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(Ένωση Ελλήνων Χημικών)

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Scientific Association, Year
of Establishment 1982,
Headquarters: Kaniggos 27,
106 82 Athens (Association
of Greek Chemists)

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Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Ιανουάριος 2015 -

Εκείνος που θέλει να ταρακουνήσει τον κόσμο ας
ταρακουνήσει τον εαυτό του.
(Σωκράτης)

Newsletter of the Hellenic Society of Archaeometry

- January 2015 -

Nr. 166

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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

FOURTH INTERNATIONAL OPEN WORKSHOP OF THE GRADUATE SCHOOL “HUMAN DEVELOPMENT IN LANDSCAPES”, KIEL UNIVERSITY, GERMANY: “SOCIO- ENVIRONMENTAL DYNAMICS OVER THE LAST 12,000 YEARS: THE CREATION OF LANDSCAPES IV”, 24-27TH OF MARCH 2015

Dear colleagues,

I'm pleased to announce the fourth International Open Workshop of the Graduate School “Human Development in Landscapes” at Kiel University, Germany: “Socio-environmental dynamics over the last 12,000 years: the creation of Landscapes IV” that will take place in Kiel the 24-27th of March 2015.

Further details are available at the website: <http://www.workshop-gshdl.uni-kiel.de>.

Among the 18 proposed sessions, I would like to draw your attention to the call for abstract for the session "Method development to reveal past plant-people interactions" organized with other colleagues from Kiel Welmoed Out, Marta Dal Corso, Marco Zanon and Wiebke Kirleis.

The deadline for abstracts submission is 15.01.2015.

The Graduate School “Human Development in Landscapes” offers two travel grants per session to students. The grant application should be send together with the abstract.

Looking forward to meeting you in Kiel!

Daniela

Daniela Moser M.A.

PhD Student

Graduate School "Human Development in Landscapes"

Institute for Ecosystem Research, Palaeoecology Christian-Albrechts-Universität zu Kiel,
Olshausenstraße, 75 - 24098 Kiel (DE) Tel. +49 431 8801199 <http://www.uni-kiel.de/landscapes/>

<http://www.ecosystems.uni-kiel.de/index.shtml>

UNDERWATER 3D RECORDING & MODELING, 16-17 APRIL 2015, PIANO DI SORRENTO (NAPLES), ITALY

Dear colleagues and friends,

water covers about 71% of our planet's surface and since remote time human activities have been relying to it. Many traces of these activities exist under the "zero level" therefore they need to be explored, documented and preserved. Measuring, mapping and positioning objects in underwater scenarios is a complex task with some unsolved problems. “

The **ISPRS / CIPA workshop on UNDERWATER 3D RECORDING AND MODELING** aims at bringing together scientists, developers, companies and users in underwater 3D recording and related disciplines. The workshop will represent a meeting platform for various disciplines like Cultural Heritage, environmental monitoring, 3D surveying and modeling, biology, reverse engineering and industrial metrology. The event will feature 2-days of oral presentations and posters with an exhibition of underwater-related companies.

The **key topics** of the event include but are not limited to:

- underwater photogrammetry
- underwater platforms (ROV, robots, etc.)
- 3D bathymetry
- active and passive sensor integration and characterization
- data processing and 3D modelling
- underwater archaeology and heritage
- marine biology

The event will feature three excellent **invited speakers**:

- Pierre Drap (<http://www.lsis.org/cipa-uwpl/>)
- Mark Shortis (<http://www.rmit.edu.au/staff/mark-shortis>)
- Guido Gay (<http://www.gaymarine.it/gaymarine.htm>)

Important dates

- JANUARY 15th, 2015: Abstract submission (max 1000 words, possibly with figures)
- JANUARY 30th, 2015: Notification to authors
- MARCH 15th, 2015: Final paper submission (ISPRS format, max 8 pages)

The submitted articles will be published in the ISPRS Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences (<http://www.isprs.org/publications/archives.aspx>).

Registration fee

- EARLY (before January 30th, 2015): 180 Eur
- LATE (before April 9th, 2015): 210 Eur
- ON-SITE: 250 Eur

The fee includes the participation to the event, proceedings, coffee breaks, lunches and the social dinner

Venue

The ISPRS / CIPA workshop will take place in Villa Fondi De Sangro, an historical villa in Piano di Sorrento (Naples, Italy). It can be easily reached by train from Naples (Italy) and it's located in the Sorrentine Peninsula. Close to the venue there are many hotels for accommodations with prices ranging from 40 to 75 Eur.

Looking forward meeting you in Piano di Sorrento in April 2015!

On behalf of the workshop committee,

Fabio Menna

Please visit the site: <http://3dom.fbk.eu/files/underwater/index.html>

CALLS FOR PAPERS: OBSIDIAN CONFERENCE (LIPARI, SUMMER 2016)

Scholars from the USA, Italy, Russia, and Japan are working to organize the International Conference on various aspects of obsidian studies (archaeology, anthropology, geology, geochemistry, archaeometry, etc.) worldwide, in summer 2016 (presumably June) on the Mediterranean island of Lipari (Italy), at the Regional Aeolian Archeological Museum "Luigi Bernabò Brea".

It would be the first meeting of this kind since the 2004 Obsidian Summit in Tokyo (Japan).

Your interest & participation are very welcome!

Please contact us about details and updates by email:

Robert Tykot (rtykot@usf.edu)

Yaroslav Kuzmin (kuzmin@fulbrightmail.org)

Akira Ono (onoak@meiji.ac.jp)

Michael Glascock (glascockm@missouri.edu)

Please visit the site: http://members.peak.org/~obsidian/iaos_bulletin_51.pdf

EMAC 2015 - 13TH EUROPEAN MEETING ON ANCIENT CERAMICS, 24-26 SEPTEMBER 2015, ATHENS, GREECE, 1ST ANNOUNCEMENT

The 13th European Meeting on Ancient Ceramics will be co-organised by:
Laboratory of Archaeological Materials, N.C.S.R. “Demokritos”
Fitch Laboratory, British School at Athens

The European Meeting on Ancient Ceramics is a biennial conference convening scholars and young researchers with diverse academic backgrounds both from humanities and science.

Scope of the meeting is to promote interdisciplinary and integrated studies of ancient ceramics covering various aspects from the production over the dissemination and use up to post-depositional alteration and conservation. Methodological developments, new approaches and scientific progress are presented in terms of analytical and measuring techniques, data processing and interpretation.

The main topics, but not exclusive, are:

- Methodological developments
- Dating of ceramics
- Production, dissemination and consumption
- Slips and glazes
- Technical ceramics
- Ceramics as building materials
- Vessel function and vessel use
- Raw material studies
- Pottery kilns
- Alteration and conservation

The conference will be held at the auditorium of the **New Acropolis Museum**, which is situated in the ancient centre of **Athens**. Arrangements for accommodation in hotels or at the foreign archaeological institutes in Athens will be announced very soon, in next circular.

Participants are invited to submit abstracts for oral presentations as well as for poster presentations until **13th of February 2015** via the conference webpage. Language of the conference will be exclusively English. The submitted abstracts will be reviewed by the Scientific Committee, which also will decide eventually about the form of presentation.

Notification of acceptance or rejection of abstracts will be made by 10th of April 2015.

For further information, please visit the EMAC2015 website (www.emac2015.gr), which will be updated regularly, or contact us by e-mail: info@emac2015.gr.

The Organization committee:

Vassilis Kilikoglou, Vangelio Kiriati, Anno Hein, Ioannis Karatasios, Noemi Müller,
John Gait

INTRODUCTION TO CERAMIC PETROLOGY **COURSE, MAY 2015, FITCH LABORATORY,** **BRITISH SCHOOL AT ATHENS**

In May 2015, the Fitch Laboratory will hold a two-week postgraduate training course providing an introduction to ceramic petrology, building upon the Laboratory's established reputation on ceramic petrology applications and its extensive reference collections of geological and ceramic thin sections.

The course is open mainly to people with no (or limited) previous experience on petrology although familiarity with archaeological ceramics will be useful. It is an excellent introduction for students already on a research degree in archaeological materials, as well as for postdoctoral researchers and academics interested in being familiar with ceramic petrology applications. Although the focus is primarily with ceramic materials, the skills learnt are applicable to the study of lithics, building materials, pigments and soils.

The course comprises daily lectures and practical classes introducing to optical polarizing light microscopy, the identification of main rock-forming minerals, the classification of rock types, the use and interpretation of geological maps and, subsequently, the analysis of ceramic thin sections to reconstruct provenance and technology. The participants are also introduced to the principles of chemical analysis of ceramics (with a critical review of the most commonly used techniques involving both desktop and portable equipment) and the combined use of chemical and petrographic data. Moreover a demonstration is held on the preparation of thin sections as well as of samples for chemical analysis. Furthermore, a field class to Aegina, including a visit to a traditional pottery workshop, provides practical experience on prospection for pottery raw materials and sampling, as well as contemporary potting practices. Towards the end, each participant has the opportunity to undertake a case study project. In total, the course includes 20 hours of lectures, 28 hours of laboratory practicals, 11 additional contact hours for project accomplishment, plus a day-fieldtrip.

A course manual and a fieldtrip guide are provided for participants covering all aspects of the course and further reading, and a certificate of attendance is issued for each participant upon course completion. The course coordinators and instructors are Dr **Evangelia Kiriatzi** (Director, Fitch Laboratory) and Dr **Ruth Siddall** (UCL) with contributions by Dr Noemi Müller (Scientific Research Officer, Fitch Laboratory), Dr John Gait (Williams Fellow in Ceramic Petrology, Fitch Laboratory) and Mr Michalis Sakalis (Technician, Fitch Laboratory).

Dates: 11 – 22 May 2015.

Course Fee: The course fee includes tuition, accommodation, fieldtrip expenses, all teaching materials, BSA membership for a month including 24 hour access to the superb library and entry to archaeological sites and museums, plus daily coffee and biscuits, packed lunch for the fieldtrip and a welcome and a farewell meal. The fee is £850 (for shared accommodation in double rooms) or £1000 (for single accommodation). Self-

catering accommodation (including breakfast) will be provided at the BSA Hostel, next to the Fitch Laboratory building.

(http://www.bsa.ac.uk/index.php?option=com_content&view=article&id=46&Itemid=146).

Travel to and from Athens is the sole responsibility of the course participant.

The course is limited to 12 places. Post-graduate students are recommended to apply to their universities for financial support; limited funding will be available (to cover part of the fees) for students who would otherwise be unable to attend and they should express their interest in such financial support in their application.

Applications forms can be downloaded from the BSA website. Applications should be submitted to the Fitch Laboratory administrator, Ms Zoe Zgouleta via e-mail (flsecretary@bsa.ac.uk).

Closing date: **30 January 2015**. References must also be received by then through e-mail: it is the applicant's responsibility to ensure that her/his reference is sent. The successful candidates will hear by the end of February 2015.

**UNDERSTANDING RELATIONS BETWEEN
SCRIPTS: THE AEGEAN WRITING SYSTEMS,
FACULTY OF CLASSICS, CAMBRIDGE,
FRIDAY 20TH – SATURDAY 21ST MARCH 2015**

An international symposium focused on analysing and elucidating the relationships between the linear Aegean writing systems of Greece and Cyprus (specifically Cretan ‘Hieroglyphic’, Linear A, Linear B, Cypro-Minoan and the later Cypriot Syllabary).

Confirmed speakers:

- Lisa Bendall
- Roeland Decorte
- Yves Duhoux
- Markus Egetmeyer
- Silvia Ferrara
- Anna Judson
- Torsten Meissner
- Jean-Pierre Olivier
- Philippa Steele
- Miguel Valério

A programme, paper titles, abstracts and further information will be made available nearer the time.

Organised by Dr Philippa M. Steele (pms45@cam.ac.uk)

Please visit the site: <http://www.cambridgeadventurer.net/urbs/>

EARLY REGISTRATION NOW OPEN - ISPRS / CIPA WORKSHOP "UNDERWATER 3D RECORDING AND MODELING"

REGISTER NOW at <http://www.eventbrite.com/e/underwater-3d-recording-and-modeling-tickets-14990348536>

***** ISPRS / CIPA Workshop
***** UNDERWATER 3D RECORDING & MODELING
***** 16-17 APRIL 2015
***** PIANO di SORRENTO (Naples), ITALY
***** <http://3dom.fbk.eu/files/underwater/index.html>

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On behalf of the workshop committee,

Fabio Menna

IRON AGE GOLD IN CELTIC EUROPE **CONFERENCE, TOULOUSE, FRANCE, 2015**

Dear colleagues,

we are glad to announce below the preliminary program and inscription details of the Iron Age Gold in Celtic Europe Conference to be held in Toulouse (France) in 2015.

Best regards,

Barbara Armbruster

International Conference / Colloque International
Iron Age gold in Celtic Europe – society, technology and archaeometry
L'or de l'âge du Fer en Europe celtique – société, technologie et archéométrie.

PRELIMINARY PROGRAM / PROGRAMME PRÉLIMINAIRE

Université de Toulouse - Jean Jaurès

11th-14th March 2015 / 11 au 14 mars 2015

Wednesday/Mercredi 11

19 h : Inauguration conference / conférence inaugurale au Museum d'Histoires Naturelles de Toulouse

« L'or de Tolosa et les torques gaulois » par B. Armbruster et P.-Y. Milcent

Tuesday/Jeudi 12

F.-X. Fauvelle, Directeur du laboratoire TRACES

Welcome / mots de bienvenue et d'introduction aux journées

B. Armbruster, E. Pernicka

Introduction / introduction

The West Hallstatt Gold project - results of an interdisciplinary project

T. Hoppe, L. Olivier

Early Celtic gold - a retrospective look at research history.

E. Dubreucq, T. Hoppe, P.-Y. Milcent, B. Schorer

Iron Age gold work in time and space.

E. Dubreucq

The fine metal worker of the early Iron Age.

B. Armbruster

Rotary motion in Iron Age gold work-annular ornaments and the decoration.

B. Schorer, V. Leusch

New insights into Hallstatt gold: Technological aspects and material analyses by XRF and LA-ICP-MS—examples for embossing, soldering and gilding techniques and indications of workshops from south-west Germany.

B. Armbruster, M. Blet-Lemarquand, E. Dubreucq, B. Gratuze, P.-Y. Milcent

Case studies of West Hallstatt Gold from France: typological, analytical and technological insights.

M. Blet-Lemarquand, B. Gratuze, V. Leusch, R. Schwab, B. Schorer, B. Armbruster

The characterisation of the solders (observation, elemental analyses).

T. Hoppe

New insights into Hallstatt gold: Culture historical aspects and perspectives.

**Friday/Vendredi 13 and/et Saturday/samedi 14 (morning/matin)
Archaeological, technological, analytical aspects on Iron Age gold**

E. Pernicka

Gold – general characteristics, deposits and provenance studies.

B. Cauuet

Ressources et exploitations de l'or dans l'Europe protohistorique.

A. Kern

A rich and extraordinary cemetery in Hallstatt, but 'rare' gold in the graves.

D. Krausse, N. Ebinger-Rist

The gold of the Celtic princess.

S. Plouin

Synthèse sur les parures hallstattiennes en or d'Alsace et étude de deux types particuliers : le bracelet d'Ensisheim et les épingles à tête en or de Nordhouse.

S. Stöllner, H. Wendling, M. Jansen, D. Böckmann

Gold from the Iron Age Mining Centre at the Dürrnberg near Hallein: A technical, archaeological and compositional study.

M. Guggisberg

Gold as a medium of cultural exchange: Early La Tène art and the iconography of the Mediterranean world.

K. Becker

From Riches to Rags? The lack of Early Iron Age gold in Ireland?

F. Hunter

The Blair Drummond gold torc hoard: regional styles and international connections in the later Iron Age.

B. Clarke

Unlocking the secrets of the ribbon torc.

S. La Niece

Iron Age Gold in Britain.

J. Joy

The Snettisham gold hoards in context.

N. Meeks, D. Hook, C. Cartwright, A. Mongiatti

The Iron Age Snettisham Treasure: metalworking and analysis.

G. Kaenel

L'or dans les sépultures de l'âge du Fer sur le Plateau suisse : un état des lieux.

M. Bingeli

Manufacturing techniques and replica of Swiss precious metal finds.

E. Warmembol

L'or des Belges :

Découvertes anciennes et récentes d'or celtique en Belgique et dans le Sud des Pays-Bas.

A. Perea

Contacts and transitions. Iron age gold in the eastern Iberian peninsula.

R. Vilaça, B. Armbruster, A. Perea

S'habiller pour briller. Le dépôt de disques en or du premier âge du Fer trouvés à Fortios, Portugal.

V. Correia

An Iron Age gold workshop in South-West Iberia? Reflections on Vaiamonte and ox-head shaped ear-rings.

L. Armada, O. Garcia-Vuelta

Iron Age gold in NW Iberia: new finds, archaeometry and social meaning.

A. Pacini, E. Formigli

The Villanovan fibulae in bronze, gold, bone and amber - project and technology.

Posters

Conclusions et discussions

Coordinateurs : B. Armbruster (CNRS-UMR TRACES), E. Dubreucq (CNRS-UMR TRACES), P.-Y. Milcent (UT2J-UMR TRACES)

Partenaires :

UMR 5608-TRACES (Toulouse), Musée d'Archéologie Nationale (Saint-Germain-en-Laye), UMR 5060-IRAMAT (Orléans), Service régional de l'Archéologie (Toulouse), Musée Saint Raymond (Toulouse), Eberhard Karl Universität (Tübingen), Curt-Engelhorn-Zentrum Archäometrie (Mannheim), Landesmuseum Württemberg (Stuttgart)

Comité scientifique :

B. Armbruster, E. Dubreucq, A. Gorgues, V. Guichard, B. Gratuze, P.-Y. Milcent, P. Moret, L. Olivier, E. Pernicka, M. Vaginay

PRACTICAL INFORMATION / INFORMATIONS PRATIQUES

Inscription fees / droits d'inscription

30 euros / 15 euros students / étudiants

Inscription for meals / pour repas possibles

(Thursday lunch, Thursday dinner, Friday lunch / jeudi midi, vendredi midi)

20 euros per meal / par repas

35 euros Congress Dinner / repas de gala (Friday evening / vendredi soir)

For inscription / pour s'inscrire

Follow the link / Suivez le lien

<http://w3.colloquescprs.univ-tlse2.fr/spip.php?rubrique78&lang=fr>

Accommodation / Hébergement

<http://www.toulouse-tourisme.com/Preparer-son-sejour/Ou-dormir>

<http://www.booking.com/city/fr/toulouse.fr>.

