elsevier.com/a/1SeKw-4PRehn3>

Research papers

Izdebski, A., Holmgren, K., Weiberg, E., Stocker, S.R., Büntgen, U., Florenzano, A., Gogou, A., Leroy, S.A.G., Luterbacher, J., Martrat, B., Masi, A., Mercuri, A.M., Montagna, P., Sadori, L., Schneider, A., Sicre, M.-A., Triantaphyllou, M., Xoplaki, E.

Realising consilience: How better communication between archaeologists, historians and natural scientists can transform the study of past climate change in the Mediterranean.

Quaternary Science Reviews 136, 5–22.

doi:10.1016/j.quascirev.2015.10.038

<http://www.sciencedirect.com/science/article/pii/S0277379115301591>

Flohr, P., Fleitmann, D., Matthews, R., Matthews, W., Black, S.

Evidence of resilience to past climate change in Southwest Asia: Early farming communities and the 9.2 and 8.2 ka events.

Quaternary Science Reviews 136, 23–39.

doi:10.1016/j.quascirev.2015.06.022

<http://authors.elsevier.com/a/1SeKn-4PRehNT>

Weiberg, E., Unkel, I., Kouli, K., Holmgren, K., Avramidis, P., Bonnier, A., Dibble, F., Finné, M., Izdebski, A., Katrantsiotis, C., Stocker, S.R., Andwinge, M., Baika, K., Boyd, M., Heymann, C.

The socio-environmental history of the Peloponnese during the Holocene: Towards an integrated understanding of the past.

Quaternary Science Reviews 136, 40–65.

doi:10.1016/j.quascirev.2015.10.042

<http://www.sciencedirect.com/science/journal/02773791/136>

Berger, J.-F., Delhon, C., Magnin, F., Bonté, S., Peyric, D., Thiébault, S., Guilbert, R., Beeching, A.

A fluvial record of the mid-Holocene rapid climatic changes in the middle Rhone valley (Espeluche-Lalo, France) and of their impact on Late Mesolithic and Early Neolithic societies.

Quaternary Science Reviews 136, 66–84.

doi:10.1016/j.quascirev.2015.11.019

<http://dx.doi.org/10.1016/j.quascirev.2015.11.019>

Mazzini, I., Gliozzi, E., Galaty, M., Bejko, L., Sadori, L., Soulié-Märsche, I., Koçi, R., Van Welden, A., Bushati, S.

Holocene evolution of Lake Shkodra: Multidisciplinary evidence for diachronic landscape change in northern Albania.

Quaternary Science Reviews 136, 85–95.

doi:10.1016/j.quascirev.2016.01.006

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Clarke, J., Brooks, N., Banning, E.B., Bar-Matthews, M., Campbell, S., Clare, L., Cremaschi, M., di Lernia, S., Drake, N., Gallinaro, M., Manning, S., Nicoll, K., Philip, G., Rosen, S., Schoop, U.-D., Tafuri, M.A., Weninger, B., Zerboni, A.

Climatic changes and social transformations in the Near East and North Africa during the “long” 4th millennium BC: A comparative study of environmental and archaeological evidence.

Quaternary Science Reviews 136, 96–121.

doi:10.1016/j.quascirev.2015.10.003

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Arıkan, B., Restelli, F.B., Masi, A.

Comparative modeling of Bronze Age land use in the Malatya Plain (Turkey).

Quaternary Science Reviews 136, 122–133.

doi:10.1016/j.quascirev.2015.12.013

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Morellón, M., Anselmetti, F.S., Ariztegui, D., Brushulli, B., Sinopoli, G., Wagner, B., Sadori, L., Gilli, A., Pambuku, A.

Human–climate interactions in the central Mediterranean region during the last millennia: The laminated record of Lake Butrint (Albania).

Quaternary Science Reviews 136, 134–152.

doi:10.1016/j.quascirev.2015.10.043

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Cremaschi, M., Mercuri, A.M., Torri, P., Florenzano, A., Pizzi, C., Marchesini, M., Zerboni, A.

Climate change versus land management in the Po Plain (Northern Italy) during the Bronze Age: New insights from the VP/VG sequence of the Terramara Santa Rosa di Poviglio.

Quaternary Science Reviews 136, 153–172.

doi:10.1016/j.quascirev.2015.08.011

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Sadori, L., Giraudi, C., Masi, A., Magny, M., Ortu, E., Zanchetta, G., Izdebski, A.

Climate, environment and society in southern Italy during the last 2000 years. A review of the environmental, historical and archaeological evidence.

Quaternary Science Reviews 136, 173–188.

doi:10.1016/j.quascirev.2015.09.020

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Izdebski, A., Pickett, J., Roberts, N., Waliszewski, T.

The environmental, archaeological and historical evidence for regional climatic changes and their societal impacts in the Eastern Mediterranean in Late Antiquity.

Quaternary Science Reviews 136, 189–208.

doi:10.1016/j.quascirev.2015.07.022

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Climate variability and socio-environmental changes in the northern Aegean (NE Mediterranean) during the last 1500 years.

Quaternary Science Reviews 136, 209–228.

doi:10.1016/j.quascirev.2016.01.009

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Xoplaki, E., Fleitmann, D., Luterbacher, J., Wagner, S., Haldon, J.F., Zorita, E., Telelis, I., Toreti, A., Izdebski, A.

The Medieval Climate Anomaly and Byzantium: A review of the evidence on climatic fluctuations, economic performance and societal change.

Quaternary Science Reviews 136, 229–252.

doi:10.1016/j.quascirev.2015.10.004

<http://authors.elsevier.com/a/1SeKw-4PRehcX>

Free links provided for each article will remain active until April 21st (except for the two open access papers).

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Domesticated Landscapes of the Peloponnese (DoLP):

<http://www.arkeologi.uu.se/Research/Projects/domesticated-landscapes/?languageId=1>



GLASS OF THE ROMAN WORLD

Bryn Mawr Classical Review 2016.04.30

Justine Bayley, Ian Freestone, Caroline Jackson (ed.), *Glass of the Roman World*. Oxford; Philadelphia: Oxbow Books, 2015. Pp. xxvi, 204. ISBN 9781782977742. \$70.00.

Reviewed by Thomas J. Derrick, University of Leicester (tjd14@le.ac.uk)

The volume reviewed is a Festschrift offered to Prof. Jennifer Price, an esteemed and respected scholar who has worked on glass from many regions of the Roman world and beyond (both temporally and geographically). In concordance with Prof. Price's own wide-ranging publication history (listed xi-xxvi), the 18 contributions are on diverse and engaging topics. They are arranged in to three sections: 1. Technology and Production, 2. Vessels and their Forms, 3. Other Uses of Glass. Some papers present new material which adds to existing corpora, and others take more general approaches. The contributions are discussed in turn below, largely in the order they appear in the volume.

The first paper (p. 1-22), by Marie-Dominique Nenna, is a preliminary report on the excavations at the site of Beni Salama (2003, 2005-9), in the Wadi Natrun. The Wadi is named after natron - or more correctly trona - and was an important, and one of the largest, sources of the material in antiquity. Trona was used in the creation of chemically stable silica-lime-natron glasses which were common throughout the Roman period. Nenna describes the site in detail, with its several primary glass furnaces which produced raw glasses destined to be worked in secondary glass workshops. This contribution is accompanied by 19 excellent figures including 15 colour photographs of the site, its environs, and parts of the furnaces. Nenna adds important tangible evidence for the production of glass in Roman Egypt. Egyptian provenance is often theorised based on chemical analysis, but workshop structures are infrequently discovered.

Anna-Barbara Follman-Schulz's paper (23-32) presents a brief but detailed overview of the glassworking centred on the Hambach Forest in Late Antiquity. The landscape context of this activity is considered and the evidence for glassworking in the region - namely the furnaces, crucibles, and vessels produced - is laid out. Particularly welcome here is the use of plaster casts to illustrate moulded and stamped elements. This contribution provides a useful summary of material previously published largely in German.

A detailed and comprehensive gazetteer of the evidence for glassblowing in Roman London, compiled by John Shepherd, follows (33-43). Shepherd has published widely on this evidence, but this contribution constitutes an up-to-date summary of the state of knowledge. Rapid development, and therefore rescue archaeology, in central London has added several sites to Shepherd's corpus. He is therefore able to draw a timeline from the earliest glassworking (bead production c. 50-60 C.E. at Gresham Street) to various other sites in the 1st and 2nd centuries, and also discusses tantalising evidence for a possible 3rd-4th century crucible fragment from a dump in Norton Folgate. These insights have crucial importance for the history of glass use in Roman Britain as a whole, and this paper is a particular highlight of the volume.

