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**ΔΙΟΙΚΗΤΙΚΟ
ΣΥΜΒΟΥΛΙΟ:**

N. Ζαχαριάς, (πρόεδρος), N.
Κυπαρίσση (αντιπρόεδρος),
M. Γεωργακοπούλου
(γραμματέας), Θ. Βάκουλης
(ταμίας), Γ. Μπασιάκος
(μέλος), Κ. Πολυκρέτη
(μέλος), Γ. Φακορέλλης
(μέλος)

Πληροφορίες:

Γ. Φακορέλλης
E-mail: facorel@ha.uth.gr

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

BOARD: N. Zacharias
(president), N. Kyparissi
(vice-president), M.
Georgakopoulou (secretary),
T. Vakoulis (treasurer), I.
Bassiakos (member), K.
Polikreti (member), Y.
Facorellis (member)

Information: Y. Facorellis
E-mail: facorel@ha.uth.gr

Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Ιανουάριος 2009 -

*Οί γάρ κατ' ἑκεῖνον τὸν χρόνον τὴν πόλιν διοικοῦντες
κατεστήσαντο πολιτείαν οὐκ ὀνόματι μὲν τῷ κοινοτάτῳ καὶ
πραοτάτῳ προσαγορευομένην, ἐπὶ δὲ τῶν πράξεων οὐ
τοιαύτην τοῖς ἐντογγάνουσι φαινομένην, οὐδ' ἦ τοῦτον τὸν
τρόπον ἐπαίδευσεν τοὺς πολίτας ὥσθ' ἠγεῖσθαι τὴν μὲν
ἀκολασίαν δημοκρατίαν, τὴν δὲ παρανομίαν ἐλευθερίαν, τὴν
δὲ παρρησίαν ἰσονομίαν, τὴν δ' ἐξουσίαν τοῦ ταῦτα ποιεῖν
εὐδαιμονίαν, ἀλλὰ μισοῦσα καὶ κολάζουσα τοὺς τοιούτους
βελτίους καὶ σωφρονεστέρους ἅπαντας τοὺς πολίτας
ἐποίησεν.*

Ἰσοκράτης

Newsletter of the Hellenic Society of Archaeometry

- January 2009 -

Nr. 94

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Archaeology • September/October 2003 page 35

Current Anthropology, Volume 49, Number 6, (December 2008) Current
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Prehistoric and Protohistoric Cyprus: Identity, Insularity and Connectivity, by
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Bryn Mawr Classical Review, Daryn Lehoux, Astronomy, Weather, and
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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS
SYMPOSIUM ON THE METALLURGY OF
THE EUROPEAN IRON AGE 2010, REISS-
ENGELHORN-MUSEEN, MANNHEIM,
GERMANY, 20-22 APRIL, 2010

First Call for Papers

The Symposium on the Metallurgy of the European Iron Age will take place at the Reiss-Engelhorn-Museen, in Mannheim, Germany from 20-22 April 2010.

Abstracts of 200-400 words should be submitted to: SMEIA@cez-archaeometrie.de.

For more informations see: <http://www.cez-archaeometrie.de/en> see events

The page is still under construction, but more details will come soon!

Roland
email: roland.schwab@CEZ-ARCHAEOLOGIE.DE

MINOAN SEMINAR POSTPONED TO 15 **JANUARY**

As a precautionary measure, due to the unrest in Athens, the Minoan Seminar that was to have taken place on Thursday 11 December has been **postponed until Thursday 15 January**. Another notice will be sent out nearer the time to remind everyone.

In addition, our web-manager, Nikos Manias, has now replaced the main page of the website, hopefully eliminating the problems people have been having with it.

See you in the New Year.

Colin Macdonald

The programme for the Minoan Seminar 2008-09 is below. www.minoanseminar.gr

ΣΕΜΙΝΑΡΙΟ ΜΙΝΩΙΚΗΣ ΑΡΧΑΙΟΛΟΓΙΑΣ **MINOAN SEMINAR : 2009**

11 Δεκεμβρίου /December 2008

Tom Brogan

Understanding the Late Prepalatial and Protopalatial Periods in the Mirabello Region of East Crete: Insights from Recent Fieldwork

29 Ιανουαρίου /January 2009

Τούλα Μαρκέτου

Kyrbe beyond myth: art and architecture of the Late Bronze Age I settlement of Trianda in Rhodes

19 Φεβρουαρίου /February 2009

Γιάννης Τζεδάκης

Αρμένιοι. Νεκρόπολη, πόλη, περιβάλλον χώρος.

12 Μαρτίου /March 2009

Luca Girella

The tholos tomb of Kamilari near Phaistos: new light on an old excavation

30 Απριλίου/April 2009

Δημήτρης Μάτσας

Το βορειοανατολικό Αιγαίο και η μινωική Κρήτη στη Μέση Χαλκοκρατία

14 Μαΐου/ May 2009

Jean-Claude Poursat

Mallia excavations (exact title to be announced)

11 Ιουνίου /June 2009

Vasif Sahoglu

Excavations at Heóme - Βαλларarasú: New Perspectives on the Minoan Links of Western Anatolia

Ωρα 18.30, ΑΡΧΑΙΟΛΟΓΙΚΗ ΕΤΑΙΡΙΑ, ΠΑΝΕΠΙΣΤΗΜΙΟΥ 22

**MINOAN SEMINAR
Thursday 15 January 2009, 18.30**

Understanding the Late Prepalatial and Protopalatial Periods in the Mirabello Region of East Crete: Insights from Recent Fieldwork

Tom Brogan

The paper's primary aim is a presentation of the finds from the recent excavations in Pacheia Ammos by Vili Apostolakou, director of the KD Ephoria, which are being studied by the excavator, Phil Betancourt and the speaker. The first site is a small rock shelter with an impressive assemblage of pottery and stone tools that provide a new basis for discussions of late Prepalatial ceramic production and relative chronology in east Crete. The second site, called Pefka, sits in the pine trees on the north side of Richard Seager's villa in Pacheia Ammos and appears to be a workshop connected with dyeing textiles. The workshop offers a unique illustration of this important Minoan industry and is dated to Middle Minoan II.

Until recently late Prepalatial and Protopalatial remains from the Mirabello and the Isthmus of Ierapetra were known from a small number of sites: Mochlos, Pacheia Ammos, Gournia, Vassiliki and Myrtos Pyrgos. The archaeological sample remains uneven for the region, but one can no longer complain about a lack of evidence. Over the past two decades, American and Greek projects have conducted four intensive surveys of the area (Pseira, Kavousi, Vrokastro and Gournia), of which three have now been fully published and the last in is preparation. Remains of the Early Minoan III/MMI A period have recently been excavated at Mochlos, Pseira, Chysokamino, Kavousi Vronda, Pacheia Ammos, and Priniatikos Pyrgos. The new sample for Middle Minoan II is even larger, and includes finds from Papadiokambos, Mochlos, Underwater Pseira, Kavousi Vronda, Pacheia Ammos, Katalimata, and most recently Chrissi. While none of these sites has revealed the residence of a prepalatial chief or protopalatial ruler (Mochlos being a possible exception), together the excavated remains offer new threads of evidence for a dynamic economy under the direction of an elusive but I believe inescapable local elite. It is this emerging hierarchy and the local economy that I hope to shed light on in the second part of the paper, which examines the finds from Pacheia Ammos in their regional context. The results offer an instructive foil to the more tangible physical remains of Middle Minoan palatial administrations elsewhere on Crete, particularly at Malia and Petras, and a new approach to the puzzling question of which, if any, Cretan Protopalatial administration controlled the Mirabello and North Isthmus.

www.minoanseminar.gr

For the Poster, go to the web-site.

UNIVERSITY OF NOTTINGHAM- CENTRE FOR SPARTAN & PELOPONNESIAN STUDIES (CSPS)

Dear all,

please find below the updated CSPS event calendar.
On behalf of the CSPS Managing Committee,

Chrysanthi Gallou
Chrysanthi.Gallou@nottingham.ac.uk

CSPS EVENT CALENDAR 2009 (SPRING SEMESTER) All Welcome!

29 January 2009, 5.30pm, venue tba

Dr Annalisa Paradiso (University of Basilicata), “A new edition of Xenophon’s *Constitution of the Lakedaimonians*”

followed by

CSPS General Meeting & New Year Celebration

including short presentations on ongoing work on Sparta and the Peloponnese by internal and external CSPS members

24 February 2009, Archaeology & Classics C6, 5.00pm (jointly Classics & CSPS)

Professor Ellen Millender (Reed College), “Thucydides and Sparta”

26 February 2009, 5.30pm (venue tba).

CSPS Annual Lecture

Dr Michalis Petropoulos (Hellenic Ministry of Culture), “The temple of Artemis Aontia at Rakita, Ano Mazaraki, in Achaia”

4 March 2009, Archaeology & Classics A58, 4.30pm (jointly Archaeology & CSPS)

Dr Anna-Vasiliki Karapanagiotou (Hellenic Ministry of Culture) “Kyparissia: A planned town of the Classical period in Arcadia”

23-26 April 2009, Sparti, Greece

CSPS 2nd International Conference “Honouring the Dead in the Peloponnese”
(<http://www.nottingham.ac.uk/csp/forth-events.php>)

7ICAANE WORKSHOP PROPOSAL DEADLINE

Please note that all workshop proposals for the 7th International Congress on the Archaeology of the Ancient Near East, should be submitted by 31st December 2008.

The organising committee will look at all the proposals after the deadline. Workshop organisers will be informed in early 2009 as to whether their proposal has been accepted.

If you wish to submit a proposal please provide the following:

1. An abstract of the workshop topic
2. A list of potential speakers
3. A list of subjects to be covered within the workshop

All workshop proposals should be sent to the administrator: admin@7icaane.org

For further details please visit the website: www.7icaane.org/workshops.html I would be grateful if you could forward the above reminder to any interested staff and students.

Best regards,
Helen Taylor
email: helen_bgb@yahoo.co.uk

Miss Helen Taylor
7ICAANE Administrator
7th International Congress on the Archaeology
of the Ancient Near East,
London, 12th-16th April 2010
e-mail: admin@7icaane.org
website: www.7icaane.org

CLIMATE AND ANCIENT SOCIETIES
CAUSES AND HUMAN RESPONSES, THE
STINE ROSSEL MEMORIAL CONFERENCE,
21- 23 OCTOBER 2009, DEPARTMENT OF
CROSS CULTURAL & REGIONAL STUDIES
FACULTY OF HUMANITIES UNIVERSITY OF
COPENHAGEN

www.climate.ku.dk/CAS
www.humanities.ku.dk/
climateANE@hum.ku.dk

Climate, and human responses to it, plays an integral part in the formation of society. Thus when climate change occurs, the result of either natural or human causes, societies should react and adapt – but do they? If so, what is the nature of that change, and are the responses positive or negative for the long term survival of society and its peoples? Archaeology, steeped in interdisciplinary studies and dealing with a longue durée view of society, offers detailed and verifiable insights into climate changes in the past: causes, responses and consequences.

This conference, held under the umbrella of the University of Copenhagen's Climate and Sustainability initiative (<http://climate.ku.dk/>), is held in memory of Stine Rossel, archaeozoologist and member of the Department of Cross Cultural & Regional Studies, who had a keen research interest in climate and past societies.

The conference has four major themes as outlined below, each dealing with understanding past climates, human impact, and sustainability. Fields range from general to specific Near East.

Interested participants may submit paper titles and abstracts (no more than 200 words) for consideration to the e-mail address climateANE@hum.ku.dk until January 31 2009, the selection of papers will be made through blind review by members of the conference's Scientific Committee.

Accepted speakers will exchange their papers before the conference.

The conference fee will be 350 DKK for salaried participants and 250 DKK for students. Fees can be paid when the reviewing process has been finished.

Conference sessions

1. Holocene Climate Reconstruction

Keynote speaker and organiser: Neil Roberts, University of Plymouth This session adopts a holistic and global approach to reconstructing Holocene climates. Ways of measuring and assessing climatic variation are considered thematically and methodologically, drawing on material from a variety of sources such as ice core pollen, deep sea sediment cores, lacustrine sediments, and faunal and floral studies. Methods and

approaches to Holocene climate reconstruction will range from general, world-wide perspectives to more focussed studies on the Mediterranean area and the Near East. Papers that deal with new approaches in method and analysis as well as recent results of innovative field projects are especially encouraged.

2. Responses of Complex Societies to Climatic Variation Keynote speaker and organiser: Jason Ur, Harvard University The complex and continuing changing relationship between complex societies and the environment in which they exist is the focus of this session. With an emphasis on human response to climatic change, special attention will be paid to exploring social change, resilience and collapse in the face of climate change in the past. It is expected that this session will range from case studies to regional analyses with an unambiguous Mediterranean and Middle Eastern focus.