PD Dr. Barbara Armbruster
Directrice de recherche au CNRS
Archéométaballurgie

Laboratoire d'archéologie TRACES - UMR 5608 du CNRS
Maison de la Recherche
Université de Toulouse le Mirail
5, allées Antonio-Machado
F - 31058 Toulouse Cedex
secrétariat : 0033 5 61 50 44 04
ligne directe : 0033 5 61 50 25 71

barbara.armbruster@univ-tlse2.fr

<http://traces.univ-tlse2.fr>

ΝΕΟΛΙΘΙΚΟΣ ΟΙΚΙΣΜΟΣ ΑΥΓΗΣ,
ΣΥΝΑΝΤΗΣΗ ΕΡΓΑΣΙΑΣ ΤΩΝ ΕΡΕΥΝΗΤΩΝ
ΤΗΣ ΕΠΙΣΤΗΜΟΝΙΚΗΣ ΟΜΑΔΑΣ ΤΟΥ
ΠΡΟΓΡΑΜΜΑΤΟΣ, ΣΑΒΒΑΤΟ 31.1.2015,
9.30-17.00, ΑΡΧΑΙΟΛΟΓΙΚΟ ΜΟΥΣΕΙΟ
ΘΕΣΣΑΛΟΝΙΚΗΣ, ΑΙΘΟΥΣΑ ‘ΜΑΝΟΛΗΣ
ΑΝΔΡΟΝΙΚΟΣ’

ΠΡΟΓΡΑΜΜΑ

09:30 – 09:40 *Προσέλευση*

I. ΤΟ ΕΡΕΥΝΗΤΙΚΟ ΠΡΟΓΡΑΜΜΑ ΝΕΟΛΙΘΙΚΟΥ ΟΙΚΙΣΜΟΥ ΑΥΓΗΣ

Γεωργία Στρατούλη (20')

Η αρχαιολογική έρευνα και η κοινωνικοποίησή της στο Νεολιθικό Οικισμό Αυγής

Η Νεολιθική Κοινότητα της Αυγής στο χρόνο και το χώρο

Γεωργία Στρατούλη, Στέλλα Κυριλλίδου, Τάσος Μπεκιάρης (15')

Στρωματογραφία & Οικιστικές Φάσεις

Γεωργία Στρατούλη, Δημήτρης Κλουκίνας (15')

Στοιχεία αρχιτεκτονικής και χωρο-οργάνωσης

Η νεολιθική ζωή σε μικροκλίμακα

Στέλλα Κυριλλίδου (10')

Μικρομορφολογία οικιστικών επιχώσεων

Γεωργία Κορομηλά (10')

Μικρομορφολογία ανοιχτών χώρων

Στοιχεία του δομημένου χώρου

Δημήτρης Κλουκίνας (10')

Οικοδομική τεχνολογία

Εβίτα Καλογηροπούλου (10')

Κατασκευές φωτιάς

11:30 – 11:45 ΣΥΖΗΤΗΣΗ

11:45 – 12:00 *Διάλειμμα*

Το νεολιθικό τοπίο της Αυγής και η διαχείρισή του: εδάφη & πρώτες ύλες

Νάνσυ Κραχτοπούλου (10')

Γεωαρχαιολογία τοπίου στο Νεολιθικό Οικισμό Αυγής

Χρήστος Στεργίου, Στέλλα Θεοδωρίδου (10')

Πρώτες ύλες λίθινων τεχνέργων

Γιάννης Παπαδιάς, Νίκη Σαριδάκη (10')

Πετρογραφία κεραμικής

Το νεολιθικό τοπίο της Αυγής και η διαχείρισή του: φυτά & ζώα

Μαρία Ντίνου (10')

Ανθρακολογία

Εύη Μαργαρίτη (10')

Αρχαιοβοτανολογία

Βάσω Τζελεβεκίδη (10')

Ζωαρχαιολογία

Κατερίνα Παπαγιάννη (10')

Μικροπανίδα

Τατιάνα Θεοδωροπούλου (10')

Ιχθυοπανίδα

Αναγνώσεις του υλικού πολιτισμού

Niels H. Andreasen (10')

Απολεπισμένα λίθινα εργαλεία

Τάσος Μπεκιάρης (10')

Τριπτά αντικείμενα

Νίκος Κατσικαρίδης (10')

Κεραμική

Οδυσσέας Μεταξάς (10')

Πήλινα αντικείμενα

14:15 – 15:00 ΣΥΖΗΤΗΣΗ & ΣΥΝΘΕΣΗ

15:00 – 15:30 Διάλειμμα

II. Η ΔΗΜΟΣΙΕΥΣΗ ΤΗΣ ΕΡΕΥΝΑΣ 2002 – 2015

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

**UNIVERSITY OF GLASGOW LORD
KELVIN/ADAM SMITH PHD SCHOLARSHIP
COMPETITION 2015/16: CONSUMING
IDENTITIES IN THE ‘CRADLE OF
CIVILISATIONS’ – FOOD CONSUMPTION
AND THE EMERGENCE OF SOCIAL
COMPLEXITY IN GREATER MESOPOTAMIA**

Supervisors: Dr Claudia Glatz (Archaeology/School of Humanities) and Dr. Jaime Toney (School of Geographical and Earth Sciences)

This project will shed new light onto practices of food consumption and identity in the proverbial ‘Cradle of Civilizations’ by investigating the role of specific organic substances in the (re-)production and negotiation of social status and cultural identities at a time when the world’s first urban societies developed in greater Mesopotamia. Drawing on recent anthropological and archaeological theories of emergent social complexity and the role of food consumption in these processes, the proposed project will examine questions of diet and food habits using a tightly integrated framework of historical, iconographic and archaeological contextual analysis in conjunction with methods derived from organic geochemistry to isolate and identify the residues of perishable substances on pottery and lithic tools.

Of particular interest will be substances generally associated with socially significant consumption events such as wine and beer, whose preference may indicate social and cultural differences in consumption practices in the study region. Secondary products of livestock-rearing such as milk, yoghurt and cheese, will be investigated to provide insights into the relationships of settled farmers and more mobile pastoral groups and their connections with the highland regions of the Zagros. The question of the local production or importation of such substances will also be addressed. The focus region of the project comprises the south Mesopotamian plains and the Zagros piedmonts of modern-day Iraq from the fifth to the second millennium BC.

Candidates interested in being considered for funded PhD study on this project are encouraged to make informal contact with the Lead Supervisor (claudia.glatz@glasgow.ac.uk) in the first instance.

Further information, including details of how to apply, can be found on the Postgraduate Research web pages:

<http://www.gla.ac.uk/services/postgraduateresearch/scholarships/kelvinsmith/shortlistedscholarshipprojects/>

The closing date for receipt of applications is Friday, 23 January 2015. Applications should be emailed to Adeline Callander (adeline.callander@glasgow.ac.uk).

JOINT WEALDEN IRON RESEARCH GROUP **- UNIVERSITY OF EXETER PHD** **STUDENTSHIP**

In collaboration with the University of Exeter's Archaeology Department, the Wealden Iron Research Group (WIRG) is seeking to establish a UK/EU PhD studentship to work primarily with their data but including all available sources to address a broad subject area.

The Organisation of Iron Production: the Weald in Pre-Roman and Roman times

The studentship is fully funded and full details, including time table for applications, can be seen on the University of Exeter website:

<http://www.exeter.ac.uk/studying/funding/award/?id=1656>

Jeremy Hodgkinson
Wealden Iron Research Group
www.wealdeniron.org.uk

PHD POSITIONS IN THE HUMANITIES, **NETHERLANDS ORGANISATION OF** **SCIENTIFIC RESEARCH**

Job description

The Netherlands Organisation for Scientific Research offers 15 positions to MA graduates in different disciplines within the Humanities, including Archaeology. Candidates are expected to complete a PhD thesis within a four-year period. Candidates and their proposals will be judged on:

- overall performance and final grades received so far (for their Bachelor and Master)
- prizes and distinctions
- individual research qualities of the candidate
- international experience
- research and field work experience
- originality of the research proposal
- awareness of theoretical issues
- quality of the proposed methodology incl. sources
- access to archaeological material to be studied (if relevant)
- prospects of completion within 4 years.

Qualifications

- MA degree in Archaeology, or a related discipline (final grade: Excellent, or *Very Good*)
- strong motivation to complete a PhD thesis in four years
- proven affinity with chosen subject
- proven research abilities
- fluency in written and spoken English (TOEFL 620, IELTS 7,5, Cambridge Advanced CAE)
- good interviewing skills

Conditions of employment

PhD candidates who choose to do their PhD in Groningen University will be affiliated with and enrolled in the research training program of the Graduate School for the Humanities. A staff-member of the Groningen Institute of Archaeology will be the principal supervisor ('promotor'). The position requires residence in Groningen, 36 hours/week research and research training, and must result in a PhD thesis. After the first year there will be an assessment of the candidate's results and the progress of the project to decide whether the employment will be continued.

Application procedure

Please note: It is not possible to apply to these positions directly, as proposals will first have to be selected by the different Research Institutes and Faculties.

Candidates are urged to approach Prof. S. Voutsaki, Professor of Greek Archaeology (s.voutsaki@rug.nl) and submit a research proposal (max. 2500 words) and recent curriculum vitae by 15 January 2015.

Preference will be given to topics related to a) the Bronze Age in the Greek mainland, mortuary studies and the study of ritual, the archaeology of houses and households, and b) the history of Greek prehistoric archaeology, the role of archaeology in contemporary society, public archaeology in Greece. However, other topics will be considered as well.

Starting date of the PhD project 1 September 2015.

Information

For more information please contact Prof. S. Voutsaki, s.voutsaki@rug.nl.



OPEN POSITION AT AMS FACILITY **TURKEY TÜBİTAK**

We are looking for an experienced radiocarbon sample preparation and/or AMS operations staff.

Full time or temporary positions(post doc, sabbatical, etc) available.

Please send your CV and contact to turhan.dogan@tubitak.gov.tr

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

POSTGRADUATE COURSE IN PREHISTORIC, GREEK AND ROMAN POTTERY: AN INTENSIVE PRIMER FOR THE STUDY OF POTTERY IN GREECE, 28TH MARCH - 10TH APRIL 2015

- [Application form](#)
- [Advert](#)

The course is primarily intended for postgraduate students wishing to acquire or strengthen vital archaeological skills, but applications from late stage undergraduates with a strong intention to continue their studies will also be considered. The course fee of £750 includes accommodation at the British School Study Centre at Knossos, 24-hour access to the library, and BSA membership. Students are recommended to apply to their universities for assistance with the fees. A very limited number of bursaries may be available from the BSA for those who would be otherwise unable to attend. Places are limited to 12 participants. For further information contact the Knossos Curator, Dr Matthew Haysom (knossoscurator@bsa.ac.uk).

Application forms can be downloaded from the British School website (www.bsa.ac.uk). Completed application forms and an academic reference letter should be emailed to the Knossos Curator by **31st January 2015** (knossoscurator@bsa.ac.uk).

Please visit the site:

http://www.bsa.ac.uk/index.php?option=com_content&view=article&id=147:pg-course-in-prehistoric-greek-and-roman-pottery&catid=14&Itemid=101

ITALY PRESERVATION FIELD SCHOOL – BUILDINGS, CERAMICS, PAPER, BOOKS AND ART

Dear Colleague,

We are now accepting applications for our summer 2015 field school, the **San Gemini Preservation Studies Program**, now in its 16th year, dedicated to the preservation of cultural heritage and offering students the opportunity to study and travel in Italy.

Session One (June 1 - 26)

Building Restoration* Revised program

- Restoration of Traditional Masonry Buildings in Italy
- Sketching and Analyzing Historic Buildings

Ceramics Restoration

- Introduction to Conservation of Archaeological Ceramics
- Workshop on Ceramics and Ceramics Conservation in Italy

Session Two (July 13 - August 7)

Book Bindings Restoration

- Introduction to the Restoration of Book Bindings in Italy
- Workshop on the Restoration of Book Bindings

Paper Restoration

- Introduction to Restoration of Paper in Books and Archival Documents
- Restoration Workshop – Paper in Books and Archival Documents

Traditional Painting Materials & Techniques

- Traditional Painting Methods and Techniques in Italy, including Issues of Weathering and Aging
- Painting Workshop – Traditional Painting Methods and Techniques in Italy

Preservation Theory and Practice in Italy

- Restoration in Italy – Issues and Theory

***Field Projects:**

- Restoration of the façade of the Church of San Carlo (13th Century)
- Analysis of medieval buildings in San Gemini as part of an urban study of the city

Inter-Session Programs (June 27 – July 10):

Restoration of Canvas Support of Paintings (June 29 – July 10)

- An expert workshop dealing with the restoration of canvasses: the structural support of oil paintings. The program includes theoretical classes and practical workshops.

Inter-session Field Trip – Italy (June 28 – July 7)

- A ten day trip visiting Siena, Florence and Rome: places of cultural interest, the urban and historical development of each town, and specialized visits to places of interest to restorers.

Inter-session Field Trip – Athens (check-in Saturday, June 27 - check-out Friday, July 10)

A twelve day visit of Athens: an exploration of the history of preservation and conservation issues facing the city lead by some of the top Athenian experts in their field.

To find out more about our program and review the syllabi, please visit our [WEBSITE](#).

Our courses are open to students from various disciplines, both undergraduate and graduate. All lessons are taught in English.

If you know any students, scholars, or others interested in this type of study, please inform them about our program. We would appreciate it if you could list our program on your organization's website as an available educational resource.

We have a 2015 flyer that you may wish to post on your department notice board or forward to interested parties. You can print this from our website, on our About Us page. Please let us know if you have any problem printing and we can email you the PDF.

Thank you very much.

Best wishes, Polly Withers
Associate Director, San Gemini Preservation Studies Program

FIELDWORK OPPORTUNITY IN BULGARIA: **ARCS ACCEPTS APPLICATIONS FOR ITS** **SUMMER PROGRAM IN ARCHAEOLOGY, 2015**

Dear Colleagues,

Please feel free to distribute this announcement for this fieldwork opportunity to your students. The program is organized by the American Research Center in Sofia (see details below).

Please address your questions to Dr. Emil Nankov at apo@arcsofia.org or ehn2@cornell.edu.

Best, regards,

Dr. Emil Nankov
Acting Academic Director and Archaeology Program Officer
American Research Center in Sofia
www.arcsofia.org
<http://arcsofia.academia.edu/EmilNankov>
75 Vasil Petleshkov Str.
Sofia 1510, Bulgaria
+359 2 947 9498
+359 879 209 892

The American Research Center in Sofia (www.arcsofia.org) is pleased to announce its first summer Archaeological Field School at Parthicopolis (Bulgaria) with excursions to archaeological sites in Bulgaria, Greece and Republic of Macedonia

Field School/Excavation Directors: Dr. Emil Nankov (ARCS), Vladimir Petkov (Archaeological Museum, Sandanski)

Duration: June 1 (arrival to Sofia) – June 29, 2015 (departure from Sofia)

Eligibility: advanced undergraduate and graduate students of American universities in the fields of Archaeology, Anthropology, Classical Studies, Ancient History and related studies

Program Fee: \$1500

Students will arrive in Sofia on June 1 and will spend two days exploring the archaeology and history of its Roman predecessor, Serdica. On June 2, the Team will begin an archaeological journey, visiting sites and museums in Sofia and in Plovdiv. We will arrive in the city of Sandanski on June 5, the home base of the ARCS excavations at

Parthicopolis. The excavation team will reside in a hotel in Sandanski during the 3-week excavation season. Archaeological work is conducted Monday-Friday with additional excursions to southwest Bulgaria, northern Greece and Republic of Macedonia on Saturdays. The Team will be accompanied back to Sofia on June 28, where they will stay one night, departing from Sofia on June 29.

Project Location:

The Roman and Late Antique Parthicopolis is located under the modern town of Sandanski, SW Bulgaria. All fieldwork will take place on the site. The project base will be located in the town of Sandanski, situated 160 km south of Sofia (Bulgaria), 150 km north of Thessaloniki (Greece) and 230 km northwest of Skopie (Republic of Macedonia).

Situated on the slopes of Pirin Mountain next to a tributary of Struma River (ancient Strymon), Parthicopolis took off as a Macedonian colony, called Alexandropolis, in the lands of the unrelenting Maedi founded by the young Alexander the Great in 339 BC. Receiving the name of Parthicopolis during the reign of Trajan (AD 98-117), the city continued to thrive during the Roman and Late Antique periods, when it became a leading center for the establishment of early Christianity in the province of Macedonia. The current ARCS Field School will focus upon a sequence of architectural remains located near the atrium of the Bishop's Basilica dated to 4th-6th c. AD.

The Program offers one excavation session, lectures and field trips, continuing for three weeks. The students will be required to participate in the excavations five days each week, as well as attend the ten lectures and the three field trips. There will be one day off each work week. Study trips are arranged to archaeological sites and museums in Bulgaria, Republic of Macedonia and northern Greece. Among the sites included are Petrich, Melnik, Strumica, Stobi and Amphipolis/Thessaloniki. The program covers room, board and field trips. The program does not include: airfare to Bulgaria, dinners and meals on non work days. Participants will be provided with a certificate upon completion of the program. Students are expected to arrange for medical insurance and to obtain visas, if applicable.

Prospective students should submit an application to Dr. Emil Nankov (apo@arcsofia.org) by February 15, 2015.

For a full description and application, follow this link: <http://arcsofia.org/node/75>

Dr. Emil Nankov
Acting Academic Director and Archaeology Program Officer
American Research Center in Sofia
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ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

EXCAVATIONS AT ZEUGMA, CONDUCTED BY OXFORD ARCHAEOLOGY

Bryn Mawr Classical Review 2014.12.14

William Aylward (ed.), *Excavations at Zeugma, Conducted by Oxford Archaeology* (3 vols.). Los Altos, CA: Packard Humanities Institute, 2013. Pp. xii, 279, 169 p. of plates; 258 p., 92 p. of plates; 449 p. ISBN 9781938325298.

Reviewed by Andrea U. De Giorgi, Florida State University (adegiorgi@fsu.edu)

Table of Contents: <http://zeugma.packhum.org/toc>

On July 3, 2000 Stephen Kinzer of the New York Times reported on the vanishing ruins of Zeugma in southeastern Turkey, the city that with its counterpart of Apamea on the opposite bank served for centuries as a crossing-point along the Euphrates. What particularly piqued Kinzer's interest was the herculean archaeological effort that was about to unfold, aimed at rescuing vast tracts of the lower city as the waters of the Birecik Barajı (Birecik Dam) rose. The drama, the frenzy of the operations, and the startling quality of the finds soon fueled outcry from the scholarly and lay communities alike. The "Pompeii of the East," as Zeugma was styled during the momentous days of its drowning, symbolized the clash between development and archaeology, and highlighted the ecological impact of hydroelectric power-stations on their basins. Eventually, the Birecik Barajı flooded 30% of Zeugma (most of the domestic quarters) and the entirety of Apamea.