Caroline Jackson and Harriet Foster discuss provenance studies and their utility for research on Roman glass (44-56). Their contribution describes the state of the discipline and comprehensively charts the development of scientific analysis of archaeological glass from tentative forays in the 1980s to the present day. The authors suggest that the field needs to move towards combining analyses to determine glass provenance with vessel consumption in archaeological contexts, in order to reconstruct the economy of Roman glass. This high resolution approach is surely one the field needs to use more often. At some sites it is not deemed necessary to take glass samples, but scientific advances may well make this process cheaper and more likely to be undertaken in the future.

David Whitehouse presents a survey of pontil use in the Roman world (57-60). For this he used a corpus of 621 Roman and early post-Roman glass vessels with extant bases from the Corning Museum of Glass in New York. Although the sample is small and there are issues with provenance in the Museum's collections, Whitehouse is able to make preliminary conclusions about pontil use, namely that there is less evidence of it in the 1st century (a period of experimentation in glassworking), but it increases over time.

Ian Freestone and Colleen Stapleton present the results of chemical analyses of opaque Roman mosaic vessels and discuss them within their wider context (61-76). This paper adds substantially to the pre-existing corpus of analysed samples (73). The study takes fragments of various colour configurations, housed at the British Museum and Victoria and Albert Museums, and investigates their chemical composition. The results unveil a "highly complex technology colouration technology in the early imperial period, underpinned by a sophisticated empirical knowledge of material behaviour" (71).

The final paper on technology and production (77-94) is by E. Marianne Stern, who compares and contrasts glass production in the west of the empire (largely Rome, Italy, and adjoining provinces) and the east (particularly the Syro-Palestinian coast). The approach taken is very broad, and this paper will be of particular use to scholars interested in the wider development of glass vessel production in the Mediterranean and the resultant socio-cultural consequences of this process. Stern orients the discussion around the Latin terminology used by Pliny the Elder in order to reconstruct the processes undertaken in ancient glassblowing and working. Ethnographic and personal experience - Stern is herself a glassblower - is used to add substance to the scant iconographic sources and literary references. This paper acts as a good bridge between the first section (technology) and the second (vessels and their forms).

In the first paper in section 2, "Vessels and their forms," Souen Fontaine and Danièle Foy examine several previously unpublished mould-blown beakers from Gallia Narbonensis featuring circus, gladiatorial, and mythological scenes (97-111). This part of Gaul was, until now, under-represented in terms of these vessels. Fontaine and Foy combine their newly identified fragments with previously published examples and discuss the full group in their regional and super-regional context. This paper has a lot in common with Sally Cottam's paper, the final one in this section (146-150). It discusses an unusual mould-blown beaker which appears to have 'scales' set in a quincunx formation, accompanied by a pushed in base-ring which is more common on free-blown vessels. Cottam examines the phenomenon of this unusual base formation - usually a mould has a 'base piece' - and has discovered, by consulting experimental glass blowers Mark Taylor

and David Hill, that the most likely explanation is that this was a moulded base re-worked for some reason.

Birgitta Hoffman's paper is a brief two-and-a-half-page overview of the Roman and post-Roman glass (ca. 2000 fragments) found during surveys and excavation in the Fezzan (112-115). This is an interesting summary that shows that the use of glass in the Fezzan, on the edges of the Empire, is indicative of processes of wider social practice and consumption in the region. There is unfortunately a slight error in the labelling of the two images, with the label for Figure 9.2 presumably describing Figure 9.3, and the label for Figure 9.3 referring to a vessel which is not depicted. This mislabelling, however, does not affect the quality of the discussion, as the images were used to demonstrate the quality of some of the Fezzan glass, an aim which is still achieved. The next paper, by Yael Israeli, discusses some remarkable vessel types from the Roman port of Caesarea Maritima (116-123). Eight were imported vessels, the forms and decoration of which were previously unrepresented in local products, and two are local and probably point to the production of glass oil lamps in the city. This similarly brief paper, which offers an update to previously excavated material, is illustrated well and offers a window to the evidence from the site.

The paper by Daniel Keller is one of the volume's longer and more stand-out contributions (124-137). Keller uses the distribution patterns in the deposition of drinking vessels in households in the Late Antique eastern provinces to reveal the presence of 'sets' used in drinking practice. This paper uses a detailed intra-site contextual analysis to illustrate that not only is this sort of approach possible with Roman glass, but it can also be highly rewarding. This is the type of contextual analysis which would work well with a detailed glass compositional analysis, as advocated by other papers in the volume.

Martine Newby Haspelslagh discusses the exciting discovery of a 'Dionysiac' cameo glass vase (138-145). This preliminary discussion of this dark blue and white vessel has obvious parallels to existing dark blue cameo vessels, including the renowned Portland Vase housed in the British Museum. This vessel is currently undergoing conservation and thus this paper focuses largely on the interpretation of its mythological scenes.

Two papers on glass used in buildings open the third section of the volume, "Other Uses of Glass". Sarah Jennings discusses the abundant evidence for different types of architectural glass found at Butrint in Albania (153-164). The description of the manufacturing processes involved in the production of window glasses and several photographs of material make this a key reference work. Heidi Amrein then examines two previously unpublished glazing bars from Vindonissa with a brief discussion of the wider context of Roman window construction and use (165-169).

The reuse of Roman glass fragments is the subject of the paper by Sylvia Fünfschilling (170-177). It focuses on the abundant evidence from Augusta Raurica (Augst, Switzerland) of the reworking of vessel wall and base fragments to make counters, geometric forms, and knapped blades. This paper will surely make many specialists, and those who use glass reports, re-evaluate many vessel glass assemblages.

The final two papers concern the use of glass in the manufacture of jewellery and similar objects. The paper by Justine Bayley is a detailed account of Roman enamelling, a practice common in Britain (178-189). This is a comprehensive treatment that will also

be appealing to a non-specialist, given the excellent images and clear discussion. Similarly Peter Cosyns, in the eighteenth and final paper of the volume (190-204), discusses the phenomenon of 'black' glass from Britannia, Gallia Belgica, and Germania Inferior, and has produced a detailed and significant reference work.

The volume is suited to a range of different audiences. The first is, naturally, archaeological specialists who work with glass objects and vessels. In addition, the work also has value for more general researchers or students due to the accessible language and terminology used in several of the papers, although it should be noted that this volume does not offer a generalist and all-encompassing account of glass use in the Roman world, nor did it set out to do so (alternatives for readers seeking this approach: Isings 1957; Price and Cottam 1998). The volume is well presented and illustrated with high quality colour photographs and illustrations throughout. As someone who works with Roman glass, I am confident that I will return to this volume on a regular basis, as many of the papers are of crucial importance to the field and to material culture studies more generally.

Notes:

1. Isings, C. 1957. Roman glass from dated finds. Wolters: Groningen.
2. Price, J. and Cottam, S. 1998. Romano-British glass vessels: a handbook. Council for British Archaeology: York. This was designed for material from Roman Britain, but currently it is the best general overview, as Isings 1957 is somewhat outdated.

Please visit the site: <http://bmcr.brynmaur.edu/2016/2016-04-30.html>

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Issue Information

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Unique Objects, Special Deposits and Elite Networks in Bronze Age Europe
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Facilitating Interaction: Board Games as Social Lubricants in the Ancient Near
East (pages 179-196) Walter Crist, Alex de Voogt and Anne-Elizabeth Dunn-Vaturi
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'Twas When my Shield Turned traitor!' Establishing the Combat Effectiveness of
the Greek Hoplite Shield (pages 197-212) Kevin Rowan De Groote Article first
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ΕΙΔΗΣΕΙΣ - NEWS RELEASE

5,000-YEAR-OLD KILNS

Iran: Discovery of ancient kilns in suggests early trade in goods An archeological dig at Yalda Hill in Sistan has unearthed 5,000-year-old kilns with a capacity for the surplus production of ceramics.

The Shahrvand daily reported on Wednesday April 13 that the archeological team consisted of 25 archeology graduates headed by Hosseinali Kavosh, supervisor of the fourth season of archeological excavations from Zabol University.

Kavosh stated that the discovery of the kilns indicates that the settlers of the hill had the capacity to produce ceramics beyond their own needs and perhaps exported them to other settlements.

He added that in addition to the kiln, they have uncovered five architectural spaces, unique human and animal statuettes, seals, woven mats and counting tools.

Sistan-Baluchistan in southeastern Iran has been the site of several ancient archeological discoveries.

Please visit the site: <http://www.payvand.com/news/16/apr/1063.html>

THE MYSTERY OF HITTITE LIONS

Archaeologists have been working to solve the mystery of five-ton lion sculptures recently found in a field in Sorgun, a town located in the Central Anatolian province of Yozgat.

Two researchers employed by the Culture and Tourism Ministry have made preliminary searches in Sorgun's Yeniyer neighborhood, where they say a field served as a sculpture atelier in the Hittite era. Now it is expected that the field will turn into an open air park museum, shedding light on a period of Turkey's ancient history.