3. Archaeological Evidence for Pollution and its Ecological Implications Keynote speaker and organiser: Richard Meadow, Harvard University The subject of the direct or indirect impact of human behaviour on plant and animal communities is central to contemporary archaeological research. This session will explore this topic, notably the adverse effect of human activity on the environment, for example the depletion of game animals seen in shifts in the abundance of certain species. Special focus will be paid to investigating the severe and sometimes destructive pollution of the environment through human behaviour. It is expected that this session will have a clear Mediterranean and Middle Eastern focus.

4. Stable Isotope Analysis in the Middle East Keynote speaker and organiser: Nanna Noe-Nygaard, University of Copenhagen This session takes as its core subject new perspectives and possible problems in stable isotope analysis in the field of environmental studies. Papers will explore the potential of stable isotope analysis in archaeological research and the many new avenues of approach it offers, without disregarding the prospective problems associated with the application of the still emergent fields of ancient DNA and stable isotope analysis to archaeology.

Scientific committee:

Mette Marie Hald, Pernille Bangsgaard Jensen, Susanne Kerner, Alan Walmsley (CNA, ToRS, University of Copenhagen) and the keynote speakers.

**ICAF, 28TH CONFERENCE, FISH AND
SEAFOOD, ANTHROPOLOGICAL AND
NUTRITIONAL PERSPECTIVES,
KAMILARI CRETE, GREECE, 31ST MAY
TO 6TH JUNE 2009**

<http://utopia.duth.gr/~xirot/28thICAF/ICAF.html>

Organisation

Prof. Nikolaos I. Xirotiris, Laboratory of Anthropology Demokritos University of Thrace Komotini e-mail As. Prof. Antonia Matala, Department of Nutrition and Dietetics Harokopio University Athens e-mail As. Prof. Nena Galanidou, Department of History and Archaeology University of Crete Rethymno e-mail Kostas Zafeiris, PhD, Laboratory of Anthropology Demokritos University of Thrace Komotini Christina Papageorgopoulou, PhD, Seminar f. Ur- Fruehgeschichte, University of Basel, Switzerland

THEMES OF THE CONFERENCE

The meeting aims to provide a multidisciplinary approach to the role of fish and seafood in the human diet from ancient times to the present. Contributions will cover, but will not necessarily be restricted to, one of the following themes:

Fish and seafood as a dietary component

Fish biology in relation to nutritional value Fish and palaeodiets Fish and seafood in archaeology and art Symbolic and ideological uses of fish Impact of fish and seafood consumption on health Culinary aspects of fish and preservation techniques Safety aspects of fish consumption The problem of fish availability in the near future Industrial production of fish

TENTATIVE PROGRAMME May/June 2009

Sunday, May 31st Arrival

Welcome dinner

Monday, June 1st

9.00-10.00 Registration

10.00-13.00 Keynote lecture, and presentation of papers 13.00-17.30 Lunch, siesta or swimming on the beach 17.30-20.30 Presentation of papers 21.00 Dinner at a local tavern

Tuesday, June 2nd

10.00-13.00 Keynote lecture, and presentation of papers 13.00-17.30 Lunch, siesta or swimming on the beach 17.30-20.30 Presentation of papers 21.00 Dinner at a local tavern

Wednesday, June 3rd

10.00-13.00 Keynote lecture, and presentation of papers 13.00-17.30 Lunch, siesta or swimming on the beach 17.30-20.30 Presentation of papers 21.00 Dinner at a local tavern

Thursday, June 4th

9.30 Guided tour to the archaeological sites of Phaestos and Gortys 19.30 Presentation of local cuisine and tasting at Kamilari (South Crete)

Friday, June 5th

9.30 Guided tour to the archaeological site of Knossos 19.30 Presentation of local cuisine and tasting at Avthou (East Crete)

Saturday, June, 6th

Departure

PARALLEL ACTIVITIES

A fishing expedition will be organised with the aid of local fishermen who will take us in their boats for fishing in the bay at night.

Exposition of 'fish-art' and photographs of ancient fish-cultures Exposition of local food products Exposition of fish and seafood products

LOCALITY

The conference will take place at Kamilari, in the south of Crete.

Kamilari is a small village situated on a hill opposite to the Minoan site of Phaestos, within 2 km distance from the beach and 60 km from Heraklion, the largest town on Crete.

Links about Kamilari:

<http://www.interkriti.org/timbaki/kamilari.htm>

<http://www.uk.digiserve.com/mentor/minoan/kamilari.htm>

http://lettere.unive.it/vecchio_sito_2006/materiale_didattico/archeologia_egea/6.htm

foto safari

Minoan sites

Crete Map

TRAVEL

Kamilari is a one-hour drive from the Heraklion airport, to which there are direct flights from several European airports.

Alternatively, one can have a stopover in Athens or Thessaloniki.

Arrival: A shuttle service will be provided from Heraklion airport to the conference site. Please let us know your exact arrival details ahead of time, so that we can schedule your transfer to Kamilari.

Departure: Shuttle service will be provided from Kamilari to Heraklion, Saturday, June 6th.

ACCOMMODATION

Accommodation has been reserved in nice pensions at Kamilari. There is choice between a room, a studio or a house:

Rooms, accommodating 1-2 people. In all rooms there is WC with shower or bath, refrigerator, and air-conditioning.

Studios, accommodating 2-3 people. All studios have balcony, kitchenette with refrigerator and cooking facilities, WC with shower or bath, and air-conditioning.

Houses, accommodating 4-5 people. Houses also have a swimming pool.

The average accommodation price per person is 20-45 Euros/day without breakfast.

OTHER FACILITIES

Access to internet will be available with a small charge

INTERNATIONAL CONFERENCE ON HISTORIC METALS CONSERVATION, INTERIM MEETING OF THE ICOM-CC METAL WG, CHARLESTON, SOUTH CAROLINA, USA, 11-15 OCTOBER 2010

Call for Papers & Important Dates

Original Papers Are Invited For Submission Under The Following Themes:

Case Studies and Treatments

- Technical and authentication studies
- Conservation of large artifacts (e.g. practicality, sustainability, liability)
- Conservation of composite artifacts (e.g. mixed metals, metal-organic composites, metal threads, enameled, painted, plated, or gilded metals)
- Mass treatment (e.g. techniques, feasibility, limits)
- Conserving artifacts on a budget

Research and Treatment Development

- Advances in metal analysis and corrosion characterization
- Progress in conservation treatments (e.g. stabilization techniques, cleaning, corrosion inhibitors, patination)
- New approaches in metals protection (e.g. coatings, patination, corrosion inhibitors, preventive conservation, risk management analysis)
- Monitoring metal artifacts before and after conservation (e.g. documenting techniques, 3D scanning, reproduction, numerical modeling)
- Technology transfer from the industry

Authors interested in presenting a paper should submit an extended abstract (400-600 words) before 1 June 2009. The work must be original and not previously published. Contributions should be in English and include the contact information for the author[s] (affiliation, address, telephone, fax, and e-mail). The abstracts should be submitted via e-mail at the following address: ICOMCC.Metal2010@gmail.com

All abstracts will be reviewed by the Program Committee based on three criteria:

(1) Originality (2) Quality (3) Contribution to the field of conservation

After abstracts are reviewed and approved, all presenters will be required to submit a complete paper for publication in the Conference Proceedings. For deadlines see: <http://www.timetoast.com/timelines/4880>

Metal 2010 Program Committee – Charleston, South Carolina U.S.A.
Vasilike Argyropoulos • Technical Education Institute of Athens • Greece
Regis Bertholon • Université Paris 1 Pantheon-Sorbonne • France
Stefan Brueggerhoff • Deutsches Bergbau-Museum • Germany
Tom Chase • Chase Art Services • United States
Christian Degrygn • Haute école de Conservation-restauration Arc • Switzerland

David Hallam • National Museum of Australia • Australia
Andrew Lins • Philadelphia Museum of Art • United States
Ian Donald MacLeod • Perth Cultural Centre • Australia
Paul Mardikian • Clemson Conservation Center • United States
Jean-Bernard Memet • A-CORROS Expertises • France
Alice Boccia Paterakis • Kaman-Kalehoyuk excavation • United States
Emma Schmuecker • Royal Armouries Museum • United Kingdom
David Scott • UCLA Conservation Program • United States
John Scott • New York Conservation Foundation • United States
Lyndsie Selwyn • Canadian Conservation Institute • Canada
Joseph Sembrat • Conservation Solutions, Inc. • United States
Shelley Sturman • National Gallery of Art • United States
Johanna Theile • Facultad de Arte Universidad de Chile • Chile
David Thickett • English Heritage • United Kingdom
Robert Van Langh • Rijksmuseum Amsterdam • Holland
David Watkinson • Cardiff University • United Kingdom

David Hallam
Senior Conservator
Collections and Research
National Museum of Australia.
0419019895 or 0262085245 in analytical laboratory



HISTORICAL METALLURGY SOCIETY
SPRING MEETING 2009, URBAN
ARCHAEOLOGICAL METALLURGY: HISTORICAL
METALLURGY IN TOWNS AND CITIES, 21
FEBRUARY 2009, INSTITUTE OF
ARCHAEOLOGY, UNIVERSITY COLLEGE
LONDON, 31-34 GORDON SQUARE, LONDON
WC1H 0PY

A great number of archaeometallurgical remains are found in urban contexts. These include, among others, foundry remains, forges, goldsmith workshops, mints, assay offices or just stray finds of crucibles, slag or metal objects. Although these assemblages are increasingly studied by specialists, many remain unidentified or neglected in archaeological archives.

Urban metallurgists used skills and techniques quite different from those used by miners and smelters, and played an important technological and economic role in urban life. Their endeavours were closely related to those of other crafts, and their products were directly relevant to those living in the immediate vicinity. Thus, the documentation and study of urban metallurgical workshops and artefacts provides an interesting path to the functioning of historical towns and cities, as well as insights into relatively unexplored areas of historical metallurgy.

This workshop aims to provide a forum for the presentation of studies on metallurgical remains excavated in urban contexts. To provide a balance for the focus on ferrous metallurgy of previous HMS workshops, we particularly encourage presentations of research on non-ferrous and noble metals, and we welcome studies of both metalworking debris and finished artefacts. The chronological and geographical remit is purposefully broad, but we hope to showcase studies of materials recovered during rescue excavations in historical cities. The underlying intention is to provide examples of the use of such assemblages for research purposes, maximising their informative potential and saving them from neglect. By inviting urban archaeologists and finds specialists as well as archaeometallurgists, we also intend to create a network for the development of future projects.

If you would like to present a paper, please send a 200-250 abstract to Marcos Martinon-Torres, m.martinon-torres@ucl.ac.uk

<http://hist-met.org/2009workshop.html>

Dr Marcos Martín-Torres
Lecturer in Archaeological Science and Material Culture
Institute of Archaeology

University College London
31-34 Gordon Square
London WC1H 0PY
United Kingdom

e-mail: m.martinon-torres@ucl.ac.uk
tel: +44 (0) 20 7679 7496
www.ucl.ac.uk/archaeology



WORLD OF IRON CONFERENCE 2009
(WIC2009), THIS CONFERENCE,
ORGANISED BY THE UCL INSTITUTE
OF ARCHAEOLOGY, WILL TAKE
PLACE AT THE NATURAL HISTORY
MUSEUM IN LONDON, UNITED
KINGDOM FROM 16-20 FEBRUARY 2009

Register Now

We kindly invite you to register for the upcoming **WORLD OF IRON CONFERENCE 2009 (WIC2009)**. This conference, organised by the UCL Institute of Archaeology, will take place at the Natural History Museum in London, United Kingdom from 16-20 February 2009.

Detailed information can be found on: <http://www.ironsmelting.net/WIC2009/>

Note: reduced conference fee until January 1, 2009

Scope of the conference

The ‘World of Iron’ conference sets out to explore and celebrate the anthropological significance of the inception, adoption, expansion, and impact of prehistoric iron production outside Europe. Interlacing regional and themed sessions, it will relate archaeological and archaeometallurgical studies to wider anthropological issues such as technological style; technological variation, change and development; technical and social adaptation; and the evolving influences of iron on society and the physical environment.

This five day event is the first attempt to synthesise the latest research being conducted on iron and steel around the world, and to stimulate future research of the highest level. It creates a globally comparative perspective, integrating insights gained from established and emerging analytical techniques, Anthropology of Technology, and environmental history, highlighting nuances often obscured by Eurocentric perspectives. By bringing together established scholars and young researchers from four key regions, namely Africa, East Asia, the Indian Subcontinent, and Western and Central Asia, it stimulates an international exchange of ideas and experiences.