Truth be told, this Damocles' sword had long hovered over Zeugma. Aside from Cumont's surveys in the early 19th century and those of Jörg Wagner in the 1970s, Guillermo Algaze and David Kennedy had brought Zeugma into sharper focus in the 1990s; they flagged the imminent dangers, while also advocating for immediate responses from the scholarly community.¹ Kennedy wrote: "It is too late to do more than lament what has been lost at Samosata (submerged by the Atatürk Baraj in the 70s); there is still time to save much from Zeugma".² Indeed, much of the domestic architecture adjacent to the river was either rescued or documented thanks to the energetic intervention of the Packard Humanities Institute (PHI) in 2000. The three volumes on the Zeugma Excavations, comprising 37 reports and edited by William Aylward, bear witness to this remarkable salvage campaign. For brevity's sake, I shall focus only on a select number of contributions.

The foreword by David Packard deserves particular attention: he highlights the merits of the 2000 excavation, but also stresses the parochial hindrances and political pressures that blocked a more ambitious, long-term involvement of the PHI at Zeugma. What may read as polemic is in actuality the chronicle of a missed opportunity for the site, for the study of its archaeological collections, and ultimately for its reception. Aylward's preface then walks the readers through the challenges that the excavation posed. He lays out the sectors of the city presented in the three volumes, and lists the archaeological consortia that participated in the venture, some of which are publishing their data independently.³

He surveys the history and cultural framework of Zeugma and Apamea: the sources, the archaeology, and the social history of the city. The Sasanian sack of AD 252/253 under Shapur I, an "urban catastrophe," symbolically establishes the end of the excursus. Although the evidence at Zeugma suggests that a considerable number of houses were indeed impacted by the Sasanian attack, there are also signs of undisturbed contexts that betray urban survival. The swift recovery of many cities that suffered the blows of Shapur's army calls into question the scale of the events reported by the literary sources. Antioch on the Orontes, Apamea, Anazarbos, and Gindarus, to name but a few, lingered on despite destruction and deportations. Thus Zeugma's "partial resettlement" needs further evaluation, especially in light of its continued occupation through the Early Islamic period.

In Chapter 2 Roberto Nardi and Kristian Schneider report on the preservation efforts at the site. The protocols adopted are described in full, from the conservation of walls to the protection of the shoreline against the action of waves. Their recommendations are notable: in particular, maintenance work along the shoreline is essential to make the site accessible again in 100 years-when the dam supposedly will have exhausted its function. It is hoped that these suggestions will be acted upon up by the current and future excavators at Zeugma. In Chapter 3 Jennifer Tobin presents the complex evidence gleaned from the twelve excavated sectors of domestic architecture, spanning the Seleucid to the Ummayyad phases, including a Commagenian one that she situates between the Seleucid and the Early Imperial periods. This archaeological record is of extraordinary importance, and will no doubt be essential in prompting new insights into the domestic architecture of Roman Syria, especially when tested against the known evidence from Antioch, Daphne, Seleucia Pieria, and Cyrrhus. Although none of the Zeugma contexts here presented appear in complete form, they nevertheless offer important indications about the evolution of the domestic environment from the Seleucid period to the thriving phase of the second to mid-third centuries CE, when builders paid much attention to décor and vistas. This phase was then followed by a phenomenon of widespread contraction and down-sizing that may be due to the billeting of soldiers of Legio IV Scythica, as the author remarks. Be that as it may, the Late Imperial and Early Islamic phases attest to the continuation of the settlement, and conclude the survey.

Tobin's article finds complement in two subsequent contributions by Katherine Dunbabin (the mosaics, Ch. 6) and Bettina Bergmann (the paintings, Ch. 7). In the former, 27 fragmentary pavements of generally modest craftsmanship corroborate an already well-known corpus. They also attest to a local visual sensibility that mediated Antiochene accents, and to the pavements' fundamental contribution in the articulation of the domestic space. Bergmann concludes the section on domestic architecture by laying out the visual idioms of Zeugma's mural painting. She emphasizes the chronological problems they posit, while also stressing their genuine, local character. As it stands, this group of articles on domestic architecture suffers from the fragmentation of the Zeugma projects and related publications: references to relevant findings from the Nantes and Gaziantep Mozaik Müzesi excavations -adjacent to the PHI sectors - reflect the piecemeal state of the archaeological record.

In Chapter 9 Charles Crowther surveys a small epigraphic corpus: paramount are the inscriptions of King Antiochos I of Commagene, featuring the provisions for the royal cult, and describing a sacred temenos in the city. The autopsy of these important texts is strengthened by a discussion of the Dexiosis relief carved on one of the same stelai.

Charles Brian Rose examines the figures of Antiochus and Helios in the context of comparable reliefs at Nemrud Dağı, Arsameia, and Sofraz Köy, emphasizing the interaction between text and royal iconography.

Volume II comprises studies on pottery, terracottas, and glass. Philip M. Kenrick's comprehensive study of the ceramics is of particular interest. In charting the characteristics of the wares and their relational networks -especially for coarse wares- he suggests the existence of ties between Zeugma and the Euphratean communities of Syria and northern Iraq, thereby moving the discourse away from the usual suspects, Antioch and Tarsus. Two elements stand out in his analysis: the disappearance of table wares in the early third century (coinciding with the apparent contraction of Zeugma) and the conspicuous presence of Islamic materials in Trench 1, which seem to cohere with the eighth to ninth century strata at Raqqa. Paul Reynolds analyzes the amphora finds, examining how the city was inserted in a pan-Mediterranean network of exchanges largely fueled by the military, and later, possibly from the fourth century onward, in a mesh of regional markets that converged along the Euphrates. Sharon Herbert studies the bullae. The sample she presents is admittedly limited when compared to the 140,000 items recovered in Trench 3 by the Gaziantep Müzesi, which she aptly suggests may be interpreted as an archive. Nevertheless, the evidence offered is eclectic and compelling; it attests to a number of transactions with Cappadocian Caesarea as well as depicting heads of gods and likely of dignitaries. One cannot but hope for a final publication of the bullae along the lines of that of Seleucia on the Tigris.⁴

Finally, Volume III surveys a variety of materials (metals, bones, textiles), military installations, organic remains, and the ecology of the region. The report on coins by Kevin Butcher (Ch. 1) places much emphasis on the spectrum of eastern mints represented during the Imperial period. Their issues apparently compensated for the ebb and flow of Zeugma's production of coins. In Chapter 10, Hartmann and Speidel present the evidence from At Meydanı, a flat expanse west of the domestic quarters. They argue that this area served to accommodate the infrastructure of the Fourth Legion Scythica.

All in all, *Excavations at Zeugma* is a fundamental contribution to the study of urbanism in the Greek East; any scholar, graduate student, or archaeology enthusiast will no doubt benefit from its rich array of reports, catalogues, charts, and high-quality illustrations. While some of the articles adhere to the field report format, others emerge as stand-alone studies, dramatically enhancing our understanding of this unique community.

Notes:

1. Algaze, G. et al. 1994. "The Tigris-Euphrates Archaeological Reconnaissance Project: Final Report of the Birecik and Carchemish Dam Survey Areas." *Anatolica* 20: 1-96.
2. Kennedy, D. 1998. *The Twin Towns of Zeugma on the Euphrates. Rescue Work and Historical Studies*. JRA Suppl. 27. Portsmouth: Journal of Roman Archaeology, 8.
3. Abadie-Reynal, C.- Ergeç, R. (eds.) 2012. *Zeugma I. Fouilles de l'habitat (1): le mosaïque de Pasiphae*. *Varia Anatolica* 26. Istanbul.
4. Invernizzi, A. et al. 2004. *Seleucia al Tigri: le impronte di sigillo dagli archivi*. 3 Vols. Torino.

Please visit the site: <http://bmcr.brynmawr.edu/2014/2014-12-14.html>

ARCHEOSEMA. ARTIFICIAL ADAPTIVE SYSTEMS FOR THE ANALYSIS OF COMPLEX PHENOMENA

Archeologia e Calcolatori, Supplemento 6, 2014. ARCHEOSEMA. Artificial Adaptive Systems for the Analysis of Complex Phenomena. Collected Papers in Honour of David Leonard Clarke €36,00 Marco Ramazzotti (a cura di)
ISBN: 9788878146082

ARCHEOSEMA, a meta-disciplinary project of theoretical, analytical and experimental archaeology, has been recently awarded by La Sapienza University of Rome. The project title is an acronym which sums up its two main theoretical foundations: the openness of modern archaeology (ARCHEO) to the analysis of physical, historical, linguistic signs (SEMA) underlying natural and cultural systems reconstructed and simulated through Artificial Sciences. This volume edited by Marco Ramazzotti, a Supplement to «Archeologia e Calcolatori», is a Special Issue dedicated to the memory of the English archaeologist David Leonard Clarke (1937-1976), and is a further attempt to collect some applicative studies of complex natural and cultural phenomena following the Artificial Intelligence computational models through the lens of Analytical Archaeology.

CONTENTS

- W.J. Tastle, Presentation
- M. Ramazzotti, Preface
- M. Ramazzotti, Analytical Archaeology and Artificial Adaptive Systems
- P.M. Buscema, The general philosophy of Artificial Adaptive Systems (AAS)
- M. Ramazzotti, Analytical Archaeology and Artificial Adaptive Systems Laboratory (LAA&AAS)
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THE PARTHENON ENIGMA

Joan Breton Connelly
Trade Paperback, 528 pages
Publisher: Vintage
Price: \$17.95
ISBN: 978-0-307-47659-3 (0-307-47659-6)

A revolutionary new understanding of the most famous and influential building in the world, a thesis that calls into question our basic understanding of the ancient civilization that we most identify with.

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"The Parthenon Enigma. . . . starts with Athens' prehistoric past, uses early remains and ancient sources, and stresses a concept of self-sacrifice for the greater good made legible-in [Connelly's] theory-on that most famous of all Athenian buildings, echoing contemporary dramas, ephebic oaths, and funerary orations for all to see. A few scholars had attempted partial mythological readings of the frieze but. . . . Connelly's theory is so far the only coherent explanation for every form of architectural sculpture on the temple. . . . This is not a conventional book. It is a cross between a scholarly discussion (albeit not polemic in tone) and a personal account of literary discoveries and thought processes, refreshing in its candor and enthusiasm, vivid in its writing." -Brunilde Sismondo Ridgway, PhD, Bryn Mawr Alumnae Bulletin

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UCL QATAR SERIES IN ARCHAEOLOGY AND CULTURAL HERITAGE, CRAFT AND SCIENCE: INTERNATIONAL PERSPECTIVES ON ARCHAEOLOGICAL CERAMICS

ISSN: 2312-5004
Volume 1

Craft and science: International perspectives on archaeological ceramics Edited by
Marcos Martínón-Torres
ISBN: 978-9927-101-75-5

Foreword (selection)

Ceramics are among the most abundant materials recovered in archaeological sites. Traditionally, they have served as the main staple for archaeologists to establish chronological sequences within sites and cultural affiliations between sites. They are also a primary source for a wealth of information about past economies, social structures and ritual behaviour. In addition, ceramics preserve in their bodies the traces of countless forms of experimentation, knowledge transmission, technical ingenuity and artistic sensitivity, transcending the boundaries between art, craft and science both in their original production, and in their current study.

As a sustained area of research, the study of ceramics has historically served as a prime arena for innovation, both through the pioneer application of instrumental analyses and as a core foundation and testing ground for influential archaeological theories. Inevitably, some research methods are well-established in some regions, whereas they are still emerging in others. Also the integration between science-based approaches and archaeological theory is uneven. However, emerging academic traditions, and those in less-resourced regions, should not be overshadowed by the more established paradigms. While it is impossible to keep up with all the work carried out on archaeological ceramics worldwide, it is essential that researchers continue to exchange and compare their methods, results and ideas, and that these are made available to a broader archaeological readership.

This book aims to facilitate this exchange and update of information on diverse approaches to archaeological ceramics across much of the world.

About the Editor

Marcos Martínón-Torres is Professor of Archaeological Science at the UCL Institute of Archaeology, where he co-ordinates an MSc in the Technology and Analysis of Archaeological Materials and supervises several research students working on ancient materials and technologies across the world. His research interests include material culture and technology, the applications of science to archaeological problems, and the interplay between archaeology, anthropology, science and history. Ongoing projects focus on Renaissance alchemy in Europe, Pre-Columbian metallurgy in America, and the logistics behind the making of the Chinese Terracotta Army.

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Best,

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POTTERY WORKSHOPS IN NORTHEASTERN AEGEAN (8TH – EARLY 5TH C. BC)

Bryn Mawr Classical Review 2014.12.35

Polixeni Adam-Veleni, Eurydice Kefalidou, Despoina Tsiafaki (ed.), Κεραμικά εργαστήρια στο Βορειοανατολικό Αιγαίο (8ος – αρχές 5ου αι. π.Χ). Ημερίδα ΑΜΘ 2010/ Pottery workshops in northeastern Aegean (8th – early 5th c. BC). Scientific meeting AMTh 2010. Έκδοση Αρχαιολογικού Μουσείου Θεσσαλονίκης, 21. Thessaloniki: Archaeological Museum of Thessaloniki, 2013. Pp. 256. ISBN 9789609621137. €20.00.

Reviewed by Emmanouil Kalkanis, Thessaloniki (emmanouil.kalkanis@gmail.com) This homogeneous set of case studies and archaeological research includes 22 articles: 20 are written in Greek, two in English. Given the number of the contributions, this review intends to give an overview of the volume, not a critique of each contribution. The volume, which, in a sense, may be considered an overall report of several excavations that took place during the last few decades – or even earlier – near Thessaloniki, is organised into two sections. The first is dedicated to pottery workshops as they developed and spread from the east to the west of Northern Greece. The second and longer part examines the pottery itself. Whether local pottery production was related to simple craft activity for household needs or to commerce and exchange, the papers work from the shared premise that these workshops have a long tradition, though our knowledge for their function is still quite limited and, thus, no easy conclusions can be made.

Despoina Tsiafaki's paper serves as a comprehensive preface to the volume and frames the whole collection. By presenting an outline of pottery production in Northern Greece, she offers a useful account that not only stresses the geographic and chronological framework, but also the scientific context for the following essays. She devotes the bulk of the introduction to a brief overview of the whole volume. This is certainly useful for readers navigating through the collection. Still, I would have welcomed further reflection from the editors on the individual essays.

The second introductory essay, written by Michalis Tiverios, attempts to classify the pottery that was manufactured in the coastal areas of Northern Greece during the Geometric and Archaic period. The pottery produced in this area is classified into four groups: colonial (vessels made by potters who were trained in one of the great workshops of the ancient Greek world), semi-colonial (vessels that maintain only some features of the first group together with local influences), indigenous pottery (a clearly local tradition), and local (vessels that combine features of both the 'colonial' and 'indigenous' groups).

Next, Jacques Perrault, Francine Blondé, and Katerina Peristeri remind us of the results of the excavations from 1985 to 1989 of a Late Archaic period pottery workshop on the southwestern coast of the island of Thasos (Phari). Although the discussion has been

published several times by the excavators already, this new reading improves our understanding of the organisation and function of regional pottery workshops in Northern Greece (e.g., the architectural remains related to pottery production are particularly interesting).

John K. Papadopoulos shares some further thoughts on the Early Iron Age potter's kiln at Torone, initially published over 20 years ago. The Torone kiln, which is an important Late Geometric kiln, is discussed in the context of pottery workshops in the northeast Aegean. For instance, the social context in which the potters worked seemed to play a major role in keeping the boundaries of the traditions of handmade and wheelmade pottery 'well defined and thereby rendering their coexistence possible' (47). These results highlight several interesting developments in the study of this pottery workshop. Additionally, the inclusion of a comprehensive list of the kiln pottery—which was rather diverse in terms of fabric and technique—is a great asset to the reader, facilitating easier cross-reference.

Next, Electra Anagnostopoulou-Chatzipolychroni offers a comprehensive presentation of the findings from a series of excavations that took place along the coastal area of ancient Mendi. Among the remains of pottery workshops, five kilns are dated to the first decades of the 5th c. BC. The most characteristic finds of these kilns were local painted pottery and transport amphorae sherds. The morphological similarities of the latter with the Thasian amphorae, the amphorae of the so-called 'Thasian circle', and the amphorae from the northern Aegean may lead to the assumption that the production of local transport amphorae had adopted the same types as the most important wine-producing centers. This seems to have been the case until the known types of amphorae from Mendi emerged as dominant in the region. Small circular kilns, workshop-related objects, sherds from 5th c. BC, amphorae and other finds from the Hellenistic period also demonstrate the uninterrupted activity of the pottery workshop during the 5th and 4th centuries.

Dina Kousoulakou briefly examines a pottery workshop excavated to the south of the modern village of Potidaia, which had been in use from the Archaic to the Roman period. Although the pear-shaped kiln was found empty, its deposits contained several sherds from painted vessels; many were imported from Corinth, while others could have been manufactured there. A comprehensive presentation of archaeological research related to an Archaic workshop that was part of the ancient settlement situated in Karabournaki, Thessaloniki. Despoina Tsiafaki and Eleni Manakidou show how chemical and petrographic analyses were used in order to confirm the suspicion that the discarded material found at the site belongs to the same type of pottery they call 'eggshell pottery' (because of its extreme delicacy). The authors also discuss the workshop's organisation and activity and the length of the production period, as well as the possibility that other groups of pottery, such as 'monochrome ware' could have been produced here.

After a brief overview of the pottery workshops in ancient Methoni, a long essay by Evangelia Stefani reviews the pottery workshops at Lefkopetra on the southeastern slopes of Mount Vermion. The excavation revealed workshop and manufacturing activities. Eight pottery kilns were found on site, six of which are presented in detail here. The first three pear-shaped kilns possibly date to an Iron Age phase or immediately after, while the remaining three, which were circular and very well preserved, date to the Late Archaic and Classical periods. As Stefani argues, the finds provide important evidence for research into the economic and social profile of local development rhythms in

ceramic production models in the Northern Greek regions especially during formative periods but also the Iron Age and the Archaic era. The author also stresses that the importance of these kilns should be related not only to the prosperity of this particular place but also to the technical knowledge that led to pottery production on an organised basis.