Yeniyer Mayor Osman Yılmaz stated, "It is not exactly known why these lion sculptures were created. It is estimated that they were made between 1,400 and 1,200 B.C. during the era when the Hittites ruled Anatolia. . The top part of their head is a bit higher than their neck. It is thought that these sculptures were dedicated to a holy water source."

Large rocks in a stone pit, the biggest of which is in two-meter diameter, have also been found in the field, further complicating the mystery.

Commenting on the sculpture's possible purpose, Yılmaz said, "Research done around Karakız [a Yeniyer neighborhood] show that the region was a Hittite settlement when these sculptures were created. On the other hand, due to the gigantic size of the lions, it was not much possible to make them in another place and move them here."

Lions seek promotion

But the sculptures and the neighborhoods around the field, though highly interesting to researchers, are desperately seeking attention from tourists.

Yılmaz said the Yeniyer's neighborhoods of Karakız, Kazankaya, Armutlu and Hapis Boğazı were home to important archaeological artifacts, and added, "The first artifacts were found in 1982 by the Yozgat Museum Directorate. In 1987, the Hapis Boğazı ruins were put under protection. The museum directorate registered this field in 2009 as the Karakız Sculpture Atelier."

Yılmaz said due to lack of sufficient protection, treasure hunters had already damaged the ancient artifacts.

"People who are searching for treasure in the region damaged these artifacts; they damaged the stones. This is why we are waiting for administrators, parliamentarians and ministers in Yozgat to accelerate works in this region and open it to tourism. Otherwise, such a significant history will disappear."

Yılmaz said experts had organized the first Hapis Boğazı Hittite Sculpture Atelier Festival last year and they would organize the second edition this year.

"We organized an event last year in Karakız and Hapis Boğazı to contribute to the promotion of the Hittite Sculpture Atelier. We set to organize the second festival this year on July 9 and 10. We believe such events will promote the region," he said.

Please visit the site: <http://www.hurriyetdailynews.com/the-mystery-of-hittite-lions-.aspx?pageID=238&nid=97807&NewsCatID=375>

ANCIENT MASS GRAVES FOUND IN ATHENS SEEN AS SIGNIFICANT DISCOVERY

Archaeologists have discovered two mass graves near the Greek capital containing the skeletons of 80 men who may have been followers of ancient would-be tyrant Cylon of Athens.

Regional archaeological services director Stella Chryssoulaki laid out the theory Thursday as she unveiled the findings at the Central Archaeological Council, the custodians of Greece's ancient heritage.

Given "the high importance of these discoveries," the council is launching further investigations, the culture ministry said in a statement.

Two small vases discovered amongst the skeletons have allowed archaeologists to date the graves from between 675 and 650 BC, "a period of great political turmoil in the region," the ministry said.

The skeletons were found lined up, some on their backs and others on their stomachs. A total of 36 had their hands bound with iron.

They were discovered during excavations at an ancient cemetery on Athens' seaside outskirts, on the construction site of the new National Library of Greece and National Opera.

Archaeologists found the teeth of the men to be in good condition, indicating they were young and healthy.

This boosts the theory that they could have been followers of Cylon, a nobleman whose failed coup in the 7th century BC is detailed in the accounts of ancient historians Herodotus and Thucydides.

Cylon, a former Olympic champion, sought to rule Athens as a tyrant. But Athenians opposed the coup attempt and he and his supporters were forced to seek refuge in the Acropolis, the citadel that is today the Greek capital's biggest tourist attraction.

The conspirators eventually surrendered after winning guarantees that their lives would be spared.

But Megacles, of the powerful Alcmaeonid clan, had the men massacred – an act condemned as sacrilegious by the city authorities.

Historians say this dramatic chapter in the story of ancient Athens showed the aristocracy's resistance to the political transformation that would eventually herald Athenian democracy 2,500 years ago.

Please visit the site:

<http://www.ekathimerini.com/207941/gallery/ekathimerini/life/ancient-mass-graves-found-in-athens-seen-as-significant-discovery>

BARQUE STATION OF QUEEN HATSHEPSUT DISCOVERED ON ELEPHANTINE ISLAND

Ancient Egyptian Antiquities Sector Dr. Mahmoud Afify declared the discovery of a number of blocks that most probably belong to a previously unknown building of Queen Hatshepsut that was discovered this year by the German Archaeological Institute on the Island of Elephantine, Aswan.

According to Dr Felix Arnold, the field director of the mission, the building served as a waystation for the festival barque of the god Khnum. The building was later dismantled and about 30 of its blocks have now been found in the foundations of the Khnum temple of Nectanebo II. Some of the blocks were discovered in previous excavation seasons by members of the Swiss Institute, but the meaning of the blocks has only now become clear.

On several of the blocks discovered this year Queen Hatshepsut was originally represented as a woman. The building must therefore have been erected during the early years of her reign, before she began to be represented as a male king. Only very few buildings from this early stage of her career have been discovered so far. The only other examples have been found at Karnak. The newly discovered building thus adds to our knowledge of the early years of Queen Hatshepsut and her engagement in the region of Aswan. In the reign of Thutmose III. all mentions of her name were erased and all representations of her female figure were replaced by images of a male king, her deceased husband Thutmose II.

Based on the blocks discovered so far the original appearance of the building can be reconstructed. The building thus comprised a chamber for the barque of the god Khnum, which was surrounded on all four sides by pillars. On the pillars are representations of several versions of the god Khnum, as well as other gods, such as Imi-peref “He-who-is-in-his-house”, Nebet-menit “Lady-of-the-mooring-post” and Min-Amun of Nubia. The building thus not only adds to our knowledge of the history of Queen Hatshepsut but also to our understanding of the religious beliefs current on the Island of Elephantine during her reign.

#Elephantine

#German_Archaeological_Institute_Mission

#Mahmoud_Afify

(c) Ministry of Antiquities, Press Office Based on the the Mission's Report.

Please visit the site:

https://www.facebook.com/permalink.php?story_fbid=482652288606587&id=336764893195328

A 3,800-YEAR JOURNEY FROM CLASSROOM TO CLASSROOM, BY PATRICK LYNCH

Thirty-eight hundred years ago, on the hot river plains of what is now southern Iraq, a Babylonian student did a bit of schoolwork that changed our understanding of ancient mathematics. The student scooped up a palm-sized clump of wet clay, formed a disc about the size and shape of a hamburger, and let it dry down a bit in the sun. On the surface of the moist clay the student drew a diagram that showed the people of the Old Babylonian Period (1,900–1,700 B.C.E.) fully understood the principles of the “Pythagorean Theorem” 1300 years before Greek geometer Pythagoras was born, and were also capable of calculating the square root of two to six decimal places.

Today, thanks to the Internet and new digital scanning methods being employed at Yale, this ancient geometry lesson continues to be used in modern classrooms around the world.

“This geometry tablet is one of the most-reproduced cultural objects that Yale owns — it’s published in mathematics textbooks the world over,” says Professor Benjamin Foster, curator of the Babylonian Collection, which includes the tablet. It’s also a popular teaching tool in Yale classes. “At the Babylonian Collection we have a very active teaching and learning function, and we regard education as one of the core parts of our mission,” says Foster. “We have graduate and undergraduate groups in our collection classroom every week.”

The tablet, formally known as YBC 7289, “Old Babylonian Period Mathematical Text,” came to Yale in 1909 as part of a much larger collection of cuneiform tablets assembled by J. Pierpont Morgan and donated to Yale. In the ancient Mideast cuneiform writing was created by using a sharp stylus pressed into the surface of a soft clay tablet to produce wedge-like impressions representing pictographic words and numbers. Morgan’s donation of tablets and other artifacts formed the nucleus of the Yale Babylonian Collection, which now incorporates 45,000 items from the ancient Mesopotamian kingdoms.

Discovering the tablet’s mathematical significance The importance of the geometry tablet was first recognized by science historians Otto Neugebauer and Abraham Sachs in their 1945 book “Mathematical Cuneiform Texts.”

“Ironically, mathematicians today are much more fascinated with the Babylonians’ ability to accurately calculate irrational numbers like the square root of two than they are with the geometry demonstrations,” notes associate Babylonian Collection curator Agnete Lassen.

This tablet, once the schoolwork of a student in ancient Babylonia, is one of the most-reproduced cultural objects in Yale’s collections. This tablet, once the schoolwork of a student in ancient Babylonia, is one of the most-reproduced cultural objects in Yale’s collections. “The Old Babylonian Period produced many tablets that show complex mathematics, but it also produced things you might not expect from a culture this old, such as grammars, dictionaries, and word lists,” says Lassen “One of the two main

languages spoken in early Babylonia was dying out, and people were careful to document and save what they could on cuneiform tablets. It's ironic that almost 4,000 years ago people were thinking about cultural preservation, and actively preserving their learning for future generations.”.

Today, however, the tablet is a fragile lump of clay that would not survive routine handling in a classroom. In looking for alternatives that might bring the highlights of the Babylonian Collection to a wider audience, the collection's curators partnered with Yale's Institute for the Preservation of Cultural Heritage (IPCH) to bring the objects into the digital world.