Sessions

The **Regional Sessions** bring together scholars and research from four key regions around the world and discuss the latest anthropological, archaeological and metallurgical research in the context of region-specific and wider anthropological themes and considerations:

- **Africa**
Chair: Professor Bertram Mapunda. Director of the Archaeology Unit, University of Dar-es-Salaam, Tanzania
- **East Asia**
Chair: Professor Han Rubin. Former Director of the Institute of Historical Metallurgy and Materials, University of Science and Technology Beijing, China.
- **Indian Subcontinent**
Chair: Dr Sharada Srinivasan. Fellow, School of Humanities, National Institute of Advanced Studies, Indian Institute of Science, Bangalore, India.
- **Western and Central Asia**
Chair: Professor Ziad al Saad. Vice President, German Jordan University, Amman, Jordan.

The **Themed Sessions** incorporate the latest research being carried out in all regions, including Europe, on both theoretical, technological, and environmental topics, to ensure maximum coverage of all major anthropological considerations concerning the study of iron production:

- **Invention, Innovation, Inspiration**
Chair: Dr Gill Juleff, Lecturer, Department of Archaeology, University of Exeter
- **Theoretical Approaches**
Chair: Professor Bryan Pfaffenberger, Department of Science, Technology, and Society, University of Virginia;
Co-chair: Dr Pierre Lemonnier, Directeur de Recherche, Centre de Recherche et de Documentation sur l'Océanie (CREDO), CNRS, France
- **Scientific Approaches**
Chair: Professor Vincent Serneels, Department of Geosciences, University of Fribourg, Fribourg, Switzerland
- **Environmental Considerations**
Chair: Professor Don Wagner, Chinese Science, Technology, History, Archaeology, Nordic Institute of Asian Studies, Copenhagen, Denmark.

Organisers

Xander Veldhuijzen, Jane Humphris, Thilo Rehren : WIC2009@ironmelting.net

Dr Xander Veldhuijzen

Leverhulme Research Fellow - Archaeometallurgy / Ancient Iron Technology of the Near East

WORLD of IRON CONFERENCE 2009 (WIC): please visit

<http://www.ironmelting.net/WIC2009/>

Institute of Archaeology
University College London
31-34 Gordon Square
London WC1H 0PY
United Kingdom

Office Tel +44 (0)20 7679 7510

UCL Web <http://www.ucl.ac.uk/archaeology/>

My E-mail: h.veldhuijzen@ucl.ac.uk
My Website: <http://www.ironsmelting.net/>



RADIOCARBON 2009 CONFERENCE, **MAY 31-JUNE 5, 2009, KONA, HAWAII**

Hello all,

Abstract submission and registration are now online for the Radiocarbon 2009 Conference (May 31-June 5, 2009, Kona, Hawaii).

The abstract deadline is **March 15, 2009**.

Registration includes the luau dinner reception on Sunday, May 31; also all meals (except Thurs. evening dinner); the poster session reception; the Weds. field trip; and a copy of the conference proceedings.

The hotel booking is also available online here:

<http://www.starwoodmeeting.com/StarGroupsWeb/booking/reservation?id=0810027282&key=3D911> which can also be found via the Accomodation link on the conference site. More information is available at the conference web site: www.radiocarbon2009.org

Please distribute this message to anyone who may be interested.

We hope to see you in Hawaii!

The 2009 Radiocarbon Conference Organizers

(Conference chairman Prof. Tim Jull)

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

THE MEDITERRANEAN
ARCHAEOLOGICAL TRUST
GRANTS TO ASSIST PUBLICATION

The Mediterranean Archaeological Trust, set up in 1959 for the promotion of the study of archaeology, invites applications for grants, made on a competitive basis, for expenses in 2009-10, in the preparation for publication of material from archaeological *fieldwork* in the Mediterranean world, *excluding* subventions to publishers and publication of material not from a specific excavation.

Within the terms of the Trust, priority may be given to publication of Bronze Age sites. Grants for any amount, however small, will be considered, provided they expedite publication. The grants do not normally exceed £ 3000.

Applications comprising a 2000-word (*maximum*) description of the proposed work and an outline budget, together with two referees' names, should be sent no later than 15 January 2009, to:

Professor Sir John Boardman
Mediterranean Archaeological Trust)
Classics Centre
66 St. Giles
Oxford OX1 3LU
G.B.

[or *also* by fax to +44 (0)1865 610237; *NOT* by email]

The references (which are *essential*) should be sent directly by the referees (to meet the deadline of 15 January), or accompany the application in a sealed envelope. Successful applicants will be informed by around the end of March 2009.

JOB: CONSERVATOR, YALE BABYLONIAN COLLECTION

Yale University is in the midst of expansion, and that means the demand for your skills is at an all time high. Yale University is the employer of choice for men and women who welcome challenge, value leadership and are interested in career growth. Put your skills to work at Yale University and join a team which is truly world class.

Conservator

We are currently seeking a Conservator to manage and execute the conservation, exhibition, and stewardship of a collection of over 40,000 ancient Mesopotamian cuneiform tablets dating from 2900 BCE to the Christian era, as well as 1000 ancient Mesopotamian clay art objects. This is a very special part-time, 4-year fixed duration position which will support a special initiative to conserve portions of the collection that have never been conserved at all or are in need of repair. The selected candidate will possess a Master's degree in Assyriology and two years of experience in the preservation of ancient tablets, preferably with experience in the conservation of cuneiform tablets. Proficiency in reading cuneiform script; thorough knowledge of professional museum practices; and excellent written/verbal communication, organizational, and management skills.

APPLICATION: For more information and immediate consideration, please apply online at www.Yale.edu/jobs - the STARS req ID for this position is 6212BR.

Yale University is an affirmative action/equal opportunity employer. Yale values diversity in its faculty, staff, and students and strongly encourages applications from women and members of underrepresented minority groups.

Ashley Lindenmuth
Advertising Coordinator
Office of Staffing & Career Development
Human Resources
Yale University
New Haven, CT
Phone (203) 432-9183
Fax (203) 432-6194
ashley.lindenmuth@yale.edu

LOS ANGELES COUNTY MUSEUM OF ART - ANDREW W. MELLON POSTDOCTORAL FELLOWSHIP IN CONSERVATION SCIENCE

The Conservation Center of the Los Angeles County Museum of Art is offering a three-year postdoctoral fellowship for a scientist interested in contributing to the field of art conservation. This position reports to the Senior Conservation Scientist and works collaboratively with all conservation staff and curatorial departments. The Conservation Center's research laboratory enjoys a reputation for excellence in both service and research and has a long tradition of providing training opportunities for young conservators and scientists interested in the care and preservation of paintings, works of art on paper, textiles, and three-dimensional objects. The fellow will be expected to participate in the daily activities of the laboratory including the technical examination of works of art using modern analytical equipment in the Center's Research Laboratory (FTIR, XRD, XRF, UV-VIS, PLM, MFT and TL) while engaging in at least one significant research project on the conservation of modern materials in museum collections. This project will seek to elucidate the mechanism of decay of specific modern materials in the museum's collections while offering potential preservation strategies. All research will be carried out collaboratively with LACMA conservators and scientists and may include scientists from outside LACMA. Publication in the professional literature and participation in symposia, seminars and other professional meetings will be strongly encouraged.

Eligibility

Candidates must have a PhD in one of the physical sciences. A strong background in materials science or polymer science is desirable. The degree must have been obtained within the last five years. Previous experience in a museum environment is not required, but a strong interest in the visual arts is important. Excellent written and verbal skills as well as an interest in collaborative and multi-disciplinary research are essential.

Terms

The postdoctoral fellowship will be three years beginning Spring/Summer, 2009 and ending in 2012. Fellows will be provided an annual stipend including benefits starting at \$56,240 with an annual cost of living increase. Fellows will also be provided a travel allowance and program funds for the purchase of equipment and supplies.

Application Procedure

Interested candidates must submit the following materials:

- A curriculum vitae including biographical information and list of publications
- A cover letter containing a short statement of the candidate's interest and intent in applying for the fellowship
- Three letters of recommendation

Application Deadline

Completed applications must be received no later than February 1, 2009. Applications should be mailed to:

Adam Kaplan, Human Resources, Los Angeles County Museum of Art, 5905 Wilshire Boulevard, Los Angeles CA 90036.

CC: Mark Gilberg, Director, Conservation Center, Los Angeles County Museum of Art, 5905 Wilshire Boulevard, Los Angeles CA 90036.

Questions may be addressed to: Dr. Frank Preusser, Senior Conservation Scientist, Conservation Center, Los Angeles County Museum of Art, 5905 Wilshire Boulevard; Los Angeles, California 90036; 323 857-6269; fpreusser@lacma.org.

UNIVERSITY OF CINCINNATI, **DEPARTMENT OF CLASSICS, TYTUS** **SUMMER FELLOWSHIP PROGRAM**

The University of Cincinnati Classics Department is pleased to announce the Margo Tytus Summer Fellowship Program. Tytus Summer Fellows, in the fields of philology, history and archaeology will come to Cincinnati for a minimum of one month and a maximum of three during the summer. Apart from residence in Cincinnati during term, the only obligation of Summer Fellows is to pursue their own research. They will receive free university housing. They will also receive office space and enjoy the use of the University of Cincinnati and Hebrew Union College Libraries.

The University of Cincinnati Burnam Classics Library (<http://www.libraries.uc.edu/libraries/classics/index.html>) is one of the world's premier collections in the field of Classical Studies. Comprising 225,000 volumes and other research materials, the library covers all aspects of the Classics: the languages and literatures, history, civilization, art, and archaeology. Of special value for scholars is both the richness of the collection and its accessibility -- almost any avenue of research in the classics can be pursued deeply and broadly under a single roof. The unusually comprehensive core collection, which is maintained by three professional classicist librarians, is augmented by several special collections such as 15,000 nineteenth century German *Programmschriften*, extensive holdings in Palaeography, Byzantine and Modern Greek Studies. At neighboring Hebrew Union College, the Klau Library (<http://library.cn.huc.edu/>), with holdings in excess of 450,000 volumes and other research materials, is rich in Judaica and Near Eastern Studies.

Application Deadline: February 15. Applicants must have the Ph.D. in hand at the time of application.

A description of the Tytus Summer Fellowship Program is available online at <http://classics.uc.edu/resources/tytus2.html>. There is an online application at <http://classics.uc.edu/resources/tytussummerap.lasso>. Questions can be directed to secretary@classics.uc.edu.

Getzel M. Cohen
Professor of Classics and History
Director, Tytus Visiting Scholars Program
Phone: 513-556-1951; Fax: 513-631-1715
Dept. of Classics, 410 Blegen Library, University of Cincinnati, Cincinnati, Ohio 45221-0226

STABLE ISOTOPE LABORATORY MANAGER – GNS SCIENCE, NEW ZEALAND

The National Isotope Centre (NIC), a division of GNS Science, is the premier source of applied isotope science capability in New Zealand. Its research and commercial activities are supported by a sophisticated technical infrastructure, including a modern stable isotope laboratory, particle accelerators for accelerator mass spectrometry and ion beam analysis, a tritium analysis facility, chemical laboratories for sample pretreatment, and an ice core research facility.

We are seeking a suitably qualified and motivated person for the position of Stable Isotope Laboratory Manager for our National Isotope Centre, which overlooks the Wellington Harbour in New Zealand. Over the last three years the laboratory has been modernised and now has 5 isotope ratio mass spectrometers (3 IsoPrimes and 2 Geo 20-20's), and 8 peripherals to measure the common 5 light isotopes in almost any phase. The laboratory manager is supported by 3 experienced technicians. The successful candidate will have had previous experience in laboratory management, a PhD in Geoscience or a related discipline, a track record of publications in stable isotope geochemistry, excellent organisational skills and ability to work and collaborate within multidisciplinary research teams. The position is permanent and immediate.

To obtain a position description or to apply for this position, please visit our website <https://vacancies.gns.cri.nz> and follow the online process.

Closing date: Sunday, 1st February 2009

Vacancy number: 1597

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

INTCAL OVERSIGHT COMMITTEE **VOTING**

Dear colleagues,

Earlier in the year, I contacted this list asking for nominations for the oversight committee of the IntCal working group (IWG). Nominations have now closed and the election process has started and we would like to offer members of this list a chance to vote.

The aim of the IntCal group is to provide an accurate, internationally agreed radiocarbon calibration curve for use throughout the radiocarbon dating community. The statistician and palaeoscientists appointed to the IntCal Oversight Committee (IOC) will work with the IWG to allow community input and transparency to the curve creation process.