Part II begins with an essay on the sub-protogeometric tradition of the northeastern Aegean. Petya Ilieva's contribution focuses on a fine, well-purified and well-fired tableware of North Aegean origin, the so-called 'G 2-3 Ware'. Through a brief discussion of fabric, decoration, shapes, and chronology, she points out the importance of this ceramic style that seems to emerge in a "mixed cultural and demographic background of Greek settlers and native inhabitants in northeast Anatolian coastal sites and adjacent islands of the North-eastern Aegean" (129).

Next, Martin Perron briefly presents unpublished finds from the Greek-Canadian excavations at Argilos that revealed a great quantity of painted domestic ware of the 6th and 5th centuries BC. Although the shapes and decoration may have been inspired by pottery produced elsewhere in the Aegean, a specific category from this assemblage, the well-known 'waveline' or 'banded' ware, seems to have its origins in Ionia.

The Archaic cemetery of Agia Paraskevi near Thessaloniki, entirely excavated in the early 1980s, is described in the next essay by Theodoros Papakostas. Among the imported pottery from Corinth, Athens, and east Greece, the cemetery had also produced a significant amount of local pottery mostly consisting of the so-called 'Grey Ware'; the exaleipteron and the kantharoid kotyle are among the most popular local shapes.

Turning attention to the study of the potsherds found during the 1977 rescue excavation at Nea Kallikrateia in Chalkidike, Eurydice Kefalidou and Yannis Nazlis examine the sample material from a table, or plateau (Trapeza) that was part of an ancient settlement identified by recent research as one of the three colonies of Eretria in the Thermaic Gulf. This assemblage—sherds from more than one hundred different vessels dating from the Late Bronze Age to the Iron Age and the Archaic era—underwent elemental analysis in order to determine whether the distinct groups of pottery correspond to equally distinct groups in terms of clay composition.

The so-called 'pre-Persian' pottery, previously known only from the site of Olynthos, is the subject of another contribution. By showing that this group of pottery—comprising vessels with linear, floral, and geometric motifs—comes from both the settlement and the cemetery of Toumba in Thessaloniki, the paper offers a more comprehensive picture of its use and function than was previously available.

Katerina Tzanavari next presents the archaeological data of the first rescue excavation of the Lembet Table (Trapeza) at Polichni (in the western suburbs of Thessaloniki) that took place in 1993. The results allow us to ascertain that habitation began at an early phase of the Iron Age and stopped around the mid-4th c. BC. The so-called 'silverish' pottery, a ceramic group with painted Geometric decoration comprising exceptionally large storage shapes, and a characteristic shape of the so called 'Ionian eggshell' pottery of the Archaic era are both of particular interest here.

Vasiliki Saripanidi overviews the regionally made pottery that was found at the Archaic-Classical cemetery of ancient Sindos. Classifying the related vases into three categories on the basis of their decoration (burnished grey wares, vases with painted linear floral patterns, and glazed or semi-glazed wares), the author focuses on the origins of both shapes and decoration of each category. Regional potters seem to have produced a fairly wide range of hybrid shapes combining elements of different imported traditions on individual pieces. The final essay overviews the locally produced pottery from the cemeteries of Nea Philadelphia near Thessaloniki dating to the Iron Age and the Archaic era.

Two adequate indexes are at the back. Index A presents the most indicative shapes of all the pots that the volume discusses; the images are two-dimensional, interpreting only the outline of the pot. Index B gives a short description of the major types of local pottery presented here. Some of these types have been quite precisely determined on the basis of material, shape, and decoration, while others have been determined on the basis of a single criterion such as colour or decoration. Sadly, there is no English translation for these indexes. The abundant black-and-white illustrations and drawings of individual sherds are as elegant as can be expected for an edited volume of this size and scope. The translated (Greek) essays into (English) abstracts do not always do justice to the rich content of some of the essays. An English introduction would also be a great asset since the English summaries indicate the publishers' desire to reach a foreign audience.

Overall, the volume does justice to the pottery production in Northern Greece from the 8th to the early 5th c. BC, providing us with a fuller picture of an enormous quantity of material that certainly needs to be further studied and technically analysed. On one level, it re-examines previous paths and excavation findings through fresh eyes, while on the other hand it attempts to contextualize the subject matter within a broader comparative frame of northeastern Aegean archaeology. The main strength of this enterprise is the incorporation of evidence from different sites in order to offer a more holistic and complete view of the subject matter within a specific timeframe. In terms of writing style and research quality, there is not much to say given the quantity of the contributions. Besides, this would be unfair to the whole enterprise that successfully attempts to bring together many interesting insights. Thus, a few meticulously documented and illustrated contributions should not overshadow others that are not so carefully argued and contextualised. If one criticism should be made, is that some contributors raise as many problems as they resolve and leave one wondering what the further significance of their arguments might be.

Will this book find a wide and appreciative readership? The illuminating insights into such engaging matters would indicate yes. Though it is not a consistent volume, the compiled collection of worthy contributions reflects the growing research interest in this field from Greek—and non-Greek—professionals.

Please visit the site: <http://bmcr.brynmawr.edu/2014/2014-12-35.html>

FROM EURASIA TO EUROPE: CRETE AND THE AEGEAN WORLD IN THE BRONZE AND EARLY IRON AGES (3RD - EARLY 1ST MILLENNIA BC)

Bryn Mawr Classical Review 2014.12.26

Yuri V. Andreyev, *From Eurasia to Europe: Crete and the Aegean World in the Bronze and Early Iron Ages (3rd - early 1st millennia BC)*. Monographs on antiquity, 6. Louvain; Walpole, MA: Peeters, 2013. Pp. xiv, 553. ISBN 9789042927230. €105.00.

Reviewed by Manolis Mikrakis, National Technical University of Athens (emikrakis@arch.ntua.gr)

Table of Contents: < <http://www.peeters-leuven.be/toc/9789042927230.pdf>>

This voluminous, richly illustrated book is the English edition of Professor Yuri Viktorovich Andreyev's swan song, first published in Russian in 2002 (От Евразии к Европе: Крит и Эгейский мир в эпоху бронзы и раннего железа, St. Petersburg: Dmitry Bulanin). The book was the outcome of a project carried out at the Department of Classical Archaeology (now Department of History of Ancient Culture) at the Institute for the History of Material Culture of the Russian Academy of Sciences, headed by Andreyev from 1986 to 1998. Due to the author's untimely death in February 1998, just short of finishing the book, *From Eurasia to Europe* does not go beyond the state of research of that year. Up-to-date overviews of the Aegean Bronze Age (BA) and Early Iron Age (EIA) are now provided by a number of handbooks,¹ but *From Eurasia to Europe* is still rare in covering both periods. The wide temporal scope of the book, which makes the task undertaken by Andreyev truly gigantic, fits with an approach to the Aegean as a "complex macrosystem" (p. xiii). Ultimately, it is for its distinctive approach and for its place in the intellectual history of Aegean archaeology that the book could be read with profit, probably by a rather specialized audience with interest in the history of the discipline and its East European tradition.

The Marxist heritage of this tradition is immediately obvious in the centrality given to issues of socio-political organization and ideology as well as in the evolutionistic approach to these issues. Andreyev's argument, running through two first-level sections, four second-level parts, thirteen third-level chapters and several scattered appendices, is clear enough: A long-term, though discontinuous, historical process led from the emergence of social complexity and early statehood in the Early BA Aegean to the formation of palatial states in Middle BA Crete and Late BA Greece to the return to small-scale farming communities after the collapse of the Mycenaean kingdoms and, finally, to the emergence of the Greek polis. Part of this process was also the ethnogenesis of the Greeks from the rich mosaic of peoples that lived in, or passed through, the Aegean during the two and a half millennia covered by the book. Developments in the Aegean were part of the wider formative process through which the culture of Europe branched off from a culturally homogenous Eurasia.

After a short introduction (pp. 3–6), the large BA section (pp. 7–411) begins with the third millennium BC (Part 1, pp. 7–75), during which a series of “unsuccessful civilizations” (p. 22) emerged on the North-East Aegean/North-West Anatolia, the Greek mainland and the Cyclades. Only in Crete did a culture that eventually became a palatial civilization of unusual dynamism emerge. The core of the book provides an extensive treatment of Minoan Crete focused on its palatial architecture, settlements, socio-political organization and Aegean interactions (Part 2, Chapters 1–3, pp. 76–154); on its place among ancient Mediterranean civilizations (Part 4, Chapters 1–2, pp. 362–411); and, above all, on its mythology, religion and afterlife beliefs (Part 3, Chapters 1–5, pp. 155–361). In Andreyev’s view, Minoan religion is a kind of primitive syncretism or pandemonism, a transitional stage from animism to polytheism, in which individual deities and their spheres of influence exist but are not yet fully distinguished from each other. Central figures include the Goddess of Vegetation, which usually appears in scenes of ritual action; the Mistress of the Animals, mostly seen in static, emblematic representations; and the Snake Goddess, best known from the faience figurines from the so-called Temple Repositories of the Knossos palace but also from such early artifacts as the Early Minoan II anthropomorphic rhyton from Koumasa.

The examination of Mycenaean culture, regarded as the “finale of the Bronze Age” (p. 379) and “a kind of ‘unsuccessful rough draft’” of Classical Greek civilization” (p. 410), is disproportionally shorter, merely occupying the final chapter of Part 4 (pp. 379–411). Here, the focus is on the emergence, artistic production and religious beliefs of that culture.

The EIA section (pp. 413–502) is considerably shorter than the BA one, divided into three chapters, one for each of the three phases into which Andreyev divides the “Dark Ages” (a term that now tends to be confined to the 11th and 10th centuries BC). The “first phase” (12th–mid-11th century BC, roughly corresponding to Late Helladic/Late Minoan IIIC and Subminoan/Submycenaean in current terminology), is the period of regression, instability and depopulation following the collapse of the Mycenaean states.² The “middle phase” (Protogeometric to early Middle Geometric, mid-11th–9th century BC) is still a period of decline, although the emergence of a few compact settlements, progress in metallurgical and ceramic technologies, and the gradual opening to the East increasingly herald the beginning of a new era of prosperity. The “final phase” (later Middle Geometric to Late Geometric, 8th century BC) is a dynamic period of demographic explosion and urban development that culminates in the emergence of the Greek polis.

The main text ends with two alternate versions of a conclusion, one found in the rest of the manuscript but not finalized by the author (“Conclusion”, pp. 503–506), and another one found in the author’s handwritten notes (“Appendix”, pp. 506–512). The former presents a more down-to-earth summary of the argument, whereas the latter, in an obviously unfinished state, throws a twist of mysticism, approaching historical developments in the Aegean as a gradual and painful struggle to rise out of a primeval chaos into the social, political, ethical and aesthetic harmony of the civilized polis. The bibliography (pp. 513–534) is extensive, including many titles in Russian, but stops at 2000. A list of illustrations (pp. 535–540) provides useful information on the depicted items, and there is also an index of [literary] sources (p. 541), an index of mythology (pp. 542–544) with personal names of mythological and religious figures, and an index of archaeological remains (pp. 542–544) with geographical names of archaeological sites.

Taken as a whole, the book offers a grand narrative of the kind rarely attempted in Aegean archaeology in the West after the revolution of archaeological theory and practice in the 1960s. Most narratives of this sort engage with their breadth and inclusivity but fail to pay close attention to empirical evidence and, whenever necessary, to acknowledge the fragmentary, accidental and disparate nature of the archaeological record. The book under review is hardly an exception. The reconstruction of belief systems, for example, a key concern of Andreyev's two-hundred-page discussion of Minoan religion, seems to be a less productive endeavor due to the lack of eloquent textual sources—not to mention the vagueness of notions such as "religion" or "god". Spatial, architectural, ritual and visual manifestations of religious behavior that can be detected in the material record have long been recognized as more rewarding focal topics of archaeological research.³

Andreyev's persistence on the semantics of Minoan religion stands in the Marxist tradition of interest in ideology as well as in the tradition of cognitive archaeology of the 1990s, but is not free of mentalistic overtones. Notions such as "the mentality of ethnic groups" (p. 256), "mental lethargy" (p. 75) and "the cast of mind" (p. 505) feature prominently as causes of cultural diversity and change. Evolutionism is pushed to its limits too, although accidental circumstances and gaps in continuity are occasionally recognized. Cultural processes in the Aegean are described as a gradual development "from barbarism to civilization" (p. 15, 16, 75, 361, 440, 442 etc.); cultural continuity is a matter of "purely biological inheritance of certain mental features", which are "solidly anchored in the genotype of the ethnos" (p. 505); continuity from the BA to the EIA, indeed a much debated issue in Aegean archaeology, is addressed by searching for "the Greek artistic genius" in an Early Helladic II amphora, the Geometric Dipylon amphorae and the Archaic Doric column (p. 46), just to give an example.

The overall picture of a matriarchal, theocratic and peace-loving center of the Aegean world drawn for Minoan Crete by Andreyev depends entirely on the once fascinating but now long discarded theories of Evans, Schachermeyr, Gimbutas and other pioneers. Andreyev's discussion is even more stereotypical when he claims that, "as in any other ancient society, Cretan men constituted the most active and enterprising part of the society" (p. 134), speaking of "natural male aggressiveness and adventurousness" (p. 138) and of "women... the more conservative, traditional part of society... tied to their households and children, and even physiologically limited in their activities" (p. 141). As another stereotype holds, the Mycenaean civilization was founded by "bellicose cattle breeders and hunters" (p. 384) who continued to practice "the cult of brute power" (p. 407), whereas the Minoan civilization was founded by "peaceful farmers and fishermen" (p. 384).

Despite serious objections to the overall interpretative framework and many individual positions adopted in the book, one cannot fail to admire the amount of archaeological material assembled, which is well above the average for synthetic overviews of that kind, as well as the wealth of color illustrations and line drawings of most of that material. However, the data are not always updated, even from a 1998 perspective, and the absence of the author's final edits is also manifested in some inconsistencies. In the case of the Early Helladic Rundbau at Tiryns, for example, the analysis seems to ignore Peter Haider's and Klaus Kilian's research of the 1980s,⁴ and the building is often referred to as "the tholos tomb at Tiryns" (pp. 10, 13, 43, 379, caption of fig. 13 p. 42), although its

more recent interpretation as a multifunctional public building or perhaps a large communal granary is accepted by the author (p. 43).

In conclusion, the book hardly fulfills its macro-historic intention.⁵ This is particularly unfortunate because the distinction between prehistoric and historical (“classical”) archaeology chronologically around 1100–1050 BC rather than by method (determined by the availability of written sources) constitutes one of the most serious drawbacks of Aegean archaeology in the West. The chronological division is spatially, technologically, institutionally and ethnically essentialized through artificial dichotomies such as the Aegean and Greece, bronze and iron, wanax and basileus, Achaeans and Dorians. Such dividing lines hardly exist in the Russian (formerly Soviet) tradition of archaeological research from which Andreyev emanated. One can only hope that important achievements of this tradition will find wider resonance in scholarship and that the baby will not be thrown out with the bath water.

Notes:

1. E.g. Eric H. Cline, *The Oxford Handbook of the Bronze Age Aegean*, Oxford; New York 2010, BMCR 2011.05.04, Cynthia W. Shelmerdine (ed.), *The Cambridge Companion to the Aegean Bronze Age*, Cambridge; New York 2008, BMCR 2012.01.05, Susan H. Langdon, *Art and Identity in Dark Age Greece, 1100–700 B.C.E.*, Cambridge; New York 2008, BMCR 2009.05.62 and Robin Osborne, *Greece in the Making: 1200–479 BC*, 2nd ed., London; New York 2009, BMCR 2009.06.37.
2. As a result of research after 1998, an entirely different picture of partial recovery has begun to emerge for the 12th century BC. See, most recently, Guy D. Middleton, *The Collapse of Palatial Society in LBA Greece and the Postpalatial Period*, *British Archaeological Reports, International Series* 2110, Oxford 2010, 68–112; Manolis Mikrakis, “The destruction of the Mycenaean palaces and the construction of the epic world”, in: Jan Driessen (ed.), *Destruction: Archaeological, Philological and Historical Perspectives*, Louvain-la-Neuve 2013, 221–242.
3. For this approach, see already Peter Warren, *Minoan Religion as Ritual Action*, *Studies in Mediterranean Archaeology Pocket-book* 62, Gothenburg 1988. For the distinction of belief and practice in Aegean religious studies, see Hélène Whittaker, *Religion and Society in Middle Bronze Age Greece*, Cambridge 2014, 29–32; this book also provides an excellent new look at the social and ideological functions of the Aegean religion in the first half of the second millennium BC.
4. Peter Haider, “Zum frühhelladischen Rundbau in Tiryns”, in: *Forschungen und Funde: Festschrift Bernhard Neutsch*, *Innsbrucker Beiträge zur Kulturwissenschaft* 21, 1980, 157–172; Klaus Kilian, “The Circular Building at Tiryns”, in: Robin Hägg and Dora Konsola (edd.), *Early Helladic Architecture and Urbanization, Proceedings of a Seminar Held at the Swedish Institute in Athens, June 8, 1985*, *Studies in Mediterranean Archaeology* 76, Gothenburg 1986, 65–71.
5. For such an up-to-date overview on a much sounder theoretical basis, but wider in chronological scope, see John Bintliff, *Archaeology of Greece: From Hunter-Gatherers to the 20th Century A.D.*, Oxford 2012, BMCR 2013.11.49.

Please visit the site: <http://bmcr.brynmawr.edu/2014/2014-12-26.html>

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ΕΙΔΗΣΕΙΣ - NEWS RELEASE

ANALYSES OF GLASS BEADS FOUND IN DENMARK GIVE US NEW KNOWLEDGE OF BRONZE AGE TRADE ROUTES, BY JEANETTE VARBERG, AARHUS UNIVERSITY, FLEMMING KAUL, NATIONAL MUSEUM OF DENMARK, BERNARD GRATUZE, UNIVERSITÉ D' ORLÉANS

An international collaboration between Moesgaard Museum in Aarhus, the National Museum of Denmark in Copenhagen, and Institut de Recherche sur les Archéomatériaux (IRAMAT) at Orléans, France, has resulted in a sensational discovery about the trade routes between Denmark and the ancient civilisations in Egypt and Mesopotamia in the Bronze Age 3,400 years ago. The discovery also gives us new knowledge about the sun cult in the Nordic Bronze Age.

Archeologists Jeanette Varberg from Moesgaard Museum and Flemming Kaul from the National Museum, and Bernard Gratuze, director of IRAMAT, analysed the composition of some blue glass beads found on buried Bronze Age women in Denmark.

The analyses revealed that the glass originate from the same glass workshops in Egypt that supplied the glass that the Egyptian Pharaoh Tutankhamun took with him to his grave in 1323 BC.

The study was recently published in SKALK.