Scanning at the IPCH

The IPCH Digitization Lab's first step was to do reflectance transformation imaging (RTI) on each of fourteen Babylonian Collection objects. RTI is a photographic technique that enables a student or researcher to look at a subject with many different lighting angles. That's particularly important for something like a cuneiform tablet, where there are complex 3D marks incised into the surface. With RTI you can freely manipulate the lighting, and see subtle surface variations that no ordinary photograph would reveal.

Chelsea Graham of the IPCH Digitization Lab and her colleague Yang Ying Yang of the Yale Computer Graphics Group then did laser scanning of the tablet to create a three-dimensional geometric model that can be freely rotated onscreen. The resulting 3D models can be combined with many other types of digital imaging to give researchers and students a virtual tablet onscreen, and the same data can be used to create a 3D printed facsimile that can be freely used in the classroom without risk to the delicate original.

3D printing digital materials

While virtual models on the computer screen have proved to be a valuable teaching and research resource, even the most accurate 3D model on a computer screen doesn't convey the tactile impact, and physicality of the real object. Yale's Center for Engineering Innovation and Design has collaborated with the IPCH on a number of cultural heritage projects, and the center's assistant director, Joseph Zinter, has used its 3D printing expertise on a wide range of engineering, basic science, and cultural heritage projects.

“Whether it's a sculpture, a rare skull, or a microscopic neuron or molecule highly magnified, you can pick up a 3D printed model and hold it, and it's a very different and important way to understand the data. Holding something in your hand is a distinctive learning experience,” notes Zinter.

Sharing cultural heritage projects in the digital world Once a cultural artifact has entered the digital world there are practical problems with how to share the information with students and scholars. IPCH postdoctoral fellows Goze Akoglu and Eleni Kotoula are working with Yale computer science faculty member Holly Rushmeier to create an integrated collaborative software platform to support the research and sharing of cultural heritage artifacts like the Babylonian tablet.

“Right now cultural heritage professionals must juggle many kinds of software, running several types of specialized 2D and 3D media viewers as well as conventional word processing and graphics programs. Our vision is to create a single virtual environment that accommodates many kinds of media, as well as supporting communication and annotation within the project,” says Kotoula.

The wide sharing and disseminating of cultural artifacts is one advantage of digitizing objects, notes professor Rushmeier, “but the key thing about digital is the power to study large virtual collections. It’s not about scanning and modeling the individual object. When the scanned object becomes part of a large collection of digital data, then machine learning and search analysis tools can be run over the collection, allowing scholars to ask questions and make comparisons that aren’t possible by other means,” says Rushmeier.

Reflecting on the process that brings state-of-the-art digital tools to one of humanity’s oldest forms of writing, Graham said “It strikes me that this tablet has made a very long journey from classroom to classroom. People sometimes think the digital or 3D-printed models are just a novelty, or just for exhibitions, but you can engage and interact much more with the 3D printed object, or 3D model on the screen. I think the creators of this tablet would have appreciated the efforts to bring this fragile object back to the classroom.”

Please visit the site: <http://news.yale.edu/2016/04/11/3800-year-journey-classroom-classroom>

NEW EVIDENCE ON WHEN BIBLE WAS WRITTEN: ANCIENT SHOPPING LISTS, BY ISABEL KERSHNER

Eliashib, the quartermaster of the remote desert fortress, received his instructions in writing — notes inscribed in ink on pottery asking for provisions to be sent to forces in the ancient kingdom of Judah.

The requests for wine, flour and oil read like mundane, if ancient, shopping lists. But a new analysis of the handwriting suggests that literacy may have been far more widespread than previously known in the Holy Land around 600 B.C., toward the end of the First Temple period. The findings, according to the researchers from Tel Aviv University, could have some bearing on a century-old debate about when the main body of biblical texts was composed.

“To Eliashib: And now, give the Kittiyim 3 baths of wine, and write the name of the day,” read one of the texts, composed in ancient Hebrew using the Aramaic alphabet, and apparently referring to a Greek mercenary unit in the area.

Another said: “And a full homer of wine, bring tomorrow; don’t be late. And if there is vinegar, give it to them.”

The new study, published on Monday in the Proceedings of the National Academy of Sciences, combined archaeology, Jewish history and applied mathematics, and involved computerized image processing and the development of an algorithm to distinguish between the various authors issuing the commands.

Based on a statistical analysis of the results, and taking into account the content of the texts that were chosen for the sample, the researchers concluded that at least six different hands had written the 18 missives at around the same time. Even soldiers in the lower ranks of the Judahite army, it appears, could read and write.

“There is something psychological beyond the statistics,” said Prof. Israel Finkelstein of the Department of Archaeology and Ancient Near Eastern Civilizations at Tel Aviv University, one of the leaders of the project. “There is an understanding of the power of literacy. And they wrote well, with hardly any mistakes.”

The study was based on a trove of about 100 letters inscribed in ink on pieces of pottery, known as ostraca, that were unearthed near the Dead Sea in an excavation of the Arad fort decades ago and dated from about 600 B.C. That was shortly before Nebuchadnezzar’s destruction of Jerusalem and the kingdom of Judah, and the exile of its elite to Babylon — and before many scholars believe the major part of the biblical texts, including the five books of Moses, also known as the Pentateuch, were written down in any cohesive form.

“To Eliashib, and now: Issue from the wine 3 baths,” another ostrakon ordered, adding, “And Hananyahu has commanded you to Beersheba with 2 donkeys’ load and you shall wrap up the dough with them.”

One of the longstanding arguments for why the main body of biblical literature was not written down in anything like its present form until after the destruction and exile of 586 B.C. is that before then there was not enough literacy or enough scribes to support such a huge undertaking.

But if the literacy rates in the Arad fortress were repeated across the kingdom of Judah, which had about 100,000 people, there would have been hundreds of literate people, the Tel Aviv research team suggests.

That could have provided the infrastructure for the composition of biblical works that constitute the basis of Judahite history and theology including early versions of the books of Deuteronomy to II Kings, according to the researchers.

Since the 19th century, scholars have been debating “when was it written?” Professor Finkelstein said. “In real time or after,” he added, referring to the destruction and exile.

In the centuries after the destruction and exile, up until 200 B.C., Professor Finkelstein said, there is almost no archaeological evidence of inscriptions in Hebrew. He said he would have expected digs to reveal seal impressions and everyday writings on pottery, even if more important texts, like biblical ones, had been done on perishable materials such as parchment or papyrus.

Biblical texts written in the centuries after 586 B.C., he suggested, were likely to have been composed in Babylon.

Other scholars cautioned against drawing too many conclusions about when the first major part of the Bible was written based on extrapolations regarding ancient literacy rates.

“There is no such thing as consensus in biblical studies these days,” said Prof. Edward Greenstein of Bar-Ilan University near Tel Aviv. “The process of transmission was much more complicated than scholars used to think.”

The process of composing the Torah, according to Professor Greenstein, appears to have involved layers of rewrites, supplements and revisions. Pointing to recent scholarship on biblical literature, he said that scribes may have recorded texts primarily as a memory aid in a world where they were still being transmitted orally.

“Biblical texts did not have to have been written by many people, or read by many people, to have been written down,” he said, adding that the texts would not have been widely circulated.

To deduce literacy rates, the research team used a method that Barak Sober, from the Department of Applied Mathematics at Tel Aviv University, compared to forensic handwriting analysis adapted to ancient times.

The mathematicians took 16 of the ceramic shards from Arad that were richer in content (two had inscriptions on both sides). Two of the texts resembled a roll call, simply listing people present, and were clearly written in the desert outpost; others may have been composed elsewhere.

Many of the Aramaic letters were unclear, so they could not just be typed into a computer. Instead, the researchers devised a way to reconstruct them. Then the letters from pairs of texts were jumbled up and the algorithm separated them based on handwriting.

If the algorithm split the letters into two clear groups, the texts were counted as having been written by two authors. When the algorithm did not distinguish between the letters and left them together in one group, no position was taken; they may have been written by the same hand, or possibly by two people with similar styles.

A conservative calculation revealed at least four different authors, and six when content was taken into account, such as who was writing to whom.

Another ostrakon was addressed to a man called Nahum. He was instructed to “Go to the house of Eliashib son of Eshiyahu,” to collect a jar of oil, to send it to Ziph “quickly, and seal it with your seal.”

A version of this article appears in print on April 12, 2016, on page A8 of the New York edition with the headline: Ancient Grocery Lists May Shed Light on When the Bible Was First Written.