Voting is open until 15 January 2009 and each elector may vote for one nominee in each of the three areas of expertise: 1) marine palaeoscience, 2) terrestrial palaeoscience and 3) statistics. A list of the nominees with brief biographies is available on-line at http://www.radiocarbon.org/IntCal_bios.pdf

While some nominees have expertise in more than one category, for convenience, each is listed in just one. The nominee biographies were provided by either the nominator or the nominee (but in some cases were not available).

Please vote for one nominee in each category by emailing Mark McClure at editor@radiocarbon.org <<mailto:editor@radiocarbon.org>> with the subject "IOC vote" and the name of the person you wish to vote for in each category in the main body of the message. Your vote will be treated confidentially and seen only by the managing editor of Radiocarbon, Mark McClure, who will tally the votes and relay the results to the IntCal Working Group and all nominees.

Best regards,

Paula Reimer, Chair
IntCal working group

Paula J. Reimer, Director
Centre for Climate, the Environment & Chronology (14CHRONO) School of
Geography, Archaeology and Palaeoecology Queen's University Belfast
e-mail: p.j.reimer@qub.ac.uk
Phone: 028 9097 3980
FAX: 028-9097-3897
International callers:
Phone: +44 28 9097 3980
FAX: +44 28-9097-3897

Websites:

www.chrono.qub.ac.uk

www.calib.org

Mailing/Shipping address:

Archaeology & Palaeoecology Building

Queen's University Belfast

42 Fitzwilliam Street

Belfast BT9 6AX

U.K.

ANNOUNCEMENT AND INVITATION to
Scholars of Minoan Crete and Ancient
Greece, *DISCOVERY & DEMONSTRATION*
of the *CNOSSOS LUNAR/SOLAR (GREAT*
YEAR) CALENDAR

----NOT A COMMERCIAL MESSAGE----

---Offering a FREE CD-copy for Your Critical Appraisal---
of a new work in Minoan astronomy and archaeology, presenting

Dear Friends and Colleagues:

This invites you to share and critically evaluate the demonstration of the Minoan Cretans' lunar/solar calendar---in a work called *Calendar House: Secrets of Time, Life & Power in Ancient Crete's Great Year*.

Please note that I will mail a FREE CD-copy of this work (in Adobe Acrobat Reader 7.0 and Microsoft Office Word 2007 formats) to any person in the world who requests one (with a serious interest in dialogue). My purpose is to share this discovery and to invite critical discussion of its step-by-step scientific demonstration.

FYI---I am a peer-reviewed historian of Native and Early America (15 years college teaching) who has also studied Minoan Crete for 30 years, and published *Ariadne's Brother: A Novel on the Fall of Bronze Age Crete* (1996). While not an archaeologist, I base all my works in its sciences and standards. There is nothing New Age or rhetorical about these demonstrations. Last year I began to present them to professional scholars in Crete (including Heraklion Museum), to archaeologists and archaeo-astronomers around the world. Their critical responses have been rigorous and encouraging---and *Calendar House* works to meet each demand for more demonstrability. I post these facts to suggest the level of peer-review already begun, and to invite more. I have been challenging this discovery for over 3 years and find by every kind of test and body of evidence that it is in fact correct, and quite amazing.

Here is a brief description of what *Calendar House* presents.

In 1972, U.S. scholar C.F. Herberger published *The Thread of Ariadne*, which began to demonstrate his discovery (reviewed by Harvard's Alexander Marshack, who found it "valid and valuable")---that, in the elaborate border of the Bull-Leap or Toreador Fresco from Cnossos Labyrinth, there are patterns of form, color, sequence, number, and Minoan writing (lunar crescents and "1's" from Linear A/B) which correspond to an actual lunar/solar cycle still going on in our skies: an 8½-year rhythm of Moon and Sun that Herberger called The Great Year. (Neither the Metonic Great Year nor the "octennium.")

The cycle is: New Moon/Winter Solstice followed directly by Full Moon/Summer Solstice, twice---one pair at each end of an 8½-year period. Observation shows that the 18 Solstices along its continuum (9 years x 2) present consistent lunar-phase patterns for

marking annual time. And these are the times in the Sun's year when it lights up points in the Throne Room (as scholar Lucy Goodison showed), whose symbolism is saturated with Great Year iconography. As Labrys' structure also reflects, Cnossos Minoans conceived The Great Year cycle as doubled within a longer 18-year period of Saros eclipses: the Great Year Throne is flanked by blue/white dado-patterns shown herein to have Saros reference.

These patterns in the Fresco work together---by a demonstrable logic of alternations, doubled signs/countersigns, and guided jumps between Calendar-segments--to represent those same observable patterns in the real Great Year of Moon and Sun astronomy, and, like every calendar, they work together to keep cycles of agriculture and religious festivals in harmony. In fact, if you have seen photos of The Antikythera Mechanism (more of its astronomy published in *Nature* last year by Bitsakis et al), its structure for laying out lunar/solar and eclipse cycles is visually the same physical design: Fresco Calendar operations (spiraling inward, reversing direction etc. by clear patterns) generate an "X" or quincunx across the center each 2 years, and the Mechanism too (c. 100 AD) is a rectangle containing interlinked spiral discs with an "X" or cross at center. Between the Fresco and Mechanism there are other examples including Cyprus/Philistine ceramics featuring a cross in a spiral wheel.

The work's first goal is to test and demonstrate the Calendar Fresco's operations and then to see how consistent it is with other central icons, architecture etc. First priority has been to "allow, grant or impose" nothing whatsoever and what has issued from tests has been like a new key for reading Minoan Crete. I did not "go looking" for any of this--I wanted to know how well Herberger's insights held up and kept finding (with some exceptions etc.) that from astronomy onward they did. Bitsakis et al wrote that the Mechanism's highly advanced astronomy "comes out of nowhere" and of course that is impossible.

There is nothing "totalizing" about the Cnossos Great Year---Minoans were far too diverse and independent for that. Yet, Cnossos offered Crete something very important for a long time that made it first among heterarchic equals. The Calendar Fresco was not "the imposed universal Minoan calendar"---but by every test offered you here, it was their long-developed central one. It has to be older than the structure of the Throne Room that manifests it and Cretans went on with its Festival year when The Labyrinth was no more. Their cosmos of meaning reached from the underworld to the (North) Star Door and Labrys was their tree of life.

What *Calendar House* shows for your judgment is based in and consistent with professional international scholarship. As we should expect of a calendar, it connects and illuminates established knowledge in detail and in major terms.

I'd welcome questions before you might agree to examine this discovery for yourself. Written clearly step by step (Chapter outline below), from astronomy to artifacts every element you need for judgment by comparison and context is provided (pending your demands for more!). The book's chapters total 390 pages including 400 color and black/white photos, artifacts, diagrams, maps, astronomy observation-charts and other elements, by which you judge each step of the way though this labyrinth in a labyrinth, see how it connects with many things we already know, and with long-standing questions. Not least---How did the Minoan world function without "kings," and how was it the matrix from which kings emerged into familiar Western forms?

Finally below is a brief chapter outline of *Calendar House*.

I hope I may post this invitation once per week in the coming 1 month to increase the chance of extending it to all.

Thank you for reading this---and may *Calendar House* show you this genuine

wonderful heritage.

Yours sincerely,
Dr. Jack Dempsey

jpd37@hotmail.com

CALENDAR HOUSE:

Secrets of Time, Life & Power in Ancient Crete's Great Year

---Chapters (after Introduction)---

1: Beginnings of Time

(what we know/have not known about early Minoan calendrics)

2: New Year & Great Year

(why Winter Solstice became New Year Day; and, what The Great Year is)

3: Light & Shadow: Great Year & Saros

(Great Year patterns 2000-1400 BCE; and its relations to Eclipse cycles)

4: Into The Labyrinth

(establishing the best original Fresco; its elements, forms, patterns and problems)

5: Sign & Countersign

(how The Calendar Fresco works; tested against Cretan ecology, artifacts etc.)

6: Calendric Spectacle

(how calendrics and Festivals underwrote the "supremacy" of Cnossos)

7: Cosmic Kinship: The Cnossos Throne

(Great Year patterns in Throne Room details: meanings of its symbols)

8: Labrys & Star Door

(Calendar structures in the Double Axe; Minoan leaders and the afterlife)

9: Bull Come/King Go: Minoans & the Future Past

(post-Minoans in Palestine; and
questions of where Minoans are and should be in education)

(Works Cited & Related, and Index)

Dr. Jack Dempsey

45 Broadway

Stoneham MA 02180 USA

001 781 438 3042

jpd37@hotmail.com

<http://ancientgreece-earlyamerica.com>

XENOBIOTIKA LIMITED FOR ORGANIC RESIDUE ANALYSIS

Xenobiotika Limited is a biotechnology company, located at the University of Birmingham (UK) Research Park, created by a group of archaeologists and scientists to undertake organic residue analysis of archaeological material, which is funded by our commercial work. Many of the techniques and scientific applications were devised or successfully employed during the project "Minoans and Mycenaeans: flavours of their time" which culminated in a series of international exhibitions and in the publication Y. Tzedakis, H. Martlew and M. K. Jones (eds.), *Archaeology Meets Science: Biomolecular and Site Investigations in Bronze Age Greece*, Oxford, Oxbow Books, 2008. The company is constantly updating, refining and developing its scientific instrumentation and techniques.

Recent work on a first millennium BC shipwreck site from the Eastern Mediterranean has shown that it is possible to undertake organic residue analysis successfully (using the latest state-of-the-art analytical equipment) on pottery sherds that have been submerged in seawater. As a result we would be interested in discussing the possibility of undertaking analysis of material from other shipwreck sites (of any period - although our interests are mainly Aegean Prehistory) or joint projects.

Dr Holley Martlew (Holley Martlew Archaeological Foundation), Chief Executive

Professor Robert Arnott (University of Birmingham), Chairman

Professor Michael P. Richards (Max Planck Institute for Evolutionary Anthropology, Leipzig), Scientific Director

Please reply to Professor Arnott on R.G.Arnott@bham.ac.uk

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

FAKING BIBLICAL - HOW WISHFUL THINKING AND TECHNOLOGY FOOLED SOME SCHOLARS—AND MADE FOOLS OUT OF OTHERS, BY NEIL ASHER SILBERMAN AND YUVAL GOREN

Archaeology • September/October 2003

Two centuries of intensive archaeological activity in the land of the Bible—surveying, digging, and frantic antiquities buying and selling—have yielded only a handful of artifacts than can be directly connected to specific biblical personalities. Yet since the beginning of the great search for archaeological proof of the scriptures, those personalities have loomed large in virtually every debate. Were the Patriarchs—Abraham, Isaac, and Jacob—genuine historical characters? Did David and Solomon really rule over a vast united kingdom? Was Jesus of Nazareth a real figure who lived much as he is described in the New Testament?

Archaeology has done a great deal to clarify the general social background and historical context in which the Bible was written, but scholars are still divided, often acrimoniously, about how much of the scriptural narrative is historically accurate. That is why the stakes were so high when two astounding discoveries recently surfaced in Jerusalem that, if authentic, would have offered convincing, perhaps even irrefutable archaeological evidence of the historical reliability of two important biblical events.

But the story that began with trumpet blasts of spiritual triumph was destined to end as an embarrassing farce. Indeed, the pious self-deception, shoddy scholarship, and commercial corruption that accompanied these relics' meteoric rise and fall as media sensations offer an instructive Sunday school lesson to anyone who would, at any cost, try to mobilize archaeology to prove the Bible "true."

THE GREATEST DISCOVERY OF THE CENTURY?

The story first exploded into the headlines on October 21, 2002, with the beginning of a skillfully orchestrated publicity campaign. At a Washington press conference jointly sponsored by the Discovery Channel and the Biblical Archaeology Society, Hershel Shanks, publisher and editor of the popular *Biblical Archaeology Review*, presented a large audience of reporters and TV crews with photographs and background supporting what he called "the first ever archaeological discovery to corroborate biblical references to Jesus." The discovery in question was a small chalk ossuary, or bone container, bearing the Aramaic inscription *Yaakov bar Yoseph, Achui de Yeshua*, "James, son of Joseph, brother of Jesus." According to Shanks, the ossuary belonged to an anonymous Tel Aviv antiquities collector who, having become aware of its significance, was now willing to allow news of its discovery be made public.

Authenticated as dating from the first century a.d. by renowned Semitic epigrapher André Lemaire of the Sorbonne and by some laboratory tests carried out by scientists at the Geological Survey of Israel (GSI), the ossuary caused a worldwide sensation. No previous artifacts had ever been found that could be directly connected to the gospel figures Jesus, Joseph, or James—yet here was one that might have held the very bones of Jesus’ brother. In the following days, excited reports about the “James Ossuary” appeared on NBC, CBS, ABC, PBS, and CNN and in *The New York Times*, the *Wall Street Journal*, the *Washington Post*, and *Time*. *Newsweek* suggested that “Biblical archaeologists may have found their holy grail.”