Globalisation in the Bronze Age

Twenty-three glass beads from Denmark were analysed using plasma-spectrometry. Without destroying the fragile beads, this technique makes it possible to compare the chemical composition of trace elements in the beads with reference material from Amarna in Egypt and Nippur in Mesopotamia, about 50 km south east of Baghdad in Iraq. The comparison showed that the chemical composition of the two sets of trace elements match.

The researchers' first object for comparison was a bead from a wealthy woman's grave at Ølby, about 40 km south of Copenhagen. The woman had been buried in a more extravagant fashion, lying in a hollowed-out oak trunk and wearing a beautiful belt disc, a smart string skirt with tinkling, shining small bronzes tubes, and an overarm bracelet made of amber beads, and a single blue glass bead.

The glass bead turned out to be Egyptian. This is the first time that typical Egyptian cobalt glass has been discovered outside the Mediterranean area.

The archaeologists can now also substantiate that there is a connection between the amber beads and the glass beads.

It has been known for a long time that amber was exported in the Bronze Age from Nordic latitudes and southwards. Tutankhamun and other Egyptian pharaohs had large amber chains in boxes in their burial chambers.

Now the researchers are linking amber and glass together in an unexpected way.

Nordic and Egyptian sun cults traded goods One property that both glass and amber have is that sunlight penetrates their surface.

It appears that glass and amber beads have been found together on sites from the Middle East, Turkey, Greece, Italy, and Germany to the Nordic latitudes.

The archaeologists believe this could be proof of a link between the Egyptian sun cult and the Nordic sun cult.

When a Danish woman in the Bronze Age took a piece of jewellery made of amber and blue glass with her to the grave, it constituted a prayer to the sun to ensure that she would be re-united with it and share her fate with the sun's on its eternal journey.

The old amber route to the countries in the Mediterranean thus now has a counterpart: the glass route to the North.

So far, the researchers have shown that there was a trade connection to Egypt and Mesopotamia in the years 1400-1100 BC. Finding out whether the route continued in the later Bronze Age is a future task for the Danish-French research team.

Please visit the site: <http://sciencenordic.com/danish-bronze-age-glass-beads-traced-egypt>

UNDERWATER EXCAVATION REVEALS LOST LEVANTINE VILLAGE

A 7,500-year-old underwater water well that has been partially excavated from a site on Israel's Mediterranean coast near Haifa will give important insights into the Neolithic society that once lived there.

Flinders University maritime archaeologist Jonathan Benjamin was part of the team that excavated and recorded the site in October under the leadership of Dr Ehud Galili, a world-renowned expert in submerged prehistory and a senior maritime archaeologist at the Israel Antiques Authority and the University of Haifa.

Submerged under five metres of water due to prehistoric sea-level rise, the excavated structure was an important water well that supplied fresh water to the ancient civilisation dated to the pre-pottery Neolithic period that lived on the Kfar Samir site, near Haifa, Israel.

"Water wells are valuable to Neolithic archaeology because once they stopped serving their intended purpose, people used them as big rubbish bins," Dr Benjamin, a leading expert in prehistoric underwater archaeology, says.

"This is superb for archaeologists because it means we can look through the refuse of prehistoric societies - including animal bones, plant fibres and tools - to see how these ancient civilisations lived, how they hunted and what they ate," he says.

"At the Kfar Samir site, the water well was probably abandoned when sea levels started to rise and the freshwater became salty so people threw food scraps and animal bones down the well instead."

After shifting several tonnes of mobile sand covering the well, the team took core samples that are currently being analysed for pollen and sediments. It is hoped the results will shed light on the early Mediterranean diet and trade of the prehistoric village.

"As they were a pre-metal society we expect to find stone tools; perhaps weapons made of flint, and needles made of bone," Dr Benjamin says.

"We're also hoping to find organic material such as plant fibers, seeds and evidence of domestic crops such as olive stones that we can date.

"Previous excavations suggest this is likely the world's oldest olive oil production centre and while it's too early to tell what we've sampled from this small excavation, the preliminary results are promising."

Using cutting-edge photogrammetry techniques to create a kind of "3D mosaic", Dr Benjamin is also in the process of generating a 3D model of the well along with fellow collaborator and world-leading expert John McCarthy of WessexArchaeology (UK).

"We had to take photos in a special way, swimming around the well in a controlled and deliberate manner in order to get full coverage for a high-resolution data set.

"Photogrammetry is not just about creating a pretty picture - for maritime archaeologists it's a tool that we can use to study the site and make archaeological interpretations. We can spend a few minutes under water, but hours on land analysing the material in very fine detail.

"The technique is not new in theory, but only very recently has the technology caught up to allow us to use it underwater, which we have with exceptional results. This is a wonderful tool for underwater archaeological site recording."

While the scale of the Neolithic village and its occupants remain a mystery, Dr Benjamin hopes to continue working with Haifa University to unlock more pieces of the puzzle.

"We hope Flinders' Archaeology Department and University of Haifa will work together in the future to unlock the full history of the site - our relationship is great, the research is world-class and the facilities at the University of Haifa are well equipped for this endeavour."

The excavation, which was founded by The Honor Frost Foundation, was a joint collaboration effort of Dr Benjamin and Dr Galili and Dr Deborah Cvikel from the University of Haifa.

As part of the two-week expedition, Dr Benjamin and Dr Galili also led field excursions to identify prehistoric sea-level markers during project MEDFLOOD, which is funded by the International Union for Quaternary Science.

"Israel is a great place to look at sea-level change because there are markers from 125,000 years ago on land, when sea levels were higher, but also because sea levels are constantly changing over time there are areas offshore with prehistoric coastal villages buried up to 12 metres deep, and possibly more, older material even deeper offshore.

Dr Benjamin (left) and the Haifa University team clear away mobile sands covering the excavation site.

Please visit the site: <http://blogs.flinders.edu.au/flinders-news/2014/12/09/underwater-excavation-reveals-lost-levantine-village/>

2,400-YEAR-OLD COFFIN'S 'ODD' ART **HINTS AT ANCIENT EGYPT'S BRAIN DRAIN,** **BY OWEN JARUS**

An ancient Egyptian coffin with strange and amateurish decorations has been revealed, shedding light on a tumultuous period in Egyptian history when the Persian Empire was in control of the region.

In 525 B.C., Persian King Cambyses marched into Memphis, the Egyptian capital, inaugurating a period of Persian rule that would last for more than a century. The Persian Empire was a vast entity that stretched from modern-day Afghanistan to the west coast of Turkey. Ancient texts say that the Persian kings deported Egyptian artists and used them for building projects in Persia.

The coffin bears a series of unusual features that are likely related to the Persian Empire's deportation of artists.

"Many of the best artists in Egypt were taken by the Persians back to Persepolis and Susa as POWs and war booty - you can see their work in those places. There seems to have been a dearth of masters for some time, so that fewer and fewer artists got proper training," Gayle Gibson, an Egyptologist and educator at Toronto's Royal Ontario Museum, told Live Science in an email.

Gibson presented the coffin at the Society for the Study of Egyptian Antiquities Scholars' Colloquium, which was held Nov. 13 to 16 in Toronto.

Odd features

There are several odd features on the coffin that reflect the lack of knowledge the ancient artist had, Gibson said.

For instance, the deceased is depicted lying on a funerary bed, and the bed has a human-headed bird called a Ba. Flying over the deceased is a winged snake wearing a crown associated with the goddess Hathor. Below them are four jars bearing the heads of the four Sons of Horus, but the jars have a "goofy" appearance, Gibson said.

To an Egyptologist, this is a bizarre scene, Gibson said. "This is the only funerary bed I know of with a Ba's head," she told the Toronto audience, also noting that "we have a winged snake with Hathor's crown - very odd."

There are other oddities. The collar wrapped around the top of the coffin contains two creatures that look almost fishlike. The artist was likely trying to draw falcons, a symbol of the god Horus, but drew them very poorly, Gibson said.

A Mehen snake, a protective deity in Egypt, is also poorly drawn and actually stops at one point and starts in another, something strange for a protective deity. "The artist

doesn't really understand the purpose of the Mehen snake," Gibson said. [Image Gallery: Egypt's Great Terrace of God]

Mike Sigler, a collector and Egyptian antiquities enthusiast who lives in Kentucky and now owns the coffin, sent a picture to Live Science showing that the ancient artist clumsily attempted to correct an error in an alternating pattern by scratching out an image of a scepter.

Ancient brain drain

Although there is no longer a mummy in the coffin, its inscriptions say that it belonged to someone named Denit-ast, or Dent-ast, likely a woman. Radiocarbon dating of her coffin indicates that she lived at a time when her country was under Persian control.

Ancient texts tell tales of the deportation of Egyptian artists to Persia during this time. Diodorus Siculus, who died around 30 B.C., said that Cambyses, the conqueror of Egypt, transferred both precious metals and artists from Egypt to Persia.

Additionally, Persian King Darius I bragged about the Egyptian artists he acquired in a text describing the construction of his palace at Susa. "The goldsmiths who wrought the gold, those were Medes and Egyptians. The men who wrought the wood, those were Sardians and Egyptians ... the men who adorned the wall, those were Medes and Egyptians" Darius said (translation by Roland Kent).

Authentication

Gibson told the Toronto audience that when she first showed the coffin to other Egyptologists, some expressed skepticism and wondered if it was a fake created before Sigler owned it.

However, radiocarbon dating places the coffin in the Persian period and analysis of its wood indicates that it's sycamore, a wood that was commonly used in ancient Egypt. Additionally, an analysis of the coffin's blue pigments found that the pigment was Egyptian blue, which indicates that the coffin is authentic, Gibson said.

Sigler purchased the coffin in August 2013 from the Edgar L. Owen gallery, which sold it on behalf of a private collector. Paperwork that Sigler received indicates that the collector acquired it from the European art market in 1980. Its history before that is unknown.

Gibson is well-known for her Egyptological work. In the 1990s she helped identify a mummy in Niagara Falls, Canada, as likely being that of pharaoh Ramesses I. The mummy was later returned to Egypt with full military honors.

Given Gibson's reputation, Sigler sought her out and asked her for help in understanding the coffin's strange features.

Despite its odd features, Gibson believes the coffin is not a fake. "I think there is really no doubt that this one is genuine," she said.

Sigler told Live Science that he hopes to find other examples of the coffin's unusual imagery. He said that he is interested in donating the coffin to a museum in the future.

The pigment and wood analysis was carried out by Microscopist William Randle while radiocarbon dating was conducted at the University of Georgia's Center for Applied Isotope Studies.

Please visit the site: <http://www.livescience.com/49059-ancient-egyptian-coffin-odd-art.html>

LARGEST STONE BLOCK FROM **ANTIQUITY FOUND,** **BY ROSSELLA LORENZI**

German archaeologists have discovered the largest stone ever carved by human hands, possibly dating to more than 2,000 years ago.

Still partially buried, the monolith measures 19.6 meters (64 feet) in length, 6 meters (19.6 feet) wide, and is at least 5.5 meters (18 feet) high. Its weight is estimated at a bulky 1,650 tons, making it biggest stone block from antiquity.

It was found by a team from the German Archaeological Institute in a stone quarry at Baalbek in Lebanon. Known as Heliopolis, "the city of the sun," during the Roman rule, Baalbek housed one of the grandest sanctuaries in the empire.

The limestone quarry was located about a quarter of a mile from the temple complex and houses other two massive building blocks - one weighting about 1,240 tons, the other, known as the "Hajjar al-Hibla," or The Stone of the Pregnant Woman, about 1000 tons.

Right next to the fully exposed Hajjar al-Hibla stone and underneath it, the archaeologists found a third block.

"The level of smoothness indicate the block was meant to be transported and used without being cut," the German Archaeological Institute said in a statement.

"Thus this is the biggest boulder known from antiquity," it added.

Stonehenge 'Smiley Face,' Other Features Detected Underground

The team worked under the local supervision of Jeanine Abdul Massih, a long-term cooperation partner in the Baalbek project of the German Archaeological Institute's Orient Department. The main purpose was to find new information about the mining techniques and the transportation of the megaliths.

Archaeologists believe the limestone blocks date back to at least 27 B.C., when Baalbek was a Roman colony and construction on three major and several minor temples began, lasting until the 2nd century A.D.

"Massive stone blocks of a 64-foot length were used for the podium of the huge Temple of Jupiter in the sanctuary," the archaeologists said.

Only portions of the temple remain, including six massive columns and 27 gigantic limestone blocks at its base. Three of them, weighting about 1,000 tons each, are known as the "Trilithon."

How these monoliths were transported and precisely positioned during the temple construction remains a mystery. Some even argue the block was laid by an unknown earlier culture predating even Alexander the Great, who founded Heliopolis in 334 B.C.

The newly uncovered stone block was likely cut to be used in the temple, but was probably abandoned because it was unsuitable for transporting.

Indeed, the Hajjar al-Hibla block nearby provided some clues: it was probably left in the quarry because the stone quality at one edge proved to be poor.

"It would have probably cracked during transportation," the archaeologists said.

Further excavations will attempt to establish whether the bigger block suffered from the same problem.

Please visit the site: <http://news.discovery.com/history/archaeology/largest-stone-block-from-antiquity-found-141201.htm> [Go there for pict]



LESSONS FROM AN ANCIENT TIME WHEN RECYCLERS WALKED THE EARTH, BY ISABEL KERSHNER

For years, archaeologists have been diligently digging their way through prehistoric layers of time, unearthing the secrets of Qesem Cave.

Located just outside Tel Aviv and discovered by accident during a road construction project in 2000, the cave most recently offered up insights into life hundreds of thousands of years ago that provide a sobering counterpoint to at least one aspect of modern life.

It seems that back in the day, early inhabitants of the area were all about recycling - a potential lesson for today's Israel.

"Recycling was a way of life," said Ran Barkai, an associate professor in the Department of Archaeology and Ancient Near Eastern Civilizations at Tel Aviv University who, together with Prof. Avi Gopher, his teacher, has researched Qesem Cave since its discovery. "It was part of human evolution and human nature."

"At some point," he added, "they taught us to forget that."

After 14 years, archaeologists have penetrated about 32 feet below what was the original ceiling. Along the way, they found thousands of recycled tools in the cave, including bone hammers and reworked flint stones. With aged, glossy surfaces broken by newer, rougher razor edges, the flint tools were part of a vast collection of knives apparently used for butchering, cleaning animal hides and cutting vegetable matter. Some of the blades are as sharp as a scalpel and as small as a thumbnail.

Recycling came naturally to these early humans, a habit largely neglected in modern-day Israel, where a current television public awareness campaign features children in superhero outfits pilfering plastic bottles from under their parents' noses for recycling.

Amir Peretz, the minister of environmental protection until last month, was about to push through draft legislation to phase out the use of plastic bags at Israeli supermarkets. But he resigned, citing his opposition to the 2015 draft state budget and the lack of peace negotiations with the Palestinians, and his initiative was shelved.

At the cave site, there is evidence that prehistoric humans were not always so thrifty, but that the behavior evolved. Life in the region dates back at least 1.5 million years, but Professor Barkai said that a dramatic change had occurred here 400,000 years ago. He said that for some unknown reason the elephants that had served as a main food source apparently disappeared, prompting a change of menu and lifestyle for the inhabitants of Qesem Cave, near the town of Rosh Haayin.

In the quest for survival, Israeli archaeologists say, the cave dwellers here began hunting fallow deer instead of elephants. At the same time, they discovered the delights of a hot, home-cooked meal - and apparently invented the barbecue.

These early humans had the intelligence to squeeze the maximum out of every product. After cooking the meat, then smashing the bones to extract the marrow, Professor Barkai said, "they used the bone fragments to create tools with which to butcher the next deer."

"They closed a circle," he said.

The cave is just 7.5 miles east from the bustling center of Tel Aviv, the fast moving metropolis on the Mediterranean. The cave was exposed by chance when road builders widening the highway to the West Bank settlement of Ariel blasted a hillside, collapsing the cave's ceiling. Another archaeologist who happened to be nearby, guarding his own cave, spotted chunks of rock packed with bones and flint and immediately realized that the site was prehistoric.

The road was diverted to skirt the cave, but to this day, the primeval find is tested by the trucks hurtling by.

The cave now sits under a canopy a few footsteps up a path off the four-lane highway. Ladders and narrow planks connect the various levels of the site that have been exposed. There is no digging in the winter, and many of the discoveries have been removed and taken to laboratories or university storerooms. But flint and bone fragments remain lodged in every cranny of the cave's beige earth.

The cave caused a bit of a stir in 2010, when it was erroneously reported that several teeth found there had provided evidence for the existence of Homo sapiens, or modern humans, 200,000 years earlier than in Africa, and earlier than anywhere else in the world.

But that does not deny the significance of the cave. By now, 13 early human teeth have been found, and Professor Barkai said the inhabitants might have been a kind of missing link - more advanced than Homo erectus and precursors of Homo sapiens and the Neanderthals.

The latest research to emerge from the cave was the insight into recycling among the Stone Age innovators, who lived here on and off from about 400,000 to 200,000 years ago.

That phenomenon was recently documented in a series of articles that the Tel Aviv professors wrote with other experts for Elsevier Quaternary International academic journal, with titles like "Recycling bones in the Middle Pleistocene: Some reflections from Gran Dolina TD10-1 (Spain), Bolomor Cave (Spain) and Qesem Cave (Israel)," and "The function of recycled lithic items at late Lower Paleolithic Qesem Cave, Israel: An overview of the use-wear data."

The early humans had to adapt to their changing environment - perhaps another lesson for the modern world. They developed an independent, local culture, Professor Barkai said, that stretched across the territory that now includes Jordan, Lebanon and Syria.

The hunters needed to become more discerning, agile and efficient. On average, 80 deer were needed to make up the food provided by one elephant. The cave dwellers also gathered small fruit and nuts and collected wood for fires. This area was a kind of Eden, with natural springs and flint in abundance.

They began crafting their sharp tools from flint, according to experts, racing ahead of their time and their human contemporaries in Europe and Africa.

"This was the high technology of the ancient man," Professor Barkai said.

In a patch that once served as a hearth, layers of hardened ash date back 300,000 years. Here the earth is packed with bone fragments, including a horse's jaw with two front teeth. Though sporadic use of fire existed much earlier, Qesem Cave has been established as the site with the earliest evidence of the systematic use of fire for roasting meat on a daily, domestic basis - "like when we turn on the gas stove," as Professor Barkai put it. The cave dwellers' ancestors probably ate their elephants raw.

The cave was organized like a house, he said, with different areas serving as a kitchen, a workshop and an area where children appeared to have practiced making flint tools of their own. The hearth also appears to have served as a kind of central campfire.

Professor Barkai said that evidence of some of the same behavior, technologies and methods had been found as far away as Syria and that there must have been some kind of communication between the early humans in the region.