Please visit the site: <http://www.nytimes.com/2016/04/12/world/middleeast/new-evidence-onwhen-bible-was-written-ancient-shopping-lists.html> [See also <http://popular-archaeology.com/issue/spring-2016/article/ancient-inscriptions-testify-to-widespread-literacy-in-judah-by-600-bce>]

AN IMPORTANT ARCHAEOLOGICAL DISCOVERY AT THE FOOT OF MOUNT CARMEL

An extraordinary archaeological discovery was revealed in an excavation of the Israel Antiquities Authority prior to the construction of a road being built at the initiative of the Netivei Israel Company. During the excavation, carried out as part of the Jezreel Valley Railway Project between Ha-'Emekim Junction and Yagur Junction, remains of the oldest kilns in Israel were discovered where commercial quantities of raw glass were produced. These kilns, c. 1,600 years old (dating to the Late Roman period), indicate that the Land of Israel was one of the foremost centers for glass production in the ancient world.

According to Yael Gorin-Rosen, head curator of the Israel Antiquities Authority Glass Department, "This is a very important discovery with implications regarding the history of the glass industry both in Israel and in the entire ancient world. We know from historical sources dating to the Roman period that the Valley of 'Akko was renowned for the excellent quality sand located there, which was highly suitable for the manufacture of glass. Chemical analyses conducted on glass vessels from this period which were discovered until now at sites in Europe and in shipwrecks in the Mediterranean basin have shown that the source of the glass is from our region. Now, for the first time, the kilns have been found where the raw material was manufactured that was used to produce this glassware".

The excavation of the kilns has caused great excitement in recent weeks among glass researchers throughout the world, some of whom have come especially to Israel in order to see this discovery first hand. According to Professor Ian Freestone of the University College London, who specializes in identifying the chemical composition of glass, "This is a sensational discovery and it is of great significance for understanding the entire system of the glass trade in antiquity. This is evidence that Israel constituted a production center on an international scale; hence its glassware was widely distributed throughout the Mediterranean and Europe".

This enormously important site was discovered by chance last summer by archaeologist Abdel Al-Salam Sa'id, an inspector with the Israel Antiquities Authority. While overseeing infrastructure work being conducted on the new railway line from Haifa to the east, he suddenly observed chunks of glass, a floor and an ash layer inside a trench. He halted construction work at the site and began preparations for an archaeological excavation, the important results of which are now evident.

According to Abdel Al-Salam Sa'id, the excavation direction, "We exposed fragments of floors, pieces of vitrified bricks from the walls and ceiling of the kilns, and clean raw glass chips. We were absolutely overwhelmed with excitement when we understood the great significance of the finds".

The kilns that were revealed consisted of two built compartments: a firebox where kindling was burnt to create a very high temperature, and a melting chamber - in which the raw materials for the glass (clean beach sand and salt) were inserted and melted

together at a temperature of c. 1,200 C degrees. The glass was thus heated for a week or two until enormous chunks of raw glass were produced, some of which weighed in excess of ten tons. At the end of the manufacturing process the kilns were cooled; the large glass chunks that were manufactured were broken into smaller pieces and were sold to workshops where they were melted again in order to produce glassware.

During the Early Roman period the use of glass greatly expanded due to its characteristics: its transparency, beauty, the delicacy of the vessels and the speed with which they could be produced by blowing - an inexpensive technique adopted at the time that lowered production costs. Glass was used in almost every household from the Roman period onward, and it was also utilized in the construction of public buildings in the form of windows, mosaics and lighting fixtures. Consequently, large quantities of raw glass were required which were prepared on an industrial scale in specialized centers. The installation that was discovered in the excavation is an example of one of these ancient production facilities.

According to a price edict circulated by the Roman emperor Diocletian in the early fourth century CE, there were two kinds of glass: the first was known as Judean glass (from the Land of Israel) and the second - Alexandrian glass (from Alexandria, Egypt). Judean glass was a light green color and less expensive than Egyptian glass. The question was: Where were the centers that manufactured this Judean glass that was a branded product known throughout the Roman Empire and whose price was engraved on stone tablets so as to ensure fair trade. The current discovery completes the missing link in the research and indicates the location where the famous Judean glass was produced.

In a few months time the public will be able to see this discovery first-hand when it will be exhibited at the "Carmel Zvulun" Regional High school, in the Zevulun Regional Council.

Additional Background Information:

Glass production kilns that date to the sixth or early seventh century CE were previously found at Apollonia in Herzliya and are c. 200 years later than the current discovery. The largest glass production facility from antiquity that has been found so far was exposed in the Bet Eliezer neighborhood in Hadera where it was dated to the seventh-eighth centuries CE, and the latest evidence we have of glass production in the country was revealed at Bet She'arim (next to Khirbat 'Asafna), dated to the late eighth and early ninth centuries CE.

The kilns that were just recently found are the earliest ones to be discovered so far in Israel. Their relatively good state of preservation will make it possible to better understand the production process. Researchers now hope that by means of its chemical composition they will be able to trace the export of the glass throughout the Roman Empire.

The raw glass industry at Khirbat 'Asafna was part of an extensive industrial zone where there were oil presses, wine presses and a glassware workshop which was excavated in the 1960's by an American archaeological expedition. The Oldest Glassworks Ever Found in Israel was a World Center for Glass Production in Antiquity

Please visit the site:

http://www.antiquities.org.il/Article_eng.aspx?sec_id=25&subj_id=240&id=4192

[Go there for brief video]

CURSE TABLETS FOUND IN 2,400-YEAR- OLD GRAVE, BY OWEN JARUS

Five lead tablets that cursed tavern keepers some 2,400 years ago have been discovered in a young woman's grave in Athens, Greece.

Four of the tablets were engraved with curses that invoked the names of "chthonic" (underworld) gods, asking them to target four different husband-and-wife tavern keepers in Athens. The fifth tablet was blank and likely had a spell or incantation recited orally, the words spoken over it.

All five tablets were pierced with an iron nail, folded and deposited in the grave. The grave would have provided the tablets a path to such gods, who would then do the curses' biddings, according to ancient beliefs. [Real or Not? 6 Famous Historical Curses]

One of the curses targeted husband-and-wife tavern keepers named Demetrios and Phanagora. The curse targeting them reads in part (translated from Greek):

"Cast your hate upon Phanagora and Demetrios and their tavern and their property and their possessions. I will bind my enemy Demetrios, and Phanagora, in blood and in ashes, with all the dead."

"I will bind you in such a bind, Demetrios, as strong as is possible, and I will smite down a kynotos on tongue."

The word kynotos literally means "dog's ear," an ancient gambling term that "was the name for the lowest possible throw of dice," Jessica Lamont, an instructor at John Hopkins University in Baltimore who recently completed a doctorate in classics, wrote in an article published recently in the journal *Zeitschrift für Papyrologie und Epigraphik*. The "physical act of hammering a nail into the lead tablet would have ritually echoed this wished-for sentiment," Lamont wrote.

"By striking Demetrios' tongue with this condemningly unlucky roll, the curse reveals that local taverns were not just sociable watering holes, but venues ripe for gambling and other unsavory activities in Classical Athens," Lamont wrote.

A woman's grave

The grave where the five curse tablets were found was excavated in 2003 by archaeologists with Greece's Ephorate for Prehistoric and Classical Antiquities. The grave was located northeast of the Piraeus, the port of Athens. Details of the burial have not yet been published, but Lamont said that excavation reports indicate that it contained the cremated remains of a young woman. Lamont has been studying the curse tablets at the Piraeus Museum, where they are now kept.

"The way that curse tablets work is that they're meant to be deposited in an underground location," such as a grave or well, Lamont told Live Science. "It's thought that these

subterranean places provided a conduit through which the curses could have reached the underworld," and its chthonic gods would then do the curse's biddings, Lamont said.

The woman buried in the grave might have had nothing to do with the curses or tavern keeping, Lamont said. Perhaps she died at the time when someone wanted to cast these curses on others in the same community, Lamont said.

During the ceremonies surrounding the woman's death, the grave "would have been accessible, a good access point for someone to deposit these tablets underground and bury them," Lamont said.

Who cast the curses?

The writing on the curse tablets is neat and its prose eloquent, suggesting that a professional curse writer created the tablets. "It's very rare that you get something so explicit and lengthy and beautifully written, of course in a very terrible way," Lamont said.

This curse writer, who probably provided other forms of supernatural services - including charms, spells and incantations - was likely hired by someone who worked in Athens' tavern-keeping industry, according to Lamont. "I think it's likely that the person who commissioned them was probably in the world of the tavern himself or herself," possibly a business rival of the four husband-and-wife tavern keepers, Lamont said.

Please visit the site: <http://news.discovery.com/history/archaeology/curse-tablets-discovered-in-2400-year-old-grave-160405.htm> [Go there for pict]

EASY AS ALEP, BET, GIMEL? CAMBRIDGE RESEARCH EXPLORES SOCIAL CONTEXT OF ANCIENT WRITING

A new University of Cambridge research project is set to shed light on the history of writing in the ancient world, and explore the long-lasting relationship between society and writing that persists today.

Easy as Alep, Bet, Gimel? Cambridge research explores social context of ancient writing
A new research project at the University of Cambridge is set to shed light on the history of writing, revealing connections to our modern alphabet that cross cultures and go back thousands of years.