The initial studies of the ossuary had indeed produced some dramatic conclusions. Lemaire reported that even though the ossuary seemed to be undecorated, its inscription was truly remarkable. He dated the distinctive forms of the inscribed letters to the period a.d. 20 to 70 and made a mathematical calculation about the possibility that this was in fact the container that had once held St. James’ earthly remains. Relying on estimates of first-century Jerusalem’s population (around 80,000) and the frequency of name combinations appearing on ossuaries from that period, Lemaire suggested that “it was very probable” that this was the burial box of James, who, according to the ancient Jewish historian Flavius Josephus, was executed by the order of the high priest Ananus in a.d. 62.

Hershel Shanks immediately understood the potential significance of this find to his magazine’s largely conservative Christian audience. In recent years, the literal reliability of the scriptural descriptions of Jesus’ early life and ministry has been challenged by a significant number of biblical scholars. Shanks’ publications *Biblical Archaeology Review* and *Bible Review* have covered the controversy in detail. And ever keeping his ear to the ground to learn of recent finds that might influence the course of the debate, Shanks solicited and received a manuscript from Lemaire describing his conclusions about the James Ossuary, to be published as a world exclusive in *Biblical Archaeology Review*.

A cautious lawyer by training, Shanks sought second and third opinions from other world-renowned experts in ancient Semitic epigraphy: Kyle McCarter of Johns Hopkins University and Joseph Fitzmyer of the Catholic University. Though McCarter detected two handwriting styles (and therefore two scribes) in the first and last parts of the inscription, both he and Fitzmyer agreed that the Aramaic letters were authentic and dated to the first century a.d.

Next, Shanks turned to hard science. Amnon Rosenfeld and Shimon Ilani of the GSI carried out microscopic and chemical tests on the ossuary. Their results provided another seeming confirmation of the ossuary’s authenticity: its stone is of the type commonly used in Jerusalem ossuaries and the patina that covers it “has a cauliflower shape known to be developed in a cave environment”—suggesting that it was naturally formed in a rock-cut burial chamber over hundreds of years. In sum, Rosenfeld and Ilani concluded their report that, “No evidence that might detract from the authenticity of the patina and inscription was found.”

The archaeological value of this potentially unique and precious relic was also to be long plagued by nagging uncertainties about the date and place where it was obtained.

According to current Israeli antiquities law, only artifacts that were discovered prior to 1978 can be privately owned or sold by officially licensed antiquities dealers. All subsequent finds belong to the state. In his October press conference, Shanks reported that the ossuary had been found “around fifteen years ago,” which would therefore make it subject to confiscation by the Israel Antiquities Authority (IAA). But the collector, with whom Shanks was in close contact and whom he called “Joe” to preserve his anonymity, issued a clarification. “Joe” claimed he had obtained it as a sixteen-year-old—at a Jerusalem antiquities shop (but which one he could not exactly remember)—just a few years after the 1967 war. It was one of his earliest acquisitions and he had kept it at his parents’ Tel Aviv apartment for many years. It was only fifteen years ago that he brought it to his own apartment. And why the self-professed owner of “probably the largest and most important private collection of its kind in Israel” never recognized the ossuary’s significance? Shanks quoted “Joe” as innocently admitting in one of their many conversations that “I never thought the Son of God could have a brother!”

The November/December 2002 issue of *Biblical Archaeology Review* carried an exclusive cover story on the ossuary with the bold headline “Evidence of Jesus Written in Stone.” But this was only a part of a far wider publicity campaign. Shanks teamed up with Simcha Jacobovici, a Canadian film producer who believed the “James Ossuary” could be a huge media sensation all over the world. A deal was concluded with the Discovery Channel, which would air a nationwide prime-time documentary special during the Easter weekend. Negotiations also got underway with massmarket publisher HarperCollins for a book that Shanks would coauthor with Ben Witherington III of the Asbury Theological Seminary in Kentucky, a staunch defender of the historicity of the gospels and an occasional columnist for Shanks’ other publication, *Bible Review*. And as if that were not enough of a media overkill for a humble white bone box from Jerusalem, Shanks proposed (with the willing and by now enthusiastic cooperation of “Joe”) that the ossuary would be the centerpiece of a highly publicized public exhibit at the prestigious Royal Ontario Museum (ROM) in Toronto, coinciding with the annual meetings of the Society of Biblical Literature.

Before the media uproar of the October 21 press conference, “Joe” reportedly insured the ossuary for \$1 million and obtained routine approval for the temporary export of an inscribed ossuary from the IAA. On October 25, while the media was still humming with excited speculation about the significance of the bone box, William Thorsall, ROM director and CEO, proudly announced in an official press release that the “ROM is honoured to receive the James Ossuary such a short time after its discovery,” and that “we are delighted to be the first museum to display it and bring forth the various theories regarding its significance and archaeological history.”

Yet for all the ballyhoo, hosannas, and lucrative negotiations, the journey of the James Ossuary to Toronto was illstarred. When it arrived at the Royal Ontario Museum and was removed by the curators from its cardboard shipping box and bubble-wrap blanket, it was found to be severely damaged by a network of deep cracks. Desperate to recover from this public-relations debacle and launch their exhibition on time, ROM conservators began feverish work to repair the damage—discovering, in the meantime, carved rosette decorations on the side opposite the inscription that had apparently been overlooked by Lemaire. In the meantime, the identity of the owner was revealed by a reporter for the Israeli daily *Ha’aretz*. He was Oded Golan, a 51-year-old engineer, well known on the Israeli antiquities collecting and dealing scene.

The IAA, for its part, was criticized (and embarrassed) by the ease with which it had issued the export permit. It demanded that Golan return the ossuary to Israel after the conclusion of the exhibition so that its legal status could be resolved and it could be examined by IAA experts. The whole affair of the James Ossuary was in danger of becoming a comedy of errors. But so many people were now caught up in the enthusiasm of the “first discovery that proved the historical existence of Jesus” that almost everyone forgot to laugh.

Or almost everyone. From the start there were some skeptical voices. In an op-ed piece in the *Los Angeles Times*, Robert Eisenman of University of California-Long Beach, a well-known, controversial scholar who had written extensively on James, termed the discovery “just too pat, too perfect.” He suggested that the names of Jesus, Joseph, and James together “is what a modern audience, schooled in the Gospels, would expect, not an ancient one.”

With the ossuary glued back together and dramatically illuminated in a main exhibit hall of the Royal Ontario Museum, the best possible light was cast on the celebrated discovery. Even proud owner Oded Golan had flown over to Toronto to be at the festive opening of the exhibition and to participate in the public lectures held in connection with it. Lemaire, basking in the media attention and scholarly acclaim of the moment, firmly defended his original conclusions about the inscription at a special session of the Society for Biblical Literature. Standing at the lectern, he angrily dismissed claims that it was a modern forgery, misdated, or even written by two people. As a scholar of unquestioned reputation, Lemaire icily questioned the professional qualifications and expertise of those individuals who had come forward to challenge his reading.

Following Lemaire, in an impassioned rhetorical tour de force worthy of a skillful summation to the jury, Hershel Shanks also belittled the critics of the inscription as far less credible than the famous scholars who supported its authenticity. Addressing critics who found fault with the promotion of a privately owned artifact whose provenience was so uncertain, he railed against those who opposed the antiquities trade, suggesting that there are “bad” collectors who hoard their treasures and “good” collectors who share them with the world. Oded Golan was, by that definition, certainly good.

The doubters had been at least temporarily humbled. The sheer weight of skillful promotion, museum prestige, media attention, and scholarly reputation had lined up in favor of the authenticity of the James Ossuary and discouraged most from taking a closer look at the emperor’s clothes.

ANOTHER AMAZING ARTIFACT

Hardly had Christmas come and gone when, in January, another amazing and unprecedented archaeological find, the so-called “Jehoash Inscription,” was revealed to the world. It was reportedly recovered from the construction rubble of recent, controversial building activities by the Muslim authorities on the Temple Mount in Jerusalem. According to another account, it was found lying face down, in the Muslim cemetery, down slope from the Temple Mount. Bearing fifteen lines of Hebrew-Phoenician script, this cracked gray stone slab was dated nine hundred years older than the James Ossuary and described repairs to the Temple in Jerusalem apparently overseen

by Jehoash, son of King Ahaziah of Judah. It described how the ancient king of Judah collected contributions from his subjects and obtained the precious materials:

When the generosity of the men from the land and from the desert, and all the towns of Judah, was filled, to give much hallowed money to buy quarried stones, cypresses, and copper, meant to do the work faithfully. And I repaired the beaches of the Temple and the walls around, and the gallery, and the fences, and the spiral stairs, and the niches, and the doors. And this day would be a testimony that the craftsmanship would endure. May the Lord bless his people.

This language was strikingly reminiscent of the account in 2 Kings 12. And at a time when the date of composition of the Hebrew Bible, like that of the Gospel accounts, had become a matter of disagreement among biblical scholars, the Jehoash Inscription offered a lapidary reply to those who would deny that the Hebrew Bible contained a reliable record of events. According to archaeologist Gabriel Barkay of Bar-Ilan University, this find, if authentic, would be “the most significant archaeological finding yet in Jerusalem and the Land of Israel. It would be a first-of-its kind piece of physical evidence describing events in a manner that adheres to the narrative in the Bible.” And Hershel Shanks, by now a familiar TV and newspaper presence when it came to assessing the significance of biblical discoveries, asserted that if authentic, the inscription would be “visual, tactile evidence that reaches across 2,800 years.”

Photographs and feature stories about this find were quickly flashed around the world by a media hungry to relive the excitement of the James Ossuary. The circumstances of its discovery and ownership over the previous years were even murkier. Published reports in the Israel dailies *Maariv* and *Ha'aretz* suggested that it was owned by a Palestinian Arab antiquities dealer in Hebron. He had offered it for sale to the Israel Museum, which had declined. The museum had no comment. But the Jehoash Inscription had an additional, explosive effect in the turbulent world of Middle Eastern politics. It intensified an already fiery rhetorical battle between the Muslim religious authorities on the Temple Mount and those who sought full Israeli sovereignty there, at the site where the ancient temple stood.

The right-wing Israeli group The Temple Mount Faithful quickly posted photographs of the Jehoash Inscription on their website, declaring it “completely authentic” and noting that “people feel that the timing is no accident and that it is a clear message from the G-d of Israel Himself that time is short, the Temple should immediately be rebuilt...” A few days later, Abdullah Kan'an, secretary-general of Jordan's Royal Committee for Jerusalem Affairs, issued a press release asserting that extremist factions in Israel were using the claims of the discovered tablet to support their bid to destroy the Al-Aqsa Mosque and rebuild the Temple, and further warned that “if that happened, God forbid, a holy religious war will definitely inflame the whole region.” This was dangerous territory for an archaeological artifact to be drawn into.

The process of recognition and authentication of the Jehoash Inscription seemed to duplicate the story of the James Ossuary in at least two important ways.

Once again the object had reportedly languished in a private collection for years until its true value was recognized. Its owner—though this time lacking a cute nickname—insisted on remaining anonymous and was represented in public by a prominent lawyer who zealously protected his anonymity. And once again Rosenfeld and Ilani of the GSI provided support for the artifact’s authenticity through a series of seemingly conclusive scientific tests. Together with Michael Dvoracheck, another geologist, Ilani and Rosenfeld prepared a dramatic article for the GSI’s scientific periodical, *Current Research*. Not satisfied with providing mere geological data, they also translated the inscription and—even though none of them was a trained historian, archaeologist, biblical scholar, or linguist—opined on its epigraphy, historical background, and biblical significance.

They identified the stone as arkosic sandstone, most likely originating in the area of southern Israel or Jordan. The chiseled letters seemed to be weathered (and thus most likely ancient) and the patina that covered the stone was produced over centuries by a natural process. Most intriguing, they found microscopic gold globules in the patina, which were not present in the stone itself. In addition, they noted that a carbon-14 dating of carbon particles within the patina performed by a laboratory in Florida had yielded a date of the third century b.c., by which time, it was suggested, the stone lay buried in the rubble around the Temple Mount.

The three geologists’ interpretations were presented in a style more dramatic and speculative than usual for a geological journal. For example, they connected the presence of gold globules within the patina with the intense fire that melted the gold-lined walls of Solomon’s Temple at the time of the Babylonian destruction of Jerusalem in 586 b.c.