"I don't know how," the professor says. "There was no Wi-Fi, but they knew each other."

A version of this article appears in print on December 2, 2014, on page A12 of the New York edition with the headline: Lessons From a Time When Recyclers Walked the Earth.

Please visit the site: <http://www.nytimes.com/2014/12/02/world/lessons-from-an-ancient-time-when-recyclers-walked-the-earth.html>

THE GWICH'IN-BABYLON CONNECTION - **THERE'S SOMETHING DEEPLY HUMAN IN** **THE NORTH'S NIGHT SKIES,** **BY SAMIA MADWAR**

For tens of thousands of years, we've looked to the skies for legends, destiny, directions, and whether Scorpius will have a good week. Yet much of that comes from ancient agrarian civilizations sprawled across a part of the world where the night skies appear year-round. To a hunting culture in the Far North, for instance, where nighttime is only seasonal, the stars tell different stories—one would think.

“All cultures see the same sky, but not in the same way,” says Wayne Horowitz, archeologist and professor in Assyriology at Jerusalem's Hebrew University. For the past two years, he's been comparing Babylonian and Gwich'in astronomy texts and oral history, and he spent two weeks in early 2013 visiting Inuvik, Aklavik, Fort McPherson and Tsiigehtchic in the NWT. His goal: to find out “how much of people's experience of the night sky is cultural, and how much is hardwired genetically.”

When he showed his Northern audiences drawings of the Man in the Moon, who appears in Babylonian texts as a man carrying a club and facing a lion, they invariably declared it was the Boy and his Puppy, and the boy carries a sack of caribou blood. Horowitz realized he was onto something.

Then, by chance, on a flight from Inuvik to Whitehorse, Horowitz happened to meet Alestine Andre of the Gwich'in Social and Cultural Institute (GSCI), and the two agreed to work together.

Andre and her colleague, Ingrid Kritsch, have since searched the recorded oral histories they'd been gathering for 20 years for any mention of the Boy in the Moon.

They found several versions of the story, and one of them, told by the late Johnny Semple of Fort McPherson, goes like this: a community was going hungry because there were no caribou, and not even the medicine men could track them. A young boy, still an infant, suddenly spoke to his father, and declared he could find the caribou. The community built a fire, and the boy circled it, singing a medicine song. Then he told the hunters they would find caribou the next day, and that they were to bring him fat from a special cow. When the hunters returned, victorious, they refused to honour the boy's request. Angry, the boy left the earth for the moon, taking his puppy with him as well as a sack of caribou blood. The next morning, the caribou that had been hunted all disappeared, and not even a drop of blood remained. From then on, only the boy's parents ever had enough meat to eat. The moral of the story, says Kritsch, is the importance of sharing.

It may not just be a local legend. The GSCI is connecting with linguist Gary Holton at the University of Alaska Fairbanks, who's leading a study of Alaska Gwich'in celestial lore, documenting the names of stars, constellations, and astronomical events. Any overlap with NWT Gwich'in legends would hint at broader cosmological themes in

Northern Dene cultures. Horowitz hopes to then bridge the gap between Alaska and the NWT by working with the Vuntut Gwitchin in the Yukon.

But could contact with Europeans have altered the story over time? To find out, Horowitz is consulting the records of early explorers and anthropologists to see if the legends that were shared with them match the oral history today.

The Boy in the Moon may be more than a fable. Horowitz's current theory is that "it's not a folk tale on its own, but part of a core religious experience of the Gwich'in people before contact." What exactly that is, he's not sure—but he's hoping Gwich'in oral history can tell him.

Please visit the site: <http://uphere.ca/post/102386686133/the-gwichin-babylon-connection>

MUSEUM FINDS DRAWINGS FROM **SCHLIEMANN'S REPORT ON ANCIENT** **GREEK REMAINS,** **BY YOSHIKO AOYAMA**

A museum here said it has confirmed 28 original drawings from German archaeologist Heinrich Schliemann's report on ancient Greek ruins that could shed light on the excavation of a fabled palace.

Schliemann (1822-1890), who won fame for his discovery of the legendary city of Troy in Greek mythology, is also known for his unearthing of the remains of a Greek palace named Tiryns.

The Tenri University Sankokan Museum said Nov. 26 the original drawings contain notes handwritten by Schliemann.

A report on the discovery of Tiryns featured drawings and other materials and was released in 1885. However, journals and other information describing the excavation of the ancient palace do not exist.

Museum officials said the drawings they possess are precious primary historical materials that can explain what happened during the excavation process.

"The drawings depict the remains and relics with extreme accuracy in terms of scale and other aspects. Their quality reaches the most advanced level in the 19th century, a developing era for archaeology," said Yoshiyuki Suto, a professor of Greek archaeology at Nagoya University Graduate School.

"Because they include detailed instructions for publishing the report, we can learn what processes the drawings underwent until the release of the report," he added.

The largest drawing is 49 centimeters by 68 cm.

When Tiryns, located on the Peloponnesus Peninsula, was unearthed by Schliemann in 1884 and 1885, his German assistant, Wilhelm Doerpfeld, drew accurate ground plans for the remains.

In addition to the ground plans, the original drawings contain paintings of a mural featuring a performer riding a cow, as well as relics, such as earthenware shaped like animals. They were all painted with ink and watercolors.

The ancient palace is famous for its castle walls dating to the Mycenaean Culture (late 17th century B.C.-12th century B.C.), and has been designated a World Heritage site along with the remains of Mycenae. Ancient Greek poet Homer praised the massive walls in his work.

Shozen Nakayama, the founder of Tenri University who was an avid collector, bought 30 original drawings from Schliemann's report around 1960 at a secondhand bookshop in London.

A friend of Nakayama's donated two of the drawings to Tokyo's Middle Eastern Culture Center in Japan. The remaining 28 are currently owned by the Tenri University Sankokan Museum.

The Nara museum in 2008 asked the museum of prehistory and early history in Germany for a handwriting analysis of the 28 drawings. The study confirmed that some notes in the margins of the drawings were written by Schliemann.

The drawings will go on display from April through June at the Tenri University Sankokan Museum, together with the Tenri Central Library's first edition of Schliemann's report on the discovery of Troy.

Please visit the site:

http://ajw.asahi.com/article/behind_news/social_affairs/AJ201411270081

BATHONEA EXCAVATIONS SHED LIGHT ON ISTANBUL'S HISTORY

The Bathonea excavations that have been continuing in the Küçükçekmece lake basin for five years fill a gap in Istanbul's chronology by revealing traces from 2,000 B.C.

A Byzantine Greek inscribed marble plaque recovered during the Bathonea excavations [Credit: AA] The head of the excavations, Associate Professor Şengül Aydıngün said the first years were spent on cleaning, researching, mapping and geophysical work, while diggings started as of 2011-2012. Aydıngün said the ancient ports and a lighthouse that were found during the first years proved that the region was a big port. "Walls, long roads to the sea, avenues and docks were found on the coasts," she said. Aydıngün said large structures, squares, churches and a palace complex became evident over time, and the excavation team had reached a large cistern on which names like Konstantin and Konstans were written.

The cistern is believed to have dated back to the Byzantine era. She said they were particularly excited when they found Hittite statuettes from as far back as 2,000 B.C., as well as ceramic pieces from the same period. "With the early Hittite findings, we found contemporary Cypriot ceramics in small pieces. We now think Istanbul was livelier than we had thought back in the beginning of 2,000 B.C. We also see the traces of international maritime trade starting from this period. Further data will clarify this," she said. Aydıngün added that teams from universities in Germany, Britain, the Netherlands and Poland have joined the excavations so far, including architects, geologists, marine scientists, anthropologists and geophysicists, as well as archaeologists.

Thousands of pieces to be assembled This year's works at the site are focused on laboratory work, rather than in the excavations field. "We have worked on assembling unearthed pieces. Each piece of material is evaluated individually. It will continue until the end of the year. We have some 50,000 pieces of ceramics, waiting in boxes to be assembled. We have delivered a few thousand completed ceramics to the museum so far," Aydıngün said. "Thanks to the pieces we found during excavations, we started filling the gaps in Istanbul's historical chronology. We previously learned about the city's Neolithic age in excavations at Yenikapı, Fikirtepe and Pendik. We knew about 6,000 B.C., but we did not have an interim period. We did not know about the Istanbul of the Hittite era or early Bronze Age.

These excavations shed light on this era, and are exciting for the scientific world," she said. "We have excavated level by level. Each level gives us different information on each era. The information will become more serious in the next levels ... The Ephesus, Bergama, Troy and Alacahöyük excavations lasted 100 years and the Kültepe excavations took 60 years. This place will take even longer; it will take a few more generations, but my students will continue digging," Aydıngün said. She added that underwater work could not be conducted because the Küçükçekmece Lake was too dirty. "About 90 percent of the water is filled with sewage, nuclear and industrial waste. It is difficult to see [in the lake], so our underwater team could not work. Maybe there is a sunken ship like in Yenikapı, because we have found many broken pieces on the shore.

There are also ceramic pieces from the Roman era, suggesting that maritime trade took place. When the lake is cleaned properly, we will be able to know more,” Aydingün said.

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Please visit the site:

<http://archaeologynewsnetwork.blogspot.co.il/2014/11/bathonea-excavations-shed-light-on.html>

LIDAR DISCOVERS ROMAN GOLD MINES

Researchers in Spain have used sophisticated aerial laser technology to confirm the existence of ancient Roman gold mines.

The team from the University of Salamanca discovered the mines in the province of León in northwestern Spain, according to ScienceDaily. The researchers used an airborne laser technology called Light Detection and Ranging (LiDAR) to locate the mine complex, which was built 2,000 years ago.

LiDAR, which employs pulsed laser light to measure distances to earth, is used for a host of applications, including shoreline mapping and hydrographic surveys.

ScienceDaily reports that the gold mining complex in the Eria river valley includes sophisticated hydraulic works diverting river water to the mines. The Las Médulas region in León is considered to be the largest opencast mine in the Roman Empire but the University team discovered that mining extended many miles to the south east to the Eria valley.

"The volume of earth exploited is much greater than previously thought and the works performed are impressive, having achieved actual river captures, which makes this valley extremely important in the context of Roman mining in the north-east of the Iberian Peninsula," said Javier Fernández Lozano, geologist at the University of Salamanca and co-author of a study on the mines published in the Journal of Archaeological Science.

Fernández Lozano also described the crucial role played by LiDAR technology in locating the mine. "Unlike traditional aerial photography, this airborne laser detection system allows the visualisation of archaeological remains under vegetation cover or intensely ploughed areas."

LiDAR is an extremely useful tool for archaeologists. Last year, for example, researchers used the technology to discover lost temples, roads and hydraulic systems at Cambodia's ancient Angkor Wat site.

NASA, which developed LiDAR in the sixties, plans to use the technology to map the earth's forests in 3D. The technology is used in a new laser instrument called Global Ecosystem Dynamics Investigation (GEDI), which has been developed for the International Space Station.

Please visit the site: <http://www.foxnews.com/science/2014/11/24/aerial-laser-discovers-ancient-roman-gold-mines/>

CHINA FINDS OLDEST GELATINE ADHESIVE

Scientists have identified China's oldest adhesive, in the form of gelatine, from a 3,500-year-old ritual staff in a tomb complex known for its well-preserved mummies in Xinjiang, northwest China.

The translucent yellow adhesive was found on a wooden staff inlaid with bone sculpture in the Xiaohe Cemetery in Taklamakan Desert, said Yang Yimin, associate professor with the Chinese Academy of Sciences.

Scientific analysis later identified the adhesive as gelatine made from cattle. It was also the earliest known evidence of gelatine use in China, Yang said.

Gelatine can be manufactured by cooking animal bones, skins and tendons and has been commonly used as glue. Prior to the discovery, its use in China dates back to the Han Dynasty (202 BC - 220 AD).

Experts said China's ancient glue is prone to decomposition, posing difficulties for conducting analysis, but the dry climate in Xiaohe Cemetery has helped preserve the substance.

The Xiaohe cemetery, 175 km west of the ancient city of Loulan, was first explored by Folke Bergman, a Swedish archaeologist in 1934. The massive burial site, with over 300 graves, is best known for its many mummies preserved in ship-shaped coffins.

Please visit the site: http://news.xinhuanet.com/english/sci/2014-11/28/c_133821064.htm

KAROMAMA TOMB DISCOVERED IN THE RAMESSEUM TEMPLE

The French-Egyptian mission working at the Mortuary temple of Ramses II on the west bank of Luxor “The Ramesseum” has discovered a tomb of the divine wife of Amon “Karomama” during the excavation work in the temple.

The tomb is a 5 meters shaft and a funerary chamber has a stone door which its lower part remains in situ. Inside the tomb, some offerings and remains of 20 Ushabtis bearing Karomama’s name at the entrance of the chamber which indicates that it could be her tomb.

At the moment, the team is still working to define the King she was married to as “God’s Wife of Amon” title was only given to the King’s wives.

Dr. Youssef Khalifa, head of Ancient Egyptian Antiquities department, said that the discovered tomb in the Ramesseum dated to the Rammaside period. The importance of the discovery that it would help to shed more light on this character (Karomama) as we only have 12 Ushabtis bear her name as well as to canopic jars and a bronze statue in the Louvre.

Please visit the site: <http://luxortimesmagazine.blogspot.nl/2014/12/karomama-tomb-discovered-in-ramesseum.html> [Go there for pix]

COLOSSAL STATUE OF AMENHOTEP III **UNVEILED IN EGYPT**

Archaeologists on Sunday unveiled a restored colossal statue of Amenhotep III that was toppled in an earthquake more than 3,000 years ago at Egypt's famed temple city of Luxor.

The statue showing him in a striding attitude was re-erected at the northern gate of the king's funerary temple on the west bank of the Nile.

The temple is already famous for its existing 3,400-year-old Memnon colossi -- twin statues of Amenhotep III whose reign archaeologists say marked the political and cultural zenith of ancient Egyptian civilisation.

The 12.92-metre (43-foot) statue unveiled on Sunday stands west of an existing effigy of the king, also depicting him walking, which was unveiled in March.

"These are up to now the highest standing effigies of an Egyptian king in striding attitude," said German-Armenian archaeologist Hourig Sourouzian, who heads the project to conserve the temple.

The world-famous twin Memnon colossi are 21 metres tall but show the pharaoh seated.

The restored statue now stands again for the first time since its collapse 3,200 years ago, Sourouzian told AFP from Luxor.

Consisting of 89 large pieces and numerous small fragments and reassembled since November, the monolith weighs 110 tonnes.

It had lain broken in pieces after the earthquake in 1200 BC, Sourouzian said.

The statue shows the king wearing the white crown of Upper Egypt, and each hand holding a papyrus roll inscribed with his name, like the one standing next to it that was unveiled earlier this year.

His belt, holding a dagger with a falcon-head handle, is fastened with a rectangular clasp bearing the names of the king.

Work to conserve the Amenhotep III temple is entirely funded through private and international donations.

Pharaoh Amenhotep III inherited an empire that stretched from the Euphrates to Sudan, archaeologists say.

The 18th dynasty ruler became king aged around 12, with his mother as regent.

Amenhotep III died in around 1354 BC and was succeeded by his son Amenhotep IV, widely known as Akhenaten.

Luxor, a city of some 500,000 people on the banks of the Nile in southern Egypt, is an open-air museum of intricate temples and pharaonic tombs.

Please visit the site: <http://www.dailymail.co.uk/wires/afp/article-2873578/Colossal-statue-Amenhotep-III-unveiled-Egypt.html>

POLISH ARCHAEOLOGISTS IN CYPRIOT BREAKTHROUGH

A team from Krakow's Jagiellonian University that has been excavating the ancient city of Nea Paphos in Cyprus believes it has discovered the heart of the settlement.

The team led by Professor Ewdoksia Papuci-Wladyka from the university's Institute of Archaeology, has now been working on the site for four seasons and excavations are still ongoing. "Our most important discoveries this year were two large public buildings in the [ancient] city's centre," Professor Ewdoksia Papuci-Wladyka commented. "One of them is undoubtedly a shrine, while the second is thought to have been used as a warehouse," she said. The professor noted that these buildings were always located near the Agora, the term used to describe the central area of Greek cities.

The team has also located an ancient well near the eastern entrance to the Agora, which was later used as a bin by the inhabitants. The well was found to contain broken dishes, fragments of figurines and coins from the Hellenistic period. According to Greek mythology the goddess of love Aphrodite was born in the seas around Nea Paphos. The town has been inscribed onto UNESCO's list of world heritage sites.

Please visit the site: <http://www.thenews.pl/1/11/Artykul/190076,Polish-archaeologists-in-Cyprian-breakthrough>

ISRAELI CAVE OFFERS CLUES ABOUT WHEN HUMANS MASTERED FIRE, BY NALA ROGERS

Mastering fire was one of the most important developments in human prehistory. But it's also one of the hardest to pin down, with different lines of evidence pointing to different timelines. A new study of artifacts from a cave in Israel suggests that our ancestors began regularly using fire about 350,000 years ago—far enough back to have shaped our culture and behavior but too recent to explain our big brains or our expansion into cold climates.

If most archaeological sites offer a snapshot of the ancient past, Tabun Cave provides a time-lapse video. The site, about 24 kilometers south of Haifa, documents 500,000 years of human history. “Tabun Cave is unique in that it's a site with a very long sequence,” says Ron Shimelmitz, an archaeologist at the University of Haifa and a co-author on the new study. “We could examine step by step how the use of fire changed in the cave.”

The researchers examined artifacts previously excavated from the site, which are mostly flint tools for cutting and scraping, and flint debris created in their manufacture. To determine when fire became a routine part of the lives of the cave dwellers, the team looked at flints from about 100 layers of sediments in the lowermost 16 meters of the cave deposits.

In layers older than roughly 350,000 years, almost none of the flints are burned. But in every layer after that, many flints show signs of exposure to fire: red or black coloration, cracking, and small round depressions where fragments known as pot lids flaked off from the stone. Wildfires are rare in caves, so the fires that burned the Tabun flints were probably controlled by ancestral humans, according to the authors. The scientists argue that the jump in the frequency of burnt flints represents the time when ancestral humans learned to control fire, either by kindling it or by keeping it burning between natural wildfires.

The findings are consistent with data from several nearby sites. On their own, these other sites provide little information about when humans mastered fire, because they represent shorter slices of time and most are not well dated. But in combination with the long, detailed record from Tabun, they suggest that ancestral humans all over the eastern Mediterranean learned to control fire around the same time, Shimelmitz says. Earlier ancestral humans may have used fire occasionally when they could find it, but because their artifacts show few signs of burning, they probably didn't use it daily, the researchers report in this month's issue of the *Journal of Human Evolution*.