The project, called Contexts of and Relations between Early Writing Systems (CREWS for short), is to focus on exploring how writing developed during the 2nd and 1st millennia BCE in the ancient Mediterranean and Near East, and will investigate how different writing systems and the cultures that used them were related to each other.

The project is led by Dr Philippa Steele of the University's Faculty of Classics. Described as an "innovative and interdisciplinary approach to the history of writing" the CREWS project aims to enrich our understanding of linguistic, cultural and social aspects of the use, borrowing and development of writing in the ancient world - which can uncover some often surprising links to our modern-day written culture.

For example, today the notion of "alphabetical order" is used to arrange everything from dictionaries to telephone books, but why is the alphabet organised the way it is?

Alphabetical order as we would recognise it first appeared over three thousand years ago in Ugaritic, written in a cuneiform script made of wedge-shaped signs impressed on clay tablets. The Ugaritic alphabet was in use in the ancient city of Ugarit, uncovered at Ras Shamra in modern Syria. Some of the surviving tablets discovered by archaeologists are known as "abecedaria", where the letters of the alphabet are written in order, possibly for teaching or as a training exercise for new scribes.

The destruction of Ugarit in around 1200 BCE was not the end for alphabetical order. The Phoenicians, living in what is now modern Syria and Lebanon, used the same order for their own alphabet. While their language was related to Ugaritic, their writing system was not. Instead of cuneiform wedge-shapes, the Phoenicians used linear letters, which were much more similar to those we use in English today. The Phoenician alphabet began with the letters Alep, Bet, Gimel, Dalet, which are strikingly similar to our own A, B, C and D.

Dr Steele said: "The links from the ancient past to our alphabet today are no coincidence. The Greeks borrowed the Phoenician writing system and they still kept the same order of signs: Alpha, Beta, Gamma, Delta. They transported the alphabet to Italy, where it was passed on to the Etruscans, and also to the Romans, who still kept the same order: A, B, C, D, which is why our modern alphabet is the way it is today."

That such an apparently simple idea remained so stable and powerful over thousands of years of cultural change and movement is an historic mystery. "The answer cannot be purely linguistic", Dr Steele said. "There must have been considerable social importance attached to the idea of the alphabet having a particular order. It matters who was doing the writing and what they were using writing for."

The origin of the alphabet is just one of the areas that the CREWS project will explore, along with the social and political context of writing, and drivers of language change, literacy and communication. Because of the high level of interconnectedness in the ancient Mediterranean and Near East, ideas could be spread widely as people moved, traded and interacted with different cultures.

"Globalisation is not a purely modern phenomenon", Dr Steele commented. "We might have better technology to pursue it now, but essentially we are engaging in the same activities as our ancestors."

The CREWS project is the result of a long-term innovative programme of combined and comparative research at the University of Cambridge. It will run for five years and will involve a four-person team working on a variety of ancient cultures and writing systems. The CREWS project has been made possible thanks to the European Research Council, who describe their mission as being "to encourage the highest-quality research in Europe."

Dr Steele, the Principal Investigator on the project and a Senior Research Fellow at Magdalene College, Cambridge, has worked on ancient languages and writing systems for over ten years and previously specialised in the languages of ancient Cyprus. She said: "Cyprus lies right in the middle of an area where ancient people were moving about by land and sea and swapping technologies and ideas. That was one of the inspirations of the CREWS project. By studying how and what ancient people were writing, we will be able to gain more insight into their interactions with each other in ways that have never been fully understood before."

The Contexts of and Relations Between Early Writing Systems (CREWS) project will be based at the University of Cambridge Faculty of Classics, a world-leading centre for the study of the ancient world with a track record for innovative and interdisciplinary research. Running from April 2016, it will continue until 2021.

Please visit the site: <http://www.csah.cam.ac.uk/news/easy-as-alep-bet-gimel-cambridge-research-ancient-writing> [The project blog is at: <https://crewsproject.wordpress.com/>]

UNIVERSITY OF MEMPHIS EGYPTOLOGIST IDENTIFIES EARLIEST KNOWN EXAMPLE OF EGYPTIAN BLUE

Lorelei H. Corcoran, professor and director of the Institute of Egyptian Art & Archaeology at the University of Memphis, has identified the earliest known example of the oldest synthetic pigment in the world, Egyptian blue, on a bowl that is dated to 3250 BCE. The small, alabaster bowl, in the collection of the Museum of Fine Arts (MFA), Boston, was excavated at the predynastic site of Hierakonpolis in 1898 by J. E. Quibell working for the Egyptian Research Account.

"Corcoran's discovery of the use of Egyptian blue at such an early period reminds us of the sophistication of Egypt prior to Dynasty 1," said Rita E. Freed, the John F. Cogan Jr. and Mary L. Cornille Chair of Art of the Ancient World at the MFA. "It also makes us wonder how many other techniques and concepts central to dynastic Egypt were developed earlier. I commend her for her meticulous scholarship."

Corcoran has researched the use of color in Ancient Egyptian art for more than three decades, having first become interested in the subject while writing her dissertation on the red shrouds of Roman portrait mummies. She came across the bowl while studying the symbolic use of color and immediately recognized its potential significance. "Although conservators have found evidence from as early as late Dynasty 1, Egyptologists have traditionally dated the use of Egyptian blue much later, to Dynasty 4 (2543-2436 BCE). I knew that if the blue pigment on the bowl could be confirmed as Egyptian blue, and be shown to have been applied to the bowl at the time of its manufacture, that this would definitively push back our dating of the technology to produce Egyptian blue to the dawn of pharaonic history."

Incised early hieroglyphs on the bowl are filled with a blue frit that was analyzed and confirmed to be Egyptian blue by the MFA's Scientific Research Laboratory under the direction of Richard Newman, Head of Scientific Research.

Not only was Corcoran able to identify the significance of the bowl because of the appearance on it of Egyptian blue, she was also able to date it 150 years earlier than it had been previously dated. The bowl had been attributed to King Scorpion, Dynasty 0, 3100 BCE, an early ruler who preceded King Narmer, the acknowledged unifier of Ancient Egypt. The hieroglyphs on the bowl, however, are more similar in form to those associated with earlier rulers (such as an earlier Scorpion) identified at Abydos by Günter Dreyer and those found in rock drawings discovered by John and Deborah Darnell at a remote desert site called Gebel Tjauti. Dreyer and Darnell date these signs to 3250 BCE. John Darnell, professor of Egyptology at Yale University, found the combination of the addition of these inscriptions to the corpus of early writing with the identification of Egyptian blue exciting.

"The fact that Corcoran has shown that Egyptian blue appears at the dawn of Dynasty 0 reveals that the period is even more profoundly important for the development of pharaonic culture than we may have suspected," said Darnell. "The same period saw the

development of true hieroglyphic writing, and now appears as a time of profound technological advancement. Pharaonic Egypt is not something that springs forth fully developed at the beginning of the First Dynasty, but it is the outcome of a period of great inventiveness in Upper Egypt more than a century earlier. Thanks to Corcoran, we now know that this inventiveness extended beyond the realms of writing, administration and ideology, and extended to great strides in chemistry and industry."

That such ancient technology has modern implications within nanotechnology has recently been noted by chemists who foresee a use for Egyptian blue for biomedical imagery and as an ingredient in security ink due to its luminescent quality.

Corcoran has worked closely in cooperation with conservators on earlier projects including the publication with Marie Svoboda, associate conservator at the J. Paul Getty Museum, of Herakleides, the only mummy in the Getty collection, and appreciates the value of interdisciplinary research. As a member of the international collaborative study project Ancient Panel Paintings: Examination, Analysis and Research (APPEAR), initiated by the J. Paul Getty Museum, Corcoran is also in communication with a former Getty conservator, Marc Walton, now senior scientist at Northwestern University/ Art Institute of Chicago Center for Scientific Studies in the Arts, whose interest in the color blue has led him to look for evidence of the material on Roman mummy portraits that date to the very end of Egyptian history.

"This new evidence of Egyptian blue pigment on an alabaster bowl from such an early date is remarkable from a materials point of view," said Walton. "I believe this finding now constitutes the earliest example of a man-made pigment. The date of the bowl coincides with the first appearance in Egypt of lapis lazuli that was thought to be the antecedent and inspiration for the creation of synthetic Egyptian blue pigment. Now we must rethink the nature and sequence of this invention and how early Egyptians conceived of the color blue."

Corcoran's in-depth article "The Color Blue as an Animator in Ancient Egyptian Art," will appear in Rachael B. Goldman ed., *Essays in Global Color History: Interpreting the Ancient Spectrum* (Gorgias Press, NJ, 2016). In it, she will discuss everything from the linguistic problems of the use of the color term for blue - which she calls "the most controversial color in the ancient Egyptian palette" - to the Egyptian preoccupation with its scintillating effects. One of the latest discoveries of Egyptian blue has been on the pupils of the eyes of a Greek sculpture in the British Museum that parallels the much earlier use of gold on the eyes of a cat in a New Kingdom wall painting in the British Museum. The use, Corcoran quipped, captures the animating phenomenon of "eyeshine," familiar to every pet owner.