A volunteer editor employed by the Geological Survey was so excited by the “discovery” that she shared galley proofs of the article with her son, a reporter at *Ha’aretz*, Nadav Shragai. Shragai broke the story in two headline-grabbing articles, and a new international media frenzy began.

Yet this time one important thing was different. The critical murmurings were earlier and louder than they had been with the James Ossuary—and they were from sources that could not be easily dismissed. In 1998, historian Nadav Na’aman suggested in a scholarly article that the text of the Books of Kings could have been based at least in part on public inscriptions. After he had first read the Jehoash Inscription in press reports, Na’aman told *Ha’aretz*, he assumed “one of two things—either I hit the nail on the head, and my theory was confirmed fantastically, or the forger read my theory and decided to confirm it.”

Famed epigrapher Joseph Naveh of the Hebrew University subsequently revealed to IAA and police investigators that he had secretly met with the owner’s shadowy representatives in a hotel room in Jerusalem to evaluate the stone’s authenticity. He immediately recognized it to be a crude forgery, haphazardly combining ninth-century Hebrew letter forms with seventh-century Aramaic and Moabite. And perhaps the most highly esteemed Semitic epigrapher in the world, Frank Cross of Harvard (who had been widely quoted as saying that if the James Ossuary was a forgery, “the forger was a genius”) offered quite a different opinion about the Jehoash Inscription. He noted numerous errors of spelling, syntax, and terminology and declared without hesitation that it was a fake.

In the meantime, co-author Yuval Goren of Tel Aviv University, decided to confront the scientific conclusions of the GSI head-on. Through a controlled laboratory experiment, he demonstrated how it might be possible to manufacture a biblical relic like the Jehoash Inscription and obtain the same test results that Ilani and Rosenfeld had. After selecting an appropriate stone, incising the letters, and “weathering” them artificially by means of an abrasive airbrush, it was possible, Goren suggested, to cover it with an authentic-looking but totally artificial patina. If a modern forger ground some of the stone into powder, mixed it into a soup with microscopic gold globules and ancient charcoal samples, he or she could paint this “patina” over the entire surface and fix it with heat.

So a negative verdict on the Jehoash Inscription was nearing. The present whereabouts of the stone were unknown— as was the owner’s identity. But the James Ossuary was still capturing the world’s attention. Startling developments would suddenly link the two together—and challenge the idea that the world’s greatest, most celebrated scholars could infallibly distinguish valuable ancient inscriptions from worthless modern fakes.

A STOREHOUSE IN RAMAT GAN

While Hershel Shanks and Ben Witherington III were about to embark on their cross-country authors’ tour for their newly published book, *James, the Brother of Jesus*, proclaiming the spiritual and historical importance of the James Ossuary, the case of the Jehoash Inscription was finally on its way to being solved. *Maariv* correspondent Boaz Gaon reported that several months before, in response to rumors of an impending plot to defraud a wealthy collector in London by selling him a faked artifact, the IAA’s Theft Unit had focused their attention on the Jehoash Inscription as possibly being the expensive bait for the impending sting.

Following a trail of leads to determine the identity of the shadowy “representatives” who had met with Professor Naveh in a Jerusalem hotel room, the investigators linked a phoney business card and a scribbled phone number to a Tel Aviv private detective who, confronted with some aggressive questioning, admitted that his employer was none other than Oded Golan—the innocent “Joe” of the James Ossuary saga. He said that Golan had hired him to bring the Jehoash Inscription to Naveh. Yet Golan repeatedly denied, in television and newspaper interviews, that he was the owner of the stone. He consistently claimed that the real owner was a Palestinian Arab antiquities dealer who lived in an area controlled by the Palestinian Authority and whose identity he had promised he would not reveal.

Then a stunning break in the story hit the headlines in Israel. A March 19 article in *Maariv* by Gaon reported that a court-authorized search warrant was obtained by the police and Golan’s apartment, office, and rented storage space were thoroughly gone over, yielding incriminating documents and photographs showing Golan posing proudly beside the Jehoash Inscription—which he still insisted he did not own. Reportedly, the police questioning continued for several days; Golan’s offer under pressure of information about the stone’s location in exchange for complete immunity from prosecution was refused. A surprise court-ordered search was then carried out by the police and by IAA investigators at a storage space Golan had rented in Ramat Gan (but that he had not voluntarily revealed to the police).

Gaon's *Maariv* article reported the discovery of some truly damning archaeological evidence: scores of artifacts of unclear provenience, forged ancient seals and other inscriptions in various stages of production, epigraphic handbooks, engraving tools, and labeled bags of soil from excavation sites around the country. Handcuffed and taken to his parents' apartment for further questioning, Golan reportedly broke down and asked the police and the IAA officials to stop. He agreed to hand over the Jehoash Inscription to the proper authorities the following day.

GOLD DUST AND JAMES BOND

And so, in March 2003, the James Ossuary and the Jehoash Inscription were finally together, now the subjects of an intensive, official examination by a multidisciplinary team of specialists gathered by the IAA and divided into epigraphic and scientific committees (see box, page 27).

The Israeli Minister of Culture, Limor Livnat, had personally mandated the work of the scientific commission. She noted, particularly with regard to the Jehoash Inscription, that if it were found to be genuine, it would be “the most important archaeological discovery ever made in the State of Israel.” Now both artifacts would be studied under controlled conditions, without personal ties to the owner or under the pressure of an upcoming museum exhibition.

The verdict of the epigraphers with regard to the Jehoash Inscription was unanimous: the numerous mistakes in grammar and the eccentric mixture of letter forms known from other inscriptions made it clear that this was a modern forgery. The James Ossuary was a different matter. The epigraphers were divided about the authenticity of the first part of the inscription but in light of the results of the patina committee, they unanimously agreed that the entire inscription must have been modern. In the case of the James Ossuary, it was geochemical and microscopic analysis, rather than scholarly erudition, that uncovered the truth.

Examination of the chalk from which the ossuary had been carved indicated that it was from the Menuha Formation of the Mount Scopus Group, consistent with the hundreds of other ossuaries found in the Jerusalem area. But the earlier geologists and the ROM conservators had mentioned only a single kind of “cauliflower”- shaped patina. Goren and Avner Ayalon of the GSI, however, identified three distinct coatings on the surface of the ossuary:

- A thin brown veneer of clay and other minerals cemented to the rock surface, presumably rock varnish created by living bacteria or alga over prolonged periods of time.
- A crusty natural coating of patina (this was the “cauliflower”) that formed over the rock surface due to the absorption or loss of various elements and minerals.
- The “James Bond”: a unique composite material nicknamed by Goren since it was bonded onto the incised letters of the James Ossuary inscription but wasn't found at any other place on the ossuary surface—or on the three authentic inscribed ossuaries that the commission members had sampled for comparison.

The varnish covered large areas of the ossuary surface and the patina had burst through the varnish in many places. Both varnish and patina coated the rosettes on the other side

of the ossuary. But microscopic analysis showed that the letters of the entire inscription “James, son of Joseph, brother of Jesus” were cut through the varnish, indicating that they were carved long—perhaps centuries—after the varnish-covered rosettes.

Strangest of all was the “James Bond,” the chalky material that coated the letters. It contained numerous microfossils called coccoliths, naturally occurring as foreign particles in chalk, but not dissolved by water. Hence it was clear that this was not a true patina formed by the surface crystallization of calcite, but rather powdered chalk that was dissolved in water and daubed over the entire inscription. Thus, the forger’s technique was apparent: the James Ossuary was an authentic, uninscribed artifact, on which decorative rosettes originally marked the “front” side. At some time long after the natural processes of varnish and patination in a damp cave environment had been completed, someone carved a series of letters through the natural varnish on the ossuary’s “back” side. Then he or she covered the freshly cut letters with an imitation “patina” made from water and ground chalk.

EPIGRAPHIC COMMITTEE:

- Gideon Avni, IAA, *Coordinator*

FROM THE BEN-GURION UNIVERSITY OF THE NEGEV:

- Avigdor Victor Horwitz, *biblical language and dialects*
- Shmuel Ahituv, *epigraphy*

FROM HAIFA UNIVERSITY:

- Ronny Reich, *Jewish archaeology of the Roman Period*

FROM BAR-ILAN UNIVERSITY:

- Amos Kloner, *former district archaeologist of Jerusalem*
- Esther Eshel, *Jewish epigraphy*

FROM THE HEBREW UNIVERSITY OF JERUSALEM:

- Hagai Misgav, *epigraphy*

FROM THE IAA:

- Tal Ilan, *Jewish history of the Roman Period*

PHYSICAL EXAMINATION COMMITTEE:

- Uzi Dahari, IAA, *Coordinator*

FROM TEL-AVIV UNIVERSITY:

- Yuval Goren, *micromorphology and petrography*

FROM THE GSI:

- Avner Ayalon, *geochemistry*

FROM THE WEIZMANN INSTITUTE OF SCIENCE:

- Elisabetta Buaretto, *head of the radio-carbon dating laboratory*

FROM THE IAA:

- Jacques Neguer, *head of the stone restoration department*
- Orna Cohen, *archaeological restoration, specializing in rock patination processes*

Ayalon’s study concentrated on a telltale clue to the nature of authentic ancient patina: its isotopic ratio of oxygen provides a distinctive indication of the qualities of the water with which the patina was produced.

Calcite (calcium carbonate, CaCO₃) is the primary component of naturally formed patina on buried archaeological artifacts in calcareous areas, such as the Jerusalem region. This is because calcite dissolves in ground water. With the loss of CO₂ from the ground water by evaporation, the calcite crystallizes again on the stone’s surface (just like the “stone”

that collects inside a tea kettle). The oxygen within this recrystallized calcareous coating—the patina—has the same isotopic ratio as the water from which it was produced. And that value can even be used to determine the temperature at which the crystallization took place.

Ayalon determined in his analysis that while the calcite of the patina from the uninscribed surface of the James Ossuary, and indeed the surfaces and inscriptions of other authentic ossuaries that he examined, had ratios that were normal for average ground temperature of the Jerusalem vicinity (64–68 degrees Fahrenheit), the ratios of the “James Bond” suggested that its crystallization took place in heated water (about 122 degrees), not the “cave environment” that the earlier geologists had claimed. The evidence pointed to an intentional faking of the patina over the letters of the “James, son of Joseph, brother of Jesus” inscription—and nowhere else.

And what of the two styles of handwriting on the James Ossuary that had been discerned by some early critics? The physical examination showed that the entire inscription was carved at the same time, so two different hands seemed unlikely in an inscription of only five words. An examination of the very same catalog of ossuaries that Lemaire had used as comparison for the letter forms in the James Inscription, L.Y. Rahmani’s 1968 *A Catalogue of Jewish Ossuaries in the Collections of the State of Israel*, now seemed possibly to be their source. In an age of readily available scanning software it is entirely possible to make flawless copies of ancient letters as they appear on genuine artifacts. For example, taking the word “Jacob” (from catalog #396); the words “son of Joseph” (from catalog #573); “brother of” (from catalog #570); “Jesus” (common enough to have many examples) and resizing them and aligning them with Photoshop or PageMaker can create a puzzlingly authentic template for a faked inscription, that seemed to be carved by more than one hand.

In the case of the Jehoash Inscription, the geological verdict was a damning as the epigraphic one. The original GSI geologists had even misidentified the rock type. It was not arkosic sandstone from southern Israel or Jordan but low-grade metamorphic greywacke of a type found commonly in western Cyprus and areas still further west.

Once again, there was a dramatic difference between the patina on the uninscribed back and sides of the stone from that found within and between the chiseled letters. Unlike the siliceous deposit everywhere else, this material was soft and made of pure clay mixed with powdered chalk. Within this artificial mixture were a few micron-sized globules of metal as well as carbonized particles. The isotopic ratios of oxygen for the calcite in this “patina” indicated again the crystallization was produced in hot water, not in the ground. Most obvious, the “patina” could be easily rubbed off the letters, revealing unmistakably fresh engraving marks.

Based on these results and a combination of epigraphic and historical considerations, the commission concluded in a packed press conference in Jerusalem on June 18 that both inscriptions were modern fakes, engraved on authentic artifacts and covered with a carefully prepared mixture to imitate patina and to make them look centuries old.

LESSONS TO BE LEARNED

The principal supporters and promoters of the dubious biblical relics quickly mounted a counterattack. “I am certain the ossuary is real,” Oded Golan told *Ha’aretz*. Accusing the committee of having preconceived notions, Golan also asserted his confidence that the Jehoash Inscription was genuine.