This time frame is consistent with that of European sites. A 2011 review dated routine fire use in Europe to between 400,000 and 300,000 years ago. Together with the new study from Tabun, the data suggest that ancient humans did not master fire until hundreds of thousands of years after they expanded into cold climates. There are earlier sites with evidence of fire, but these are rare and often hard to interpret, according to Paola Villa of

the University of Colorado Museum of Natural History in Boulder, a co-author of the 2011 review.

The new study won't end the debate, however. A few researchers have argued that ancestral humans did not regularly control fire until more recently, and others, such as Richard Wrangham of Harvard University, think that our ancestors mastered fire much earlier. Wrangham has argued that our ancestors started cooking food about 2 million years ago, when humans evolved smaller teeth and guts. He credits fire for favoring the evolution of many human traits, including our large brains.

All of those changes began long before the rise of burnt flints in Tabun Cave. Although he calls the finds “exciting,” Wrangham is not convinced by the sequence at this single site. The earliest inhabitants may have used the cave in different ways, such as to gather materials or butcher animals, saving their cooking for open-air sites, he says. “We clearly need more information.”

But he and Shimelmitz agree that whenever it arrived, fire gave ancestral humans tremendous advantages, including cooking, warmth, light in the night, and safety from predators. “There's a reason people think we got fire from the gods,” Shimelmitz adds

Please visit the site: <http://news.sciencemag.org/archaeology/2014/12/israeli-cave-offers-clues-about-when-humans-mastered-fire>

WHAT DID ANCIENT BABYLONIAN SONGS SOUND LIKE? SOMETHING LIKE THIS

What really lasts in this world? What dies, what can be revived? Are humans basically the same now as in ancient times?

I was left pondering these questions after listening to singer and composer Stef Conner's album *The Flood*. It's probably the first ever to be sung in ancient Sumerian and Babylonian, and it's hauntingly beautiful.

One concrete answer to the first question: clay. Clay lasts.

That's a good thing for Conner, who after completing a degree in music composition got deeply interested in Babylonian literature and poetry—which was originally recorded in cuneiform, wedge-shaped marks on clay tablets.

But the words on the paper, the modern incarnations of these mineral etchings, were not enough for Conner. She wanted to know what these languages *sounded like*, to summon life from stone. Many of these poems and snatches of writings were sung and chanted, according to historians. The tunes played an important part in rituals in Mesopotamian societies, from funerals to lullabies, Conner says.

So she teamed up with Andy Lowings, who reconstructs ancient instruments and plays a mean lyre, a musical instrument with strings that resembles a harp. The two set out to create music that brings ancient Babylonian poetry to life, and *The Flood* is the result. It was produced by sound engineer Mark Harmer and can be found on Conner's website; it will also come out on iTunes next month.

But how does one reincarnate music that no human voice has uttered for millennia? Conner says a key step was to really understand the language. She carefully studied historical analysis of the stresses and intonations of Babylonian and Sumerian for hints as to how it may have sounded, and researched how language is converted into music in similar Semitic languages. Then, after choosing and memorizing a piece of writing or poem, Conner collaborated with Lowings to create the melody.

Lyre player Andy Lowings, who built the instrument to be as similar as possible to the ancient variety. Stef Conner

She was guided in part by the work of music scholar Anne Draffkorn Kilmer, who came up with a score for the Hurrian hymn to Nikkal, the "oldest song in the world," recorded on a clay tablet found in the ancient city of Ugarit dating to the second millennia B.C.

Conner doesn't claim this is exactly how ancient Babylonian songs sounded, and admits that some intuition had to come into play to create the music. But she says that "ancient Babylonians would maybe think it sounded a bit familiar... and would have hopefully liked it." (I believe she also hopes that modern humans like it.)

"My wife and I enjoyed listening to the [album], finding in it much musical beauty and truth," says music historian Richard Crocker.

The album is littered with songs of romance, eros, lullabye calm, insults, come-ons and darkness. Of course, unless you're Indiana Jones, you're not going to understand most of the songs. There are, however, five English-language proverbs that are used like interludes on the album; all of them are translations of various Babylonian writings.

Some of them are funny:

*I am a lady who wears large garments
Let me cut my loincloth*

While others are bit darker:

*When I married a malicious husband
when I bore a malicious son
an unhappy heart was assigned to me*

Either way, the proverbs, like the songs, are probably unlike anything you've heard before.

"It's hard to find ways to have an original voice in the world of music," Conner says. She, of course, needn't worry about that.

Please visit the site: <http://www.rawstory.com/rs/2014/12/what-did-ancient-babylonian-songs-sound-like-something-like-this/>

STREET VIEW FOR THE BRONZE AGE, **BY HEATHER AMOS**

A new app offers a look at city life more than 3,000 years ago

Our brains aren't wired to look at 3,200-year-old ruins and see the vibrant city that once was, but soon our smartphones will do just that.

UBC archaeologists working among ruins on the island of Cyprus are developing a new mobile application that lets users tour Bronze Age rubble and see reconstructed city buildings. Point your mobile device at an archaeological dig and a scene will come alive before your eyes. It's like a Google Street View for the past, but in the lexicon of the tech-world it's known as augmented reality.

"The experience of being able to walk about an archaeological site and see what an ancient city might have looked like in its original context is unique," says UBC researcher Kevin Fisher. "Augmented reality is a relatively new technology but it has the potential to revolutionize the way people experience archaeological sites."

For this project, Fisher, a professor in the Department of Classical, Near Eastern, and Religious Studies, has partnered with a group of engineers at UBC's Media and Graphics Interdisciplinary Centre (MAGIC), led by postdoctoral fellow Payam Rahmdel. For now the researchers are developing the app for just one archaeological site but the project could be a stepping-stone for creating new tools for archaeologists and tourists.

Getting technical

The app, called KAD-AR, is among the first of its kind and Rahmdel says it stands out because it gives users an interactive experience using both visual data and location and GPS data.

"Many museums use augmented reality to give visitors extra experiences like watching a video interview about an artifact or seeing some pictures of where it was found," says Rahmdel. "With our app, you're moving inside a room that is in ruin, seeing it as it was and learning more about it. No other tools look at it this way."

The app is designed so that users can walk around the archaeological site and point their handheld device in any direction to see reconstructions of ruins, locations of buried features, and pull up additional information on archaeological finds like vases or art. The team partnered with nGRAIN, a Vancouver-based company that specializes in augmented reality, to work through the technological challenges of the iOS version of the app while Engineering Physics undergraduate student Afshin Haidari is working on the Android version.

Back in the Bronze Age

Before the Late Bronze Age the eastern Mediterranean island of Cyprus was mostly isolated. People lived in an egalitarian society and everyone worked to survive. Unlike its

nearby neighbours Egypt, Greece, and Mesopotamia, highly complex societies didn't develop on Cyprus until about 3,700 years ago.

From 1650 to 1100 B.C., Cyprus suddenly became an important centre of trade and supplier of copper, a resource that was in high demand as the primary ingredient for bronze. As it became more powerful, an elite class emerged and the city of Kalavassos-Ayios Dhimitrios was created, with new housing, tombs and monumental buildings.

“The design of the city aimed at showcasing the power of these elites,” says Fisher. “I try to reconstruct the city and understand these relationships.”

At the archaeological site, visitors see small stone walls only a couple of feet high and some square stones in orderly rows. The trained eye of an archaeologist can tell you that you're looking at a room at the heart of Cyprus' international olive oil trade 3,200 years ago. But for the average visitor, it's difficult to visualize. Fisher has enlisted the help of visual effects artist Lisa McLean to bring the ancient ruins to life.

“Much of the work on the 3D model has been completed from photos and maps of the site from previous excavations,” says McLean. “This summer I had the opportunity to work on the site in Cyprus and obtain more specific photos and measurements. I want to create an accurate and compelling glimpse into the past.”

A new toy and a new research tool

For both the MAGIC lab and the archaeologists, this app is a jumping point. The technology can be reused and revamped to enhance the experience of tourists or for archaeological research.

“We plan to develop the app further so archaeologists can integrate a variety of 3D data and visualize it in a way that can help to better understand the spatial and temporal relationships among the things they find,” says Fisher.

“All of this enhances our ability to bring the past to life and tell the story of how people lived in the past and why archaeological sites are important cultural and educational resources.”

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MILLION-MUMMY CEMETERY **UNEARTHED IN EGYPT, BY OWEN JARUS**

The remains of a child, laid to rest more than 1,500 years ago when the Roman Empire controlled Egypt, was found in an ancient cemetery that contains more than 1 million mummies, according to a team of archaeologists from Brigham Young University in Provo, Utah.

The cemetery is now called Fag el-Gamous, which means "Way of the Water Buffalo," a title that comes from the name of a nearby road. Archaeologists from Brigham Young University have been excavating Fag el-Gamous, along with a nearby pyramid, for about 30 years. Many of the mummies date to the time when the Roman or Byzantine Empire ruled Egypt, from the 1st century to the 7th century A.D.

"We are fairly certain we have over a million burials within this cemetery. It's large, and it's dense," Project Director Kerry Muhlestein, an associate professor in the Department of Ancient Scripture at Brigham Young University, said in a paper he presented at the Society for the Study of Egyptian Antiquities Scholars Colloquium, which was held last month in Toronto.

This cemetery was not a burial ground for kings or royalty. The people buried here were often laid to rest without grave goods, and without coffins for that matter, the researchers said. The deceased's internal organs were rarely removed; instead, it was the arid natural environment that mummified them. "I don't think you would term what happens to these burials as true mummification," Muhlestein said. "If we want to use the term loosely, then they were mummified."

Despite the low status of the dead, the researchers found some remarkably beautiful items, including linen, glass and even colorful booties designed for a child.

"A lot of their wealth, as little as they had, was poured into these burials," Muhlestein said.

The mummified child was buried with several other mummies. It was wrapped in a tunic and wore a necklace with two bracelets on each arm.

"There was some evidence that they tried much of the full mummification process. The toes and toenails and brain and tongue were amazingly preserved," the researchers wrote on the project's Facebook page. "The jewelry makes us think it was a girl, but we cannot tell."

Researchers estimate the infant was 18 months old when she died. "She was buried with great care, as someone who obviously loved her very much did all they could to take care of this little girl in burial," the researchers wrote. It's "very sad, but they succeeded. It was a beautiful burial."

Million mummy mystery

Where exactly these million mummies came from is an ongoing mystery, and one that the team has yet to solve. A nearby village seems too small to warrant such a large

cemetery, the researchers said. There is an ancient town named Philadelphia (so named after King Ptolemy II Philadelphus) not far away, but that town has burial sites of its own.

While there is a small pyramid nearby, it was built more than 4,500 years ago, which is more than two millennia before the cemetery was first used.

"It's hard to know where all these people were coming from," Muhlestein told Live Science.

A mummy over 7 feet tall

The stories that these million mummies tell appear endless. The Brigham Young team has excavated more than 1,000 of the mummies over the past 30 years, and Muhlestein admits the team has a publishing backlog.

One discovery that hasn't been published is of a mummy who is more than 7 feet (2 meters) tall. "We once found a male who was over 7 feet tall who was far too tall to fit into the shaft, so they bent him in half and tossed him in," Muhlestein told the audience in Toronto.

That's an extraordinary height given the generally poor nutrition these people had, Muhlestein told Live Science in an interview, adding that "even with great nutrition, it's really unusual" for an individual to reach that height. The great height could be because of a medical condition that caused an excess of growth hormone, but more research needs to be done to determine this.

This surprisingly tall mummy was discovered before Muhlestein became director, and the findings have yet to be published, he said. "We have a large publishing backlog, [and] we're trying to catch up on making our colleagues and the public aware [of the finds]."

Blond and redheaded mummies

While excavating and publishing the discoveries from the cemetery pose daunting challenges, they also provide archaeologists with terrific opportunities.

For instance, the team is in the early stages of creating a database of all the mummies it has excavated. When complete, the database will help the researchers study burial patterns in the area.

While the database is in the early stages, it has already provided some intriguing initial results. Muhlestein said he and the other researchers can use the database to "show us all of the blond burials, and [it shows] they are clustered in one area, or all of the red-headed burials, and [it shows] they're clustered in another area."

These clusters are interesting because they suggest "perhaps we have family areas or genetic groups [in certain areas], but we're still trying to explore that," Muhlestein said.

Please visit the site: <http://m.livescience.com/49147-egyptian-cemetery-million-mummies.html> [Go there for pix]

A HANUKKAH MIRACLE: 8,000-YEAR OLD OLIVE OIL FOUND IN GALILEE, EARLIEST KNOWN IN WORLD, BY RUTH SCHUSTER

Earliest evidence of olive oil production and use - possibly in whole world, say excavators.

Remains of olive oil some 8,000 years old have been identified in pottery sherds found at Ein Zippori, in a massive Early Chalcolithic site discovered serendipitously when widening a road.

Aside from the earliest known actual remains of olive oil, as opposed to indirect evidence of olive oil production, the site also features domestic buildings and multiple cultic areas with stunning finds, including animal bones and stone palettes (typically about 10x10 centimeters in size) carved with two-dimensional animal motifs.

Analyzing the content of clay vessels found at Ein Zippori in the lab. For a drawing of the engraved picture, see below.

Digging from 2011 to 2013, the archaeologists also found pottery vessels, a great deal of flint items - notably sickle blades and axes and even fine stone vessels, such as bowls. And, clay vessels that proved to have olive oil inside.

A clay vessel with olive oil residue found inside, from 8,000 years ago. Photo: Israel Antiquities Authority Ein Zippori is some 2 kilometers from the ancient town of Zippori, but is millennia older: there is no connection between it and the "classic" site of city. It is also situated right by Highway 79, a very busy traffic artery, which is why the road needs expansion - which in turn is how the site was found, explains Dr. Ianir Milevski of the Israel Antiquities Authority, who dug there in 2011-2013 together with Nimrod Getzov.

Naturally we can't know what the place was called then, but the site at Ein Zippori had clearly been occupied by a very large settlement - about 40 dunams or 4 hectares - over multiple periods in antiquity, Milevski says.

When the pottery storage vessels were first found, naturally the scientists couldn't know what had once been inside - olive oil, wheat, wine or something else. Analysis requires sending pieces of the vessels, which they must be careful not to contaminate for instance by touching, to the lab, which could test the organic remains that had been absorbed by the clay of the vessels. This Milevski and Getzov did; and the sherds were tested by Dr. Dvory Namdar of the Hebrew University of Jerusalem.

Analyzing residue on the walls of clay vessels found at Ein Zippori. Photo: Israel Antiquities Authority "We took several samples, not only from the Early Chalcolithic but other periods as well," says Milevski. The result was unambiguous: the vessels had been used to store olive oil.

What species of olive cannot be known; archaeologists have sharply differing opinions about that, let alone when the olive became known and used in the Levant. Comparing the ancient extracts with modern 1-year old oil shows a strong resemblance, the IAA says. But the find proves that olive oil existed and was being produced 8,000 years ago, Milevski tells Haaretz.

In other words, it shows that 8,000 years ago, the civilization of the Levant had reached the second stage of domesticating plant life. The first stage was the domestication of lentils and grain, which began about 10,000 years ago. Trees such as the olive were the second stage.

The find cannot infer that the people then had achieved domestication of the olive, he qualifies - just that they knew what to do with it.

A previous find by Dr. Ehud Galili and other, of thousands of crushed olive pits found at Kfar Samir, a prehistoric settlement off the Carmel coast south of Haifa, dating to about 6,500 years ago. That's some three hundred years later than the Ein Zippori find, Milevski clarifies. Since there is no knowing why people who lived so long ago were crushing olive pits, we cannot categorically say they were making olive oil, he points out; no oil was actually found. "We found the oil," he adds. No older findings of actual oil have been announced anywhere else.

Their findings were published in the Israel Journal of Plant Sciences.

Please visit the site: <http://www.haaretz.com/mobile/premium-1.632310?v=014FFD53AB05C2F755856A0B58EFA049> [Go there for pix]

MONUMENTAL ENTRYWAY TO HERODIAN HILLTOP PALACE UNEARTHED

Archaeologists from The Hebrew University of Jerusalem's Institute of Archaeology have discovered a monumental entryway to the Herodian hilltop palace. The unique complex was uncovered during excavations by The Herodium Expedition in memory of archaeologist Ehud Netzer.

The main feature of the entryway is an impressive corridor with a complex system of arches spanning its width on three separate levels. These arches buttressed the corridor's massive side-walls, allowing the King and his entourage direct passage into the Palace Courtyard. Thanks to the supporting arches, the 20-metre long and 6-metre wide corridor has been preserved to a height of 20 metres.

A royal burial monument

The Hebrew University archaeologists — Roi Porat, Yakov Kalman and Rachel Chachy — suggest that the corridor was built as part of Herod's plan to turn Herodium into a massive artificial volcano-shaped hill, a vast and impressive monument designed to commemorate the architect-King.

Surprisingly, during the course of the excavations, it became evident that the arched corridor was never actually in use, as prior to its completion it became redundant. This appears to have happened when Herod, aware of his impending death, decided to convert the whole hilltop complex into a massive memorial mound, a royal burial monument on an epic scale.

Whatever the case, the corridor was back-filled during the construction of the massive artificial hill at the end of Herod's reign. The upper section of a new monumental stairway stretching from the hill's base to its peak, constructed during the course of this building phase, appears to have been built over it.

The excavators point out that not only was the arched corridor covered over in the course of the construction of the hill-monument, but also all the structures built earlier by Herod on the hill's slopes, including the Royal Theatre uncovered by the expedition in 2008.

Herod's burial-place

The only edifice not covered over was the splendid mausoleum-style structure, identified by Netzer and the expedition as Herod's burial-place. Together with the monumental cone-shaped hill, this constituted the unique Herodian royal burial-complex.

During the course of the current excavations, the original impressive Palace vestibule, blocked when the corridor became redundant, was also exposed. This entry-room, decorated with splendid painted frescoes, had a magnificent entryway leading into it, and offered evidence of the rebel occupation during the Great Revolt (66-71 CE), including Jewish Revolt coinage and crude temporary structures.

Bar Kokhba Revolt tunnels

In addition, the excavations in the arched corridor also turned up evidence from the Bar Kokhba Revolt period (132-135/6 CE): hidden tunnels dug on the site by the rebels as part of the guerilla warfare they waged against the Romans. Supported in part by wooden beams, these tunnels exited from the hilltop fortress by way of the corridor's walls, through openings hidden in the corridor. One of the tunnels revealed a well-preserved construction of 20 or so cypress-wood branches, arranged in a cross-weave pattern to support the tunnel's roof.