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Please visit the site:

<http://www.memphis.edu/mediaroom/releases/2016/march16/egyptianblue.php>

UNEARTHING A MYSTERY FROM HISTORY

ASU bioarchaeologist co-leading study curating remains - including about 150 shackled skeletons - from Greek port, using science to understand their lives, deaths

Sometime between 2,800 and 2,500 years ago, just before the city-state of Athens was born, about 150 people in shackles were thrown into a burial pit in a Greek port city.

Were they prisoners of war? Criminals? Political prisoners? Slaves?

The pit was a necropolis - a cemetery, literally a city of the dead, used for centuries. Besides the manacled people tossed in heaps, facedown or tangled together, more than 400 infants and children were buried there in ceramic jars, obviously cared for and treated well, even in death. One person was buried in a wooden boat. Why were all these different people - 1,500 of them, both adored and scorned - buried in the same spot?

It's a mystery from history, and Jane Buikstra has embarked on a quest to solve it.

"I'm really very excited," said Buikstra, Regents' Professor of bioarchaeology at Arizona State University, and founding director of the Center for Bioarchaeological Research. "It's very special."

Buikstra is leading the project to study and curate the remains of the 1,500 people buried at the Athens port of Phaleron (also known as Phalerum).

"About 10 percent of the burials are unusual," she said. "They were buried shackled. There's a new feature which is getting a lot of press which I haven't seen but I've heard about. There were a number of individuals thrown into a pit with their arms over their heads, probably - possibly - crucified with their hands above their heads. They didn't crucify them on crosses. They crucified them on boards, where they'd hang people - whether they were prisoners or war captives, whatever - on boards and then place them out where they could be seen, such as a hill beside the site."

It was a message.

"Don't do this, whatever it was," Buikstra said.

The period is just before the formation of the polis, the city-state that became the basis of the Western world. Identifying who the people of Phaleron were, and how the city-state of Athens rose, are some of the many questions Buikstra and her crew hope to answer.

"There were a lot of strong personalities - not all of which were neighbors you'd like to live next to - who were vying for power at the time," Buikstra said. "It's exciting for me to learn about a period I didn't know all that much about. I've worked a lot in the Western Hemisphere. It's my first major project in the eastern Mediterranean, so it's exciting to learn about history and what's been written, to learn that we can put another face on this, that of people who are seldom represented terribly well in written history. History is written by elite people, and they typically have an agenda."

On Buikstra's agenda are some burning questions.

Why were beloved children and hated captives buried in the same place?

"That is a question, and we don't know why," she said. "The analyses will be able to tell us about diseases."

Press reports claim the interred were Greeks. Actually, no one knows who they were, or where they came from. Phaleron was a port; they very well may have been sailors or travelers from other countries.

"This port city will be a wonderful place to get a baseline for some of the diseases entering Europe," Buikstra said. "This was before the great plagues. We should be able, by looking at the chemical signatures and teeth, to talk about diet, but also origins. Were these people local to that region?"

Most intriguing, who were the shackled and crucified dead?

"We are very interested in knowing if these shackled folk appear to be political prisoners or local people from lower socioeconomic classes," she said. "The whole way in which the Greek armies and the political climate was changed about 2,000 years ago. You had a lot of tensions between the urban area in Athens and the farmers. That frequently played out in tensions between the groups."

Buikstra wants to create a site management plan for the Phaleron necropolis. Her main task will be to curate and inventory the 1,500 sets of remains before they are analyzed. She has never worked on a site involving that many people before.

"That is unusual," she said. "I'm sure we're going to prioritize the group with the shackles."

They're a long way from analyzing the skeletons to find out what they ate, how they died, and what their physical condition was. "My goal is to have the archaeological and osteological database online," Buikstra said.

Buikstra is co-leading the Phaleron Bioarchaeological Project with geoarchaeologist Panagiotis Karkanis, director of the Wiener Laboratory at the American School of Classical Studies at Athens. Their immediate goal for the skeletons showcases the crucial link between excavation of human skeletons and analysis: curation.

The biggest obstacle, besides parsing bones more than 20 centuries old for answers?

"There is no money for the conservation and the curation of the material," Buikstra said. "And of course for the study either. We are faced with the challenge and the opportunity of taking the material from the excavation - which is now stored in storage containers like you see on trains, but temperature- and humidity-controlled - into the Wiener lab for study."

Buikstra is considered the founder of the field of bioarchaeology. The field of study uses all the information about remains and their context, moving from an artifact- and object-

centered investigation to a people-focused study, looking at individual and community lives. Bioarchaeologists look at chemical signatures in soil and bones. To use an analogy that bioarchaeologists (and homicide detectives) hate, it's CSI for the ancient world. Were they malnourished? Did they have tuberculosis? Did they eat a lot of one particular type of food? And why? Before Buikstra, archaeology focused on stuff the dead guy was buried with. She shifted that focus onto the dead guy himself.

"There's been a long tension between the way in which classical archaeologists do historical archaeology and anthropological archaeology, which is what we do in the U.S. and is more scientific in its methodology and theoretical orientation," Buikstra said. "These two haven't always been best friends, shall we say. The time has come now in the 21st century where the two sides are coming together and the classical archaeologists are appreciating what learning about the soils can do, learning about the plant residues and so on, rather than just the architecture. Now we can learn about the people as well as the architecture."

The project has caught the imagination of Buikstra's students.

"I'm particularly excited because there are several students who are interested in it," she said. "I always learn from my students."

The American School of Classical Studies at Athens said the scope and range of the burials are of unparalleled importance for the study of ancient Athens and its port of Phaleron in the Archaic Period.

"The potential that these burials provide for increasing our understanding of ancient Greek society is significant," the school said in a press release. "Questions concerning ancient diet and disease, as well as social and political processes - such as the death penalty, political reforms and legislation - can potentially be answered. These answers could then lead to comparative studies that would eventually have global impact."

Buikstra couldn't be happier.

"I hadn't expected to take on a new project at this stage in my career, but this is so enticing," she said. "Here we go."

Please visit the site: <https://asunow.asu.edu/20160426-discoveries-asu-bioarchaeologist-greece-grave-project> [Go there for pix]

FROM TABLET TO SCROLL: HOW WAS THE BIBLE WRITTEN? BY PHILIPPE BOHSTROM

Many scholars believe the Jewish holy text was completed by the end of the fifth century B.C.E., but almost no manuscripts from the period survive

The oldest Hebrew manuscripts that have been found so far are the Dead Sea Scrolls, some of which date back to the second and third centuries B.C.E., well into the Second Temple period. A few earlier inscriptions, mainly on stone and pottery shards, have been preserved, but no extensive manuscripts have survived.

Yet many scholars are convinced that at least parts of the Bible had already been written down by the eighth or seventh century B.C.E. — or even earlier, depending on whom you ask.

So how was the Jewish holy text first put in writing? What material was used and how did the text itself survive through the centuries to reach us?

The material upon which books were copied at the time, mainly papyrus and leather parchment, is perishable and particularly sensitive to the humid climate in the Jerusalem area. That any fragments of biblical manuscripts from antiquity have survived is quite remarkable when you think of what happened to the writings of other civilizations.

Lost papyri of the ancient world

In the second millennium B.C.E., the Phoenicians occupied a thin strip of land along the Mediterranean coast, stretching north and south of modern-day Lebanon. As these sea traders traveled west and established settlements along the coast of Africa, Sicily, Sardinia, and southern Spain, they spread their alphabet across the Mediterranean, planting the seeds of literacy in the whole region. They also profited from an extensive papyrus trade with Egypt and the Greek world. Although the Phoenicians are believed to have had a rich literary tradition, they mostly used highly perishable papyrus for their texts, which have not survived.

Most of our knowledge of the Egyptians comes from the hieroglyphs they carved on temples and tombs rather than from papyrus. Egyptologist Kenneth Kitchen has estimated that 99 percent of the papyri dating from 3000 B.C.E. through the fourth century B.C.E. have been lost.

In the Greco-Roman world, Roman soldiers were paid three times a year and were given pay slips written on papyrus. Out of the 225 million receipts that were handed out between the reigns of Augustus and Diocletian (27 B.C.E. to 305 C.E.), only two are known to have survived.

A more solid record

Ancient civilizations preserved knowledge in many other ways, writing on ostraca (pottery shards), stones, clay or wooden tablets. The Assyrians, and later the

Babylonians, wrote their history on clay tablets, thousands of which have been found throughout Mesopotamia.

Smooth clay was made into a tablet and then imprinted with a stylus while still wet to form wedge-shaped (cuneiform) characters.