Hershel Shanks, who had reaped enormous publicity for himself and his magazine from the promotion of the James Ossuary was likewise reluctant to retreat. In a broadside quickly posted on the Biblical Archaeological Society website, Shanks explained “Why I Am Not Yet Convinced the ‘Brother of Jesus’ Inscription is a Forgery.” He once again summoned up the authority of the famous paleographers he had consulted, the results of the initial GSI examination, and the conclusion of the Royal Ontario Museum. He accused the IAA of stacking its committee with laymen who, according to Shanks, had all been convinced to come to their conclusion by Yuval Goren. He also launched a personal attack on IAA director Shuka Dorfman, suggesting that Dorfman’s eagerness to see that the James Ossuary declared a forgery was because Dorfman “hates antiquities collectors, antiquities dealers, the antiquities trade, and would like to put Israeli antiquities dealers out of business.”

But the keystones of this hastily constructed stone wall quickly began to crumble. On June 22, Amos Bein, director of the GSI, discredited the results of the initial ossuary examination by Rosenfield and Ilani, expressing confidence in Ayalon’s new results, and stating unequivocally that it was “the official view” of the GSI that “the carbonate oxygen isotopic composition of the ‘Jeoash Tablet’ [sic] and the ‘letters patina’ of ‘James Ossuary’ reveals that the patina could not have formed under natural climatic conditions (temperature and water composition) that prevailed in the Judea Mountains during the last 2000 years.”

Two days later, on June 24, even the epigraphical support, such as it was, seemed on the verge of collapse. Although Andre Lemaire remained adamant that his original evaluation was correct, the biggest heavyweight in the world of ancient Semitic scripts, Harvard’s Frank Cross, circulated a letter to colleagues around the world regretting Shanks’ “continued persistence in making claims” for the authenticity of the James Ossuary, and declared that he now stood “wholly and unambiguously with those who believe the ossuary inscription to be a forgery, a good forgery, but a forgery.”

As ARCHAEOLOGY went to press, the affair of the biblical sensations was finally reaching its conclusion. The most important unresolved issue was the decision of the IAA Fraud Unit and Israel Police as to which of the principals would be subjects of further criminal investigations—and which would be granted immunity as witnesses for the state. But this case was more than an instance of science and justice triumphing over charlatanism; it was something more like the passing of an age. In an era of digital scanning, even a teenager with average computer skills and the right software can resize and reproduce an ancient script more precisely than an expert scholar ever could do by hand. The age of the great sages of epigraphy with magnifying glasses and drawing paper would now have to give way to statistical studies of letter-form characteristics and detailed chemical and geological analysis.

There would also have to be a great change in the way that biblical finds are publicized and valued. The cases of the James Ossuary and the Jehoash Inscription showed that

what was at stake is not mere collecting or celebrating relics but rather the integrity of archaeology itself.

Put simply, it is time for scholars to stop dealing with unprovenanced antiquities and work to outlaw the private antiquities trade. The respected scholar who publicizes or publishes a private artifact of dubious provenience is boosting its potential market value—and contributing to the general inflation of antiquities’ monetary worth. The very serious question of the historicity of the Bible—with all its powerful implications for religious belief and identity—is not the sort of thing to be decided by staged public presentations of isolated artifacts from dubious sources. It is only by adopting a strict and uncompromising standard of evidence and rejecting temptation to simplistically trumpet a headline-grabbing relic or promote a high-visibility museum exhibition that our understanding of the Bible—and indeed all of the human past—will be advanced.

Sadly, the whole affair of the “greatest” archaeological discoveries of the century had precisely the opposite effect its passionate promoters intended. It made scholars outside the circle of true believers more skeptical of ever finding literal proof of the historicity of the Bible. And it made the wider public—to the extent that they were still paying attention—more doubtful that the biblical experts and university professors interviewed on TV about their latest sensation could ever be believed. The least that any of us concerned with the future of archaeology can now do is to persistently and aggressively attack sensational claims about artifacts of dubious origin, not help to construct them, and to recognize how dangerous and ultimately misleading this modern form of relic worship can be. _

Neil Asher Silberman *is a historian with the Enamé Center for Public Archaeology in Belgium. His most recent book, with Israel Finkelstein, is The Bible Unearthed. Yuval Goren is a professor of archaeology and near eastern culture at Tel Aviv University. For updates on the continuing criminal investigation, visit www.archaeology.org.*

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Benjamin Orlove

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Anthropology December 2008, Vol. 49, No. 6: 1131-1133.
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PREHISTORIC AND PROTOHISTORIC CYPRUS: IDENTITY, INSULARITY AND CONNECTIVITY, BY A. BERNARD KNAPP OXFORD UNIVERSITY PRESS

2008. xxv +469pp, 66 b/w figures, ISBN 978-0-19-923737-1 (£ 85)

Visible from the Asiatic mainland at the eastern end of the Mediterranean, inhabited, as Herodotus tells us, by a rich mixture of peoples, and sitting astride major sailing routes between Europe, North Africa and the Levant, the island of Cyprus attracts the attention of archaeologists who are constantly confronted by issues of the interaction between insular and intrusive groups. In focusing on two critical junctures of such interactions, namely the profound social transformations known to have occurred at the beginning and end of the Bronze Age, Bernard Knapp goes to the heart of current archaeological discourses on identity, insularity, connectivity and hybridization. Prehistoric and Protohistoric Cyprus, therefore, transcends an archaeological narrative of an island's development to critically engage with conceptual frameworks that, he contends, generally provide more meaningful insights into the archaeological record. By doing so, he brings the island's archaeology more fully into current debates on archaeological theory and practice.

The core of the work, then, is a 'provocative synthesis' of the beginnings of the Bronze Age and the Late Bronze Age, the latter viewed as a protohistoric period and so rightly incorporating what we know from indirect textual references. From this, it will be seen that the Prehistoric in the title of the book is somewhat of a misnomer as it refers essentially to the Early-Middle Bronze Age period c.

2700-1600 BC. Readers should not expect to find a comprehensive consideration of prehistoric Cyprus here, since it excludes the seven millennia or so that comprise the epipalaeolithic, neolithic and part of the Chalcolithic periods of Cypriot prehistory. The Prehistoric and Protohistoric elements of the title in fact are shorthand labels for the chronological periods Prehistoric Bronze Age (PreBA) and Protohistoric Bronze Age (ProBA) used throughout. As Sharon

(forthcoming) notes, this attempt to reform entrenched names has not enjoyed much support, so it's useful to have concordances provided to the conventional Philia, Early, Middle and Late Cypriot terms (pp. 71, table 1, p. 133 table 3) which readers will come across in other studies.

The first two chapters set out the theoretical terminology that is subsequently deployed to inform and structure the discussion. The concepts treated here include insularity, social identity, ethnicity, migration, acculturation and hybridization. These are valuable discussions in which concepts are introduced and then shown how they play a part in archaeology. As succinct, stand-alone analyses, they should be of wider interest than just for Cypriot specialists. But more than that, they are fully, some might feel relentlessly, integrated into what follows rather than brandished as theoretical calling cards and then only referred to in a perfunctory way when it comes to evaluate the data. Of these concepts, hybridization recurs most frequently as a key construct in advancing the study

of Bronze Age Cyprus. It would have been an appropriate part of the book's sub-title, even though Chris Gosden (2004, 69) argues that hybridity and creolisation imply relatively fixed forms of identity that only come into existence in the Mediterranean from the 6th century BC. Its use here is part of a general trend to shift focus from traditional attempts to distinguish material culture into indigenous and foreign categories, that is from ethnicity and historical narratives, to the examination of the nuances of cultural interactions and selective adaptations of externally derived ideas.

The first core chapter (3) engages with a social approach to the start of the Bronze Age, questions of elite formation in conjunction with copper production and exchange, mortuary practices, figurative representations and individuals. But it is the debate concerning migration and/or indigenous triggers for the inception of major social and economic transformations that most exercises the author. And here we come to a St. Paul on the Road to Damascus moment, since, after arguing long and hard against it, Knapp has now converted to accepting the notion of Anatolian migrants onto the island. Why is not exactly explained. On the one hand, he regards Frankel's (eg.) arguments as compelling for a foreign presence, but on the other, he dissects that evidence as ambiguous and ambivalent, preferring to see it as typical of hybridizing processes (114-129). In the later treatment of alleged Aegean immigration and the introduction of Greek to the island in the later part of the 2nd millennium, he shifts the goalposts in a similar manner. In other words, a recurring and rewarding perspective of this work is the assessment of what was traditionally regarded as indicative of migrants as evidence rather of hybridisation processes.

It would have been well to emphasize that the whole debate about profound change and social interaction at the start of the Bronze Age has a serious geographical fault line running through it. Innovations of the second half of the 3rd millennium in the north of the island are regarded as such in comparison to what we know of the preceding Late Chalcolithic. Almost all that evidence comes from the sites of Kissonerga and Lemba in the west, across the Troodos Mountains. We have virtually nothing from the relevant north to compare with developments in the Early Bronze Age, but there is a suspicion from the differential distribution of iconic cruciform figurines in the Middle Chalcolithic that the north was already different then. The export of Cypriot copper used for an axehead deposited in a c. 3000 BC hoard at Pella in Jordan is further evidence that the north may have diverged significantly from other parts of the island since copper-based objects are still rare elsewhere on the island (Philip et al. 2003). To imagine how radically the picture could change, one only has to look at contemporary Crete where foreigners at Poros and Aghia Photia on the north coast were apparently working metals (Day et al.

1998). To overcome the constraint of this fault line, therefore, and to set the debate in a more realistic context, we need evidence from securely stratified northern settlements of the early and mid-3rd millennium BC. The discussion of the traits for migrants or hybridization is helpful, but it should be mentioned that if we are to have spurred annular pendants as identity markers (127), then their manufacture at Kissonerga Period 4a well before the tentative appearance of Philia traits in 4b renders them as indigenous contributions, not intrusive ones (in general, see Bolger 2007 and Peltenburg 2007 for evidence on how much more complex the situation on the island was already in the first half of the 3rd millennium).

The second core chapter (4) adopts a sociohistorical approach to the Late Bronze Age. Some of its features are re-iterated in chapter 6 which also treats the same period from

the perspective of textual references to Alashia which is widely regarded as referring to all or part of the island of Cyprus. What is refreshingly new here, however, is the integration of archaeological and textual evidence, a process that raises intriguing challenges for interpretations of both sets of evidence.

Knapp advocates the existence of a unified and centralised state that controlled the whole island in Late Cypriot I and II times. This is the most comprehensive argument for the case to date, and it has certainly been helped by the discovery of tablets at Ugarit that refer to a later 13th century BC king of Alashia named Kushmeshusha who exported copper ingots. The state is depicted as a corporation with all elements keyed into the smooth running of an ideal line management, especially for the production and export of copper. Thus, villages are 'agricultural support villages', high status individuals 'managerial elites', others 'labourers and producers' There's little understanding of the acknowledged misfits in what at times feels like an Orwellian landscape. At the head of the 4-tier settlement system are coastal urban centres, although the large size claimed for some of these is questionable (cf. Iacovou 2007). As Graeber (2006, 71) states in another context, the effect of this dominating focus on the political economy is to reduce human beings to automatons competing over abstractions like 'wealth' and 'power'.

The inference of a unified state is still contentious, for, as many others have argued, there is a relatively homogeneous distribution of wealth objects in graves and we still lack ruler-centred symbols, dynastic iconography and an unmistakable palace, the characteristic feature of acknowledged archaic states. The absence of the last should perhaps have been addressed here since it is constantly argued that the construction of elite identity on the island entailed the establishment of an ideology based in part on concepts drawn from Near Eastern sources. Palaces were the norm in those Near Eastern states.

The study is a milestone in the investigation of the Cypriot Bronze Age. But it would be a pity if it only became a must for Cypriot specialists. They will find many thoughtful insights by persevering through the occasionally dense prose, even though some of the work will be familiar, a reformulation of the many papers Knapp has contributed on this subject since the 1980s. But the structural framework and concepts developed here are of much wider value, particularly for Mediterranean island archaeology. Indeed, the implications of this case study and directions for future research on the latter are the subject of the last chapter. The book has a high standard of copy-editing, graphics are relevant (the map on p. 6 however has an incorrect scale that makes Cyprus only 50 instead of 200 km long, and Ugarit is erroneously placed north of the Orontes) and the well-structured index is a model search engine.

Edgar Peltenburg
University of Edinburgh

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Review submitted: July 2008

The views expressed in this review are not necessarily those of the Society or the Reviews Editor.

Please visit the site: http://www.le.ac.uk/has/ps/reviews/08_09_knapp.htm

BRYN MAWR CLASSICAL REVIEW,
DARYN LEHOUX, ASTRONOMY,
WEATHER, AND CALENDARS IN THE
ANCIENT WORLD: PARAPEGMATA
AND RELATED TEXTS IN CLASSICAL
AND NEAR EASTERN SOCIETIES

Cambridge/New York: Cambridge University Press, 2007. Pp. xiv, 566. ISBN 9780521851817. \$125.00.