In the future, according to Mr. Shaul Goldstein, Director of Israel's Nature and Parks Authority, the excavation of the arched corridor will allow visitors direct access to the Herodium hilltop palace-fortress, in the same way that Herod entered it two thousand years ago. There are also plans to provide tourists direct access from the structures on the slope, the Royal Theatre and the Mausoleum, via the earlier monumental stairway, to the hilltop palace.

Please visit the site:

<http://www.pasthorizonspr.com/index.php/archives/12/2014/monumental-entryway-to-herodian-hilltop-palace-unearthed>

MASSIVE ANCIENT UNDERGROUND CITY DISCOVERED IN TURKEY'S NEVŞEHİR, BY ERDİNÇ ÇELİKKAN

With 2014 soon coming to an end, potentially the year's biggest archeological discovery of an underground city has come from Turkey's Central Anatolian province of Nevşehir, which is known world-wide for its Fairy Chimneys rock formation.

The city was discovered by means of Turkey's Housing Development Administration's (TOKİ) urban transformation project. Some 1,500 buildings were destructed located in and around the Nevşehir fortress, and the underground city was discovered when the earthmoving to construct new buildings had started.

TOKİ Head Mehmet Ergün Turan said the area where the discovery was made was announced as an archeological area to be preserved.

"It is not a known underground city. Tunnel passages of seven kilometers are being discussed. We stopped the construction we were planning to do on these areas when an underground city was discovered," said Turan.

The city is thought to date back 5,000 years and is located around the Nevşehir fortress. Escape galleries and hidden churches were discovered inside the underground city.

Stating that they were going to move the urban transformation project to the outskirts of the city, Turan said they had paid 90 million Turkish Liras for the project already, but did not see this as a loss, as this discovery may be the world's largest underground city.

Hasan Ünver, mayor of Nevşehir, said other underground cities in Nevşehir's various districts do not even amount to the "kitchen" of this new underground city.

"The underground city [was found] in the 45 hectares of the total 75 hectare area that is within the [urban] transformation project. We started working in 2012 with the project. We have taken 44 historical objects under preservation. The underground city was discovered when we began the destruction in line with the protocol. The first galleries were spotted in 2013. We applied to the [Cultural and Natural Heritage] Preservation Board and the area was officially registered," said Ünver.

The newly discovered underground city will be the biggest among the other underground cities in Nevşehir that have been discovered so far.

Please visit the site: <http://www.hurriyetdailynews.com/massive-ancient-underground-city-discovered-in-turkeys-nevsehir-.aspx?pageID=238&nID=76196&NewsCatID=375>

HITTITE ROCK INSCRIPTION IN BOLKAR MOUNTAIN TO BE TAKEN UNDER PROTECTION

A 2,800-year-old Hittite inscription, which is on a rock in the Bolkar Mountain in the Central Anatolian province of Niğde and claimed to be the world's oldest mining license, will be taken under protection.

Niğde Culture and Tourism Director Tansel Tokmak said the 108-centimeter high and 186-centimeter wide inscription was from the late Hittite period, adding, "This region is rich in terms of the abundance of mineral. The inscription, which is estimated to have been written in the 8th century, is known as the first mining license in history. The first scientific work on the inscription was made by Professor Mustafa Kalaç in 1973. He said measures should be taken to protect it. In 2013, museum archaeologists examined the piece and said 8 percent of the inscription had been damaged."

Tokmak said they had initiated worked to take the necessary measures for the protection of the inscription. "It will be taken under protection. In the next level, the inscription will be copied and exhibited at the Niğde Museum as the 'Bolkar Mine Inscription,'" he said.

Niğde Museum Directorate archaeologist Mustafa Eryaman said mining activities in the region dated back to 2,800 years ago, and continued in the Roman, Byzantium, Seljuk, Ottoman and Republican eras.

"The inscription, translated by Kalaç, writes that King Warpalavas gave the administration of the Bolkar Mountains to Prince Tarhunzas and wishes for the mountain to be productive," said Tokmak.

Please visit the site: <http://www.hurriyetdailynews.com/hittite-rock-inscription-in-bolkar-mountain-to-be-taken-under-protection.aspx?pageID=238&nID=76045&NewsCatID=375>

THE MOST INTRIGUING **ARCHAEOLOGICAL DISCOVERIES IN 2014,** **BY RUTH SCHUSTER**

What did Noah's ark look like? When did man tame fire? Was David's Citadel really found and who fixed that wrestling match 2,000 years ago? All this and so much more in these choice picks from the Haaretz archaeology section in 2014, by By Ruth Schuster

January

4,000-year-old tablet describes Noah's ark - as round A 4,000-year-old Mesopotamian clay tablet goes on display at the British Museum – and describes Noah's ark as a round coracle, not the cruise-ship type thing portrayed by artists and Hollywood. BTW, the beloved of the god in this artifact wasn't "Noah" but the Mesopotamian king Atrahasis, and the god is Enki, not Elohim, but otherwise the stories are strikingly similar, including the animals' embarking two by two.

Also in January:

Pharaoh unknown to science, if not to robbers, found Hump stump solved: Camels arrived in region much later than biblical reference Fossil dung study indicates: Ancients in Negev had advanced economy Israeli fire discovery sheds new light on rise of human culture

February

2,300-year-old village unearthed on road to Jerusalem That's Israel for you – can't build a road without finding an ancient village. This one dates back to the Second Temple period. It appears to have been rather well-to-do: the houses, which were occupied from 530 B.C.E. to 70 C.E., each have several rooms and a courtyard. The town peaked in the third century BCE, following the reign of Alexander the Great, and was abandoned towards the end of the Hasmonean dynasty.

Also in February:

Inside the pit of the world's oldest barbecue

March

9,000-year old wand carved with human faces found in Syria A 9,000-year-old 'wand' of cow bone, with two human faces engraved on it, was found near an ancient burial site in southern Syria. It dates from the late 9th millennium BCE. The wand was found near a burial site where 30 headless skeletons had previously been discovered. Other findings at the site indicate that its inhabitants were some of the world's first farmers.

Also in March:

Lying about Leviathan: Archaeologists find the earliest fish tales

April

2,000-year old chisel used to build the Western Wall found A 15-centimeter long corroded metal stonemason's chisel was found while digging at the lower base of the Western Wall. The chisel's head had become flattened from being repeatedly banged on

rock. Eli Shukron, an archaeologist working for the Israel Antiquities Authority, suspects a builder working on scaffolding at one of the higher levels of the Wall dropped the thing and couldn't be bothered to climb down and retrieve it, and it became covered by rubble and stayed that way for 2,000 years. Or maybe he did climb down but couldn't find it.

Also in April:

New study proves hanky-panky between Neanderthals and humans 3,300-year-old coffin from time of pharaohs found in northern Israel Document shows ancient wrestling match was fixed Cold case: Did archaeologists find the last Maccabean king, after all?

May

Archaeologist says found King David's citadel An Israeli archaeologist, Eli Shukron, claims to have found the legendary citadel captured by King David in his conquest of Jerusalem. Based on pottery findings, the uncovered edifice is 3,800 years old, i.e., it was built 800 years before King David would have captured it from the Jebusites. Nu. The construction features massive walls of 5-ton stones stacked 21 feet wide, and Shukron says he found a water shaft that could be the one David sent his army through. Critics say there's no clear proof.

Also in May:

Fort found was home quarters to Roman infantry unit wielded to vanquish the Jews

June

Artifacts from ancient Sumerian city found on top of U.K. cupboard Amazing what you can find when you do a good clean out. Bristol University in Britain learned this firsthand when researchers discovered a box containing materials from archaeologist Sir Leonard Woolley's dig of the Sumerian city of Ur tucked away on top of a cupboard. Researchers determined that the box's contents were 4,500 years old — consisting of pottery, seeds, carbonized apple rings and animal bones — and had come from a tomb at an excavation in Iraq. No one knows how the material got to Bristol, which had no connection to the dig.

July

Prehistoric humans knew the secret of healthy teeth, say scientists An analysis of the plaque on prehistoric teeth found in Sudan shows that over 7,000 years, from the era of hunting-gathering to agrarian society, the people chewed on a weed that tasted revolting — sedge. It gave them carbohydrates and possibly more importantly, killed the bacteria that cause cavities. Archaeologists surmise that the ancient people were aware of this property, which is why they ate the sedge in the first place. It certainly wasn't for the taste.

Also in July:

Nero's revolving restaurant really existed, archaeologists prove

August

Hoard of coins from Jewish Revolt found near Jerusalem A cache of bronze coins dating from the Jewish Revolt against Rome was discovered while excavating a previously unknown ancient village, that had been discovered while expanding the highway between Jerusalem and Tel Aviv. The 114 coins bear a Sukkoth motif: lulavs between two etrogs. Around the image is the inscription in Hebrew “Year Four”, that is - the fourth year of

the Great Revolt of the Jews against the Romans (69/70 CE). On the reverse side, the coins bear a telling inscription, "For the redemption of Zion." The Jewish Revolt failed, by the way, again, leading to the destruction of the Temple by the vengeful Romans on Tisha B'av average.

Also in August:

Mideast's most ancient metal object found in Beit She'an Valley 'Naked runner' sheds light on a little-known art of ancient Rome Ancient Edomite metalworkers were elites, not slaves

September

Neanderthal rock art found, archaeologists claim This one is controversial, but some grooves found carved into rock in a Gibraltar cave, that couldn't be natural, have been associated with Neanderthals; i.e., they too had the capacity for abstract expression. Some feel the marks could have been made by homo Sapiens, but supporters of the Neanderthal origin theory argue that other technology found at the site has been associated exclusively with Neanderthals.

Also in September:

3,300-year-old 'Titanic of the Med' gives invaluable clues to Mideast's past

October

1,900-year-old ritual bath with World-War-II-era graffiti found in Israel Israeli archaeologists excavating a mikveh from the Second Temple period were surprised to find graffiti on its ceiling, carved there by rather pedantic Australian soldiers during World War II: "Cpl" and the names "Scarlett" and "Walsh," helpfully augmented with the initials "RAE," the numbers "NX7792" and "NX9168" and a date: May 30, 1940. Evidently the 1,900-year-old mikveh, which was carved out of the bedrock, and the cistern that fed it were open to the elements at least until the 1940s, say the archaeologists.

Also in October:

Archaeological find sheds light on the cause of the Bar Kochba Revolt Archaeologists in Greece uncover mosaic dating back to Alexander the Great

November

3,400-year-old temple unearthed in illegal Egypt dig lands seven in jail Tut tut. Seven Egyptians who discovered the remains of a 3,400-year-old temple underneath their home were arrested by the police for illegal excavation. The diggers found huge limestone blocks, engraved with hieroglyphs, dating to the reign of King Tuthmose III of the New Kingdom era in Egyptian history (16th-11th centuries BCE). Thing is they weren't supposed to hack away at their discovery themselves, they were supposed to tell the authorities.

Also in November:

Assyrian Empire was destroyed by drought and crowding, study says Cult fiction: Pagan relics don't mean Tel Burna was temple to Baal

December

8,000-year old olive oil discovered in Golan Absorbed into the walls of the clay pots in which it was stored, the olive oil found at Ein Zippori, in a massive Early Chalcolithic site discovered serendipitously when widening a road, is the oldest ever found anywhere in the world. Aside from the oil, the 8,000-year old site also features houses, and multiple cultic areas with stunning finds, including animal bones and stone palettes (typically about 10x10 centimeters in size) carved with two-dimensional animal motifs.

Also in December:

2,800-year old farm house uncovered in Rosh Ha'Ayin Debate rages: When did man tame fire? 350,000 years ago on Carmel, says archaeologist 'Homely' ancient rock adds to proof of King David's existence Fragment of 1,600-year old glass bracelet with menorah motif found Archaeologists find evidence of 60,000-old auroch hunt Ancient clay seals from biblical era found Archaeologist cracks mysterious message on Jerusalem prison wall Ancient Jewish tombstone found repurposed in 19th century Muslim mausoleum

Please visit the site: <http://www.haaretz.com/archaeology/1.633559>

SCIENTISTS DISCOVER OLDEST STONE TOOL EVER FOUND IN TURKEY

Scientists have discovered the oldest recorded stone tool ever to be found in Turkey, revealing that humans passed through the gateway from Asia to Europe much earlier than previously thought, approximately 1.2 million years ago.

According to research published in the journal *Quaternary Science Reviews*, the chance find of a humanly-worked quartzite flake, in ancient deposits of the river Gediz, in western Turkey, provides a major new insight into when and how early humans dispersed out of Africa and Asia.

Researchers from Royal Holloway, University of London, together with an international team from the UK, Turkey and the Netherlands, used high-precision equipment to date the deposits of the ancient river meander, giving the first accurate timeframe for when humans occupied the area.

Professor Danielle Schreve, from the Department of Geography at Royal Holloway, said: "This discovery is critical for establishing the timing and route of early human dispersal into Europe. Our research suggests that the flake is the earliest securely-dated artefact from Turkey ever recorded and was dropped on the floodplain by an early hominin well over a million years ago."

The researchers used high-precision radioisotopic dating and palaeomagnetic measurements from lava flows, which both pre-date and post-date the meander, to establish that early humans were present in the area between approximately 1.24 million and 1.17 million years ago. Previously, the oldest hominin fossils in western Turkey were recovered in 2007 at Koçabaş, but the dating of these and other stone tool finds were uncertain.

"The flake was an incredibly exciting find", Professor Schreve said. "I had been studying the sediments in the meander bend and my eye was drawn to a pinkish stone on the surface. When I turned it over for a better look, the features of a humanly-struck artefact were immediately apparent.

"By working together with geologists and dating specialists, we have been able to put a secure chronology to this find and shed new light on the behaviour of our most distant ancestors."

Please visit the site: <http://phys.org/news/2014-12-scientists-oldest-stone-tool-turkey.html>

EVIDENCE OF 60,000-YEAR OLD AUROCH HUNTING FOUND IN GOLAN A DIG SITE OFFERS A SNAPSHOT IN TIME OF A HUNTER-GATHERER SOCIETY THAT LIVED HERE 60,000 YEARS AGO, BY NOA SHPIGEL

Eight seasons of archaeological excavations at a site alongside the Jordan River reached an end last summer with good news: The site from 60,000 years ago, tells the story of the ancient hunter-gatherers who wandered the prehistoric Land of Israel in the Middle Paleolithic period.

The excavations at the site, located north of the Bnot Ya'akov Bridge, across the Jordan River north of Lake Kinneret - a region that is rich with ancient archaeological sites - were supervised by Gonen Sharon of Hebrew University and Tel Hai College Upper Galilee, who specializes in prehistoric archaeology. He explains that the site is special because it offers a window into a particular period.

"Usually when you come to an archaeological site it describes a lot of behaviors, a lot of time. Each layer you excavate may have been in use for hundreds and maybe thousands of years," Sharon says. But here the story is different. "This site is a point in time."

Sharon says the site served as a temporary camp for hunters, who would stay for a few days at a time while they hunted, killed and butchered enormous wild cows. It serves as evidence of the cattle that lived here tens of thousands of years ago, before any animals had been domesticated. The local "baladi" beef cattle raised on the Golan Heights today reach a weight of around 400 kilograms. Their ancestor, the auroch (*Bos primigenius*), weighed in at about 1,200 kilos. But prehistoric hunters were apparently undeterred by the auroch's great size and weight, says Sharon, in light of the flint spearheads and hunting knives found at the site. He says it is difficult to determine the exact hunting techniques they used, but one theory is that the hunters would chase aurochs grazing along the shore of Lake Hula into the muddy-bottomed lake, slowing the beasts down.

According to Sharon, finds at the site attest to the excellent butchering skills of the archaic humans that used it. A significant number of the auroch bones found at the site were unbroken, in contrast to other sites where most of the bones were broken - although in many cases that was at least in part in order to extract the bone marrow. Other animal remains were also found at the site, including those of frogs, snakes, turtles, tortoises and rhinoceroses.

Many questions about these ancient humans are still unanswered, Sharon says: "We don't really understand their thinking and behavior. There are a skull and a femur of a lion at the site. What is the lion doing there? Did they eat the lion, or wear its pelt, or did it just happen by and drown in the mud?"

Because the site was submerged under water until its discovery in 1999, it was very well preserved. Many seeds from edible plants were found, including raspberries, acorns, nuts and water lilies. Other plants long extinct in Israel, such as water chestnuts, were also found too. The abundance of flora and fauna shows that the climate was similar to today, even though Europe was undergoing an ice age at the time.

Please visit the site: <http://www.haaretz.com/mobile/.premium-1.632915?v=35BEED136962CDF3CD0B1DE1E4BDFB81>

WHY THE PANTHEON HASN'T CRUMBLLED, ANCIENT ROMAN CONCRETE HAS SOME BENEFITS OVER MODERN EQUIVALENTS, BY COLIN SCHULTZ

The fact that the Roman Pantheon still stands is equal parts amazing and confusing. Built in Rome in the 2nd century AD, the Pantheon is a massive concrete building capped by an impressive 142-foot-high dome—the largest in the ancient world.

Made entirely out of concrete, without the reinforcing support of structural steel, no modern engineer would dare attempt such a feat, says David Moore, author of *The Roman Pantheon: The Triumph of Concrete*. “Modern codes of engineering practice would not permit such mischief.”

And yet for nearly 2,000 years the Pantheon has stood, weathering earthquakes, Barbarian invasions and the persistent onslaught of Mother Nature.

For years, researchers have figured there must be something special about the concrete used to build the Pantheon and other Roman monuments that lend them such longevity. Many scientists have pointed to the practice of including volcanic ash in the concrete mix, as Erin Wayman wrote for *Smithsonian* in 2011.

In a new study, researchers drilled down into the chemistry of Roman concrete to find out what makes it so resilient. As suspected, the key ingredient is the specific blend of limestone and volcanic ash used in the mortar, says Gail Sullivan for the *Washington Post*.

Mixing mortar according to the recipe of 1st century Roman architect Vitruvius, the scientists' analyses unveiled that the mortar included “dense clusters of a durable mineral called strätlingite.”

“The crystals formed because of a reaction that took place over time between the lime and volcanic matter in the mortar,” says Sullivan, and “helped prevent the spread of microscopic cracks by reinforcing interfacial zones, which researchers called ‘the weakest link of modern cement-based concrete.’”

Sullivan says that the Roman technique actually has some benefits over modern mixes: Strätlingite crystals are similar to microfibers added to modern cement to reinforce the interfacial zone where it is prone to crack. However, the strätlingite crystals provide superior reinforcement and are resistant to corrosion.

Please visit the site: <http://www.smithsonianmag.com/smart-news/scientific-reason-why-pantheon-hasnt-crumbled-180953627/?no-ist>