During the first millennium B.C.E., cuneiform existed side by side with alphabetic writing, but the Assyrians and Babylonians eventually abandoned it in favor of alphabetic script.

The iPad of antiquity

Another material widely used in antiquity was the wax tablet, a wooden panel with a recess filled with beeswax on which notes could be taken with a stylus. During excavations of a fourteenth-century-B.C.E. shipwreck at Uluburun, off the southern coast of Turkey, marine archaeologists found a small, hinged wax writing board — possibly the oldest notebook ever found.

There were distinct advantages to choosing waxed writing boards over clay tablets: They were lighter, less fragile, easily updated and reusable. These boards were indeed the notebooks of ancient times.

In the Greco-Roman world, wax tablets were common. Decorations on Greek pottery dating to the fifth century B.C.E. and paintings from Pompeii illustrate how wooden tablets were used in the educational system and everyday life.

All these methods would have been available to the early Israelite scribes of the Bible.

“The majority of writing would have been done on papyrus, leather and wax-coated wooden tablets. The recovery of numerous clay bullae, which once sealed the papyri, attests to their existence,” says Allan Millard, professor of Hebrew and ancient Semitic languages at Liverpool University.

Millard is convinced that writing was widespread across the kingdoms of Israel and Judah in the eighth and seventh centuries B.C.E. He argues that the number of sites, the quantity of ephemeral texts and the multitude of seals and impressions bearing owners’ names should dispel any notion that writing was rare. If scribes were employed for legal and administrative duties such as making lists, setting out legal deals and writing letters, he believes it is reasonable to expect some to have spent time writing other texts, as in Mesopotamia and Egypt.

Compositions among Hebrew ostraca and graffiti prove they could do so. One ostrakon found in the desert outpost of Arad bears part of a literary text and another from the fort at Hovrat Uza is of prophetic nature. There are lines of a prophetic verse painted on wall plaster at Kuntillet Ajrud in the Sinai from the early eighth century B.C.E.

Millard contends that some parts of the Bible could date as far back as the 13th century B.C.E.

While many scholars take a much more conservative approach, most believe that by the time of the Neo-Assyrian and Babylonian period (the eighth to sixth centuries B.C.E.), large parts of the Hebrew Bible had already been written down.

The prophet Isaiah mentions that he was a contemporary of the eighth-century Assyrian king Sargon II (Isaiah 20:1-2), and recent studies of letters from the Kingdom of Judah show that literacy was widespread across that kingdom's social classes by the seventh century B.C.E.

The Bible on tablet

Some scholars believe that the prophets and scribes used wooden tablets as instant notebooks, and only later copied the text onto papyrus scrolls.

This was standard practice for Babylonian and Assyrian officials, who wrote down oracles that they heard for their masters.

Isaiah 30:8 indicates that a similar practice was employed by the scribes and prophets in Judah (“Now come, write it upon a tablet with them, and inscribe it even in a book...”) as well as Habakkuk: “Write down the vision and set it out plainly on tablets.” These texts seem to describe the way scribes worked in ancient Judah. First they wrote down information from dictation onto wooden tablets, and then carefully copied the text onto a scroll.

The Biblical texts were then copied through the centuries by groups of scribes, from the Sopherim, who were active in the time of Ezra (fifth century B.C.E.), to the Masorettes, the scholars who established the authoritative standard text of the Hebrew Bible in the early Middle Ages.

It is thanks to the work of these scribes that the Biblical text has reached us, along with some 6,000 handwritten copies of the manuscript from various eras.

Please visit the site: <http://www.haaretz.com/jewish/archaeology/.premium-1.716368>

RELICS OF ANCIENT SIX-MILLENNIA-OLD VILLAGE UNCOVERED

Archaeologists in western province of Kurdistan have uncovered remains of a village, probably settled during sixth millennia BC, several miles from Sanandaj.

Cultural Heritage Organization Research House public relations office told Mehr News correspondent that Mr. Amir Saed Moucheshi, the head of expedition and his team members had carried out investigations in Sarcham historical site during which they found the relics of a settled village belonging to aneolithic age.

"The exploration uncovered pottery, stone appliances, animal bones, and remains architectural structures in the site; the earthenware bears crimson paintings and embossed shapes and other basic geometric designs, and possibly belong to Dalma ceramic tradition and a few others to She-Gabi Tepe pottery design," Moucheshi had said.

According to the head of expedition, before the exploration, settled regions in Uraman of Mesolithic and aneolithic periods; "this is the oldest village uncovered in the region; explorations would provide valuable information as to the lifestyle, cultural traditions, and modes of communication of ancient people of the region; the site also reveals remains of settlement during iron age belonging to 3,000 ago, which indicates that the region had been settled as old as that time," he detailed.

"The present exploration is part of grander scale of archeological excavations led by Dr. Fereidoun Beiglari in the Valley of Sirvan River; during a year of explorations, different sites belonging to Paleolithic, aneolithic, Iron Age, and Islamic period have been uncovered," he told Mehr News correspondent.

Please visit the site: <http://en.mehrnews.com/news/115674/Relics-of-ancient-six-millennia-old-village-uncovered>

ETRUSCAN STONE COULD HELP UNRAVEL ENIGMA OF ONE OF ITALY'S FIRST CIVILIZATIONS, BY ISLA BINNIE

A rare inscription found on a stone unearthed near Florence is exciting archaeologists who say it may help reveal the secrets of the Etruscans, one of Italy's earliest and most enigmatic civilizations.

The Etruscans flourished in central Italy 2,500 years ago but their culture and language were assimilated into the Roman empire. They left behind lavish tombs, pottery and statues but tantalizingly few written documents and patchy evidence of their daily lives.

Etruscans usually wrote longer texts on perishable linen or wax, so archaeologists excavating in Tuscany's Mugello Valley were delighted when they found a 200-kilogram sandstone slab, inscribed with more than 100 characters, in the foundations of a buried temple.

The stone has been painstakingly cleaned and, although the inscription is yet to be formally deciphered, experts are starting to understand its full significance.

"It's an Etruscologist's dream to find something like this," said Gregory Warden, an archaeology professor whose team had been excavating for 20 years before the find. It seems to be "a sacred text that may reveal to us parts of the belief system of the Etruscans".

The stone could yield a new perspective because it was found in a religious sanctuary rather than one of the burial sites from which archaeologists have gathered most of their understanding of Etruscan life.

It lay flat in the temple's foundations but appears to have stood upright previously, leaving unanswered questions about its original function.

A careful cleanup, applying paper pulp and distilled water, seems to have already revealed the names of the two most important gods in the Etruscan pantheon: Tina and Uni, equivalent to the Roman Jupiter and Juno or Greek Zeus and Hera.

It would be "just wonderfully exciting" if the presence of the names is confirmed, Warden said, adding, "I don't know anything like that anywhere."

Unlike many ancient relics which are found out of context, having been illegally dug up or moved from Italy's archaeological sites, the researchers hope the stone can document local history in the tract of land between modern Fiesole and Bologna, once major Etruscan cities.

"Acquiring new knowledge and an asset for the area is as good as it gets for us, for the state," said Susanna Sarti, an official at the regional archaeological authority.

"When you tell a story about a little-known territory, you illustrate something new about the society."

Please visit the site: <http://www.reuters.com/article/us-italy-art-etruscan-idUSKCN0XM0VC>

2,400 YEAR-OLD MOSAIC FOUND IN SOUTHERN TURKEY SAYS ‘BE CHEERFUL, ENJOY YOUR LIFE’

A 2,400 year-old mosaic discovered during excavations in Turkey's southern Hatay province, showing a skeleton lying down with a jorum in his hand and a wine pitcher and bread on the side could be one of its kind, Turkish researchers have said.

The mosaic, which is reportedly from the 3rd century BCE, was first discovered in 2012, when municipality was carrying out work to build a cable car in Antakya and found ancient remains.

Excavations were then launched to search the area for more remains.

2,400 year-old mosaic found in southern Turkey says ‘be cheerful, enjoy your life’

According to archeologist Demet Kara at Hatay Archeology Museum, the mosaic is a part of ancient Greek-Roman city of Antioch and has an Ancient Greek inscription saying 'Be cheerful, enjoy your life.'

Kara further noted that professors have referred to the mosaic as the 'skeleton mosaic' and have concluded that the mosaic belonged to the dining room of a house belonging to the upper class back then.

She noted that there is a similar mosaic in Italy, but this one is more comprehensive, making it a unique piece.

The ancient city of Antioch was established by Seleucus I Nicator -who is one of Alexander the Great's generals- in the 4th century BCE. It is known to be the first place where the followers of Jesus were referred to as Christians.

Hatay is known for its Roman-era mosaics dating back to the second and third centuries BCE.

Please visit the site: <http://www.dailysabah.com/nation/2016/04/22/2400-year-old-mosaic-found-in-southern-turkey-says-be-cheerful-enjoy-your-life>