Reviewed by Y. Tzvi Langermann, Bar Ilan University (arabic.chair@gmail.com) Word count: 1550 words

Parapegmata are devices for tracking temporal cycles. They refer both to instruments, in which a movable peg was employed to track certain phenomena, and by extension also to written texts in which the different sorts of cycles are recorded and correlated. Most usually, the temporal cycles are fixed lunar and stellar events, most especially heliacal risings of selected stars, which are tagged to the more fickle cycles of weather patterns; but they are by no means limited to these events. Calendars of this sort survive to this day in the form of "farmer's almanacs". Lehoux's book presents the ancient sources of this science, which take two forms: archaeological artifacts and written texts. His book is in two parts. Part one comprises a far-reaching attempt to define the subject, combining theory, close examination of selected examples, and frequent appeals to illustrations from our own (western, especially Canadian) culture.

The first four chapters describe the written and other forms that parapegmata may take, the relationship between agricultural seasons and stellar phenomena, the place of astrology (by which Lehoux appears to mean, predictions based on computed configurations, that are claimed to be based upon observed correlations between stellar positions and terrestrial events), and the different calendars and calendric cycles that were in use in Greece and Rome, as well as the way meteorological phenomena were indexed to these. Lehoux wishes to distinguish as clearly as possible between 'astrometerology' on the one hand, and astrology and time-keeping in general, on the other, though all three have a place in parapegmata. He needlessly belabors the allegations that astrology is a pseudo-science; no one today excludes astrology from the history of science or the history of ideas, even though, at least so I think, hardly anyone would doubt its falsity. On the other hand, Lehoux's refutations of the intimate connections between developments in the calendar and in astronomy are well-founded and long overdue in the discipline.

Chapters five and six treat sources from Babylon and Egypt. Though there are sections of MUL.APIN and some Egyptian texts that are reminiscent of Greek and Latin parapegmata, Lehoux argues that these are due to similar concerns for tracking and predicting weather, agriculture seasons, and the like, shared by all of these civilizations. The classical sources were not influenced by Babylon or Egypt. In these chapters,

Lehoux bucks the trend to emphasize the debt owed by Greek civilization to the East (most notably in Walter Burkert's *Babylon, Memphis, Persepolis*), but not in a sweeping fashion. He does not deny the evidence for the influence of Babylonian astronomy upon the Hellenes, but, with regard to *paraegmata*, Lehoux asserts that there is no evidence for the sharing of information. In the case of Egypt, he leans heavily upon Otto Neugebauer's famous claim that there was no Egyptian astronomy to speak of; so how could it have influenced the Greeks? Nonetheless, that assertion has been modified recently, on the basis of some of the same primary sources examined by Lehoux.¹ Moreover, one should never forget that Ptolemy himself worked in Alexandria, and that the risings and settings, weather patterns and agriculture in his life were very much Egyptian. In the particular case of astrometeorology it seems inappropriate to look for any deep influence. Babylon and Greece have very little in common in agriculture, heliacal risings, or ritual and civic calendars; what use would it be to share information? Indeed, *paraegmata* are cultural phenomena, which found expression across the ancient world from China to Rome, and their study calls for a different sort of comparison, including but not limited to possible exchanges of data.

Part Two, "Sources", comprises a catalogue of extant *paraegmata* (pp. 147-216) and texts and translations (pp. 217-491). This is the "meat" of Lehoux's book, and its real contribution. Over sixty sources are included. The classification is different from that employed in the previous attempt at a full listing, published by E. Rehm in *Paulys Realencyclopaedie* (vol. xviii.4, 1949, pp. 1295-1366), who grouped *paraegmata* by the form in which they survive: as artifacts or documents. Lehoux instead groups the sources by their applications, using these rubrics: A. astrometeorology; B. astrology; C. astronomy; D. "other"; E. reports of *paraegmata*; F. related texts and instruments; and G. *dubia*. Lehoux goes through the entire set twice, first in the catalogue, in which each entry includes a description, illustrations where available, and a discussion of the accompanying scholarship and problematics. He then goes through the whole list again (with the exception of the final section, *dubia*), displaying the full texts. The original text is usually given, except for those cases where Lehoux could safely assume that the text would be easily accessible. New translations are provided for Greek and Latin materials. The originals are not edited anew, but Lehoux does when appropriate engage problematic words or passages on the basis of published *apparati* or notes by an editor.

A first appendix exhibits brief biographies of the authorities cited in the *paraegmata*, and a second one correlates between the catalogues of Lehoux, Rehm, and A. Degrassi's *Inscriptiones Italiae*. There is an extensive bibliography, a separate astrometeorological index (mostly stars, but listing also types of weather and authorities), and a general index. Lehoux has gone deeply into a topic that attracts few scholars; he freely admits that reading texts of this sort over and over again can be boring. His catalogue and texts are a very useful contribution.

I would like to take up the issue of the cultural sweep of the book. If we consider *paraegmata* in their "most basic" form, as Lehoux defines them, namely instruments that track cyclical phenomena by means of moveable pegs, then they are strictly a product of Greek and Latin culture, which are not found elsewhere. However, Lehoux, and, indeed, everyone else who studies the topic (see, e.g., Liba Taub, *Ancient Meteorology*, Routledge 2003, along with the review essay by Harry Hine, *Classical Philology*, January 2005, pp. 83-88, and the section at the end of J. Evans and L. Berggren's edition and translation of Geminus's *Introduction to the Phenomena*, Princeton 2006) give equal

consideration to written documents, very often in the form of tables or lists. Quantitatively, these are by far the largest group of *parapegmata*, and their interpretation as a rule is far clearer than archaeological finds. Written *parapegmata*, weather calendars, or whatever we wish to name them, are found in many cultures; some interacted with Greece and Rome, others did not (though they did with each other, e.g. pre-Islamic Arabs and India). Lehoux's desire for "completeness" leads him to wander into yet other cultures, where he is unfamiliar with the scholarly literature. For example, he mentions briefly (p. 114) a "Hebrew agricultural calendar", relying mainly upon one recent secondary source. In fact, this document is none other than the Gezer calendar, an artifact that has spawned many publications and discussions on issues of civic and cultic calendars.² Yet overall his focus is upon Greece and Rome, and his interest in other cultures mainly centers on their possible interaction with those two civilizations.

Lehoux includes two very extensive citations from the work of Abu Rayhan al-Biruni, an eleventh century polymath. Once again, it is the connection to Greek science that justifies this. In his chapter on *anwa'* Al-Biruni reproduces the calendar of Sinan bin Thabit, otherwise lost, which in turn draws from Ptolemy's *Phaseis*.³ Now Edward Sachau, upon whose translation Lehoux relies completely, renders the Arabic *anwâ'* as *parapegmata*. We have no evidence that the pre-Islamic Arabs used devices with moveable pegs, and the etymology of *anwâ'* is certainly very different from that of *parapegmata*.⁴ The translation is nonetheless very apt if we take *parapegmata* in the broad sense of weather calendar (a term that Sachau also uses). But if that is so, then why shouldn't a full survey of texts from the ancient world include the full sweep of the very rich genre of *anwâ'* texts? Any discussion of the *anwâ'* literature must take note of the Hindu *nakshatras*, and these are not mentioned even once. A century ago scholars debated the relation and possible cross-fertilization of Chinese, Indian, and Arabic traditions in these matters. In short, Lehoux's tilt towards Greece and Rome leads to a certain unevenness in the book: precise, top-notch philology on Greek texts, superficial summations of secondary literature for others.

Moreover, his explanation of *parapegmata* as a cultural phenomenon is unsatisfactory. Sinan, and his father Thabit before him, considered the *anwâ'* of the Arabs to be part and parcel of the same science that Ptolemy expounded in Greek, and the same one which the Egyptians produced for Egypt, and other nations for their locales. According to Sinan, *anwâ'* are a system of prognostications for secular concerns, mainly the weather, and there is room for two and only two theories:

the events may be indexed to days and months (of a fixed solar calendar, such as that employed by the Greeks and the Syrians), or to the rising and settings of the lunar stations. Thus, pace Lehoux, the Greeks, Egyptians, Babylonians, and others were all practicing the same science; one should not expect the sharing of information, since the science is so localized. The rain in Attica may fall mainly under Sagitta; what use is this datum to the people of Harran or the Hijaz?

Notes:

1. See Gregg DeYoung, "Astronomy in Ancient Egypt," in Helaine Selin, ed., *Astronomy Across Cultures*, Dordrecht, 2000, pp. 475-508.
2. See S. Talmon, "The Gezer Calendar and the Seasonal Cycle of Ancient Canaan," *Journal of the American Oriental Society* (1963), 177-187, and the considerable literature cited there, some 45 years ago.

3. Lehoux cites Neugebauer's note but is unaware of the two extensive articles on the topic published by Julio Samso in *al-Andalus*, 41 (1976), 15-48 and 471-479. No one has yet studied the Hebrew Geminos parapegma, though the Hebrew translations were noted by M. Steinschneider in his monumental *Die hebraeischen Uebersetzungen des Mittelalters* (1893), pp. 539-540. Writing this review has spurred me to undertake the task.

4. Daniel Martin Varisco, "The origin of the anwa' in Arab tradition. On the distinction between science and folklore," *Journal for the History of Arabic Science* 9 (1991), 69-100.

Please visit the site: <http://ccat.sas.upenn.edu/bmcr/2008/2008-12-28.html>

ANNOUNCING: ARCHAEOLOGICAL COMPUTING, SECOND EDITION

Announcing the release of the second edition of *_Archaeological Computing_* by Harrison Eiteljorg, II, with GIS chapter by W. Fredrick Limp.

The second edition contains an entirely new chapter concerning the digitizing of information either from on-going projects moving into the digital era for the first time or from completed projects with paper-based records.

A distressing number of typos and other small errors have been fixed, and a variety of similar small changes were made.

In the chapter on database management systems there were some errors in SELECT statements that have also been fixed.

To access the new edition, please go <http://archcomp.csanet.org>.

GREEN THESSALIAN STONE: THE BYZANTINE QUARRIES AND THE USE OF A UNIQUE ARCHITECTURAL MATERIAL FROM THE LARISA AREA, GREECE. PETROGRAPHIC AND GEOCHEMICAL CHARACTERIZATION

Author: MELFOS, VASILIOS¹

Source: [Oxford Journal of Archaeology](#), Volume 27, Number 4, November 2008 , pp. 387-405(19)

Publisher: [Blackwell Publishing](#)

Abstract:

Summary

The quarries of 'green Thessalian stone' provide important information about the use of materials and the application of technology in late antiquity. This stone was used for decorative purposes in Imperial Rome and especially in Byzantium. Sarcophagi, column shafts, facing slabs, tubs, ambones, iconostaseis and baptismal fonts are still found in places stretching from Syria to Britain and from Tunisia to Germany, as well as Rome, Constantinople and Thessaloniki. There are two important areas of quarrying at the Chasanbali Hill in the Larisa area of central Greece. At the southern site, quarrying operations took place mainly in late Roman times, whereas the northern quarrying zone provided mostly raw materials for making pillars and other architectural pieces during the Byzantine period. Green Thessalian stone is composed of an opicalcite, a mosaic of green serpentinite and white marble fragments. Mineralogically, the Larisa opicalcite consists largely of serpentinite, calcite, magnetite, haematite and chromite. Chemical analyses reveal a high quantity of CaO (26.39 to 31.00 wt%), while Cr varies between 940 and 1430 ppm. C and O isotopic compositions of the marble inclusions show $\delta^{13}\text{C}$ values ranging from +3.12 to +3.31 ‰ and $\delta^{18}\text{O}$ values from -12.98 to -13.11 ‰.

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Affiliations: 1: Department of Mineralogy, Petrology, Economic Geology Aristotle University of Thessaloniki GR-54124, Thessaloniki Greece

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EΙΔΗΣΕΙΣ - NEWS RELEASE

UNIQUE ARCHAEOLOGICAL DISCOVERY IN BALKAN: WORLD'S FIRST ILLYRIAN TRADING POST FOUND

The archaeologists found many artifacts including more than 30 Illyrian boats, fully-laden with Roman amphorae. One of the big questions is why none of the wine amphorae are whole. They are all in fragments. (Credit: University of Mostar)

ScienceDaily (Dec. 8, 2008) — There is jubilation at the Museum of Cultural History at the University of Oslo in Norway. Marina Prusac, Associate Professor in the department of archaeology, has just returned home after conducting excavations in the border area between Croatia and Bosnia-Herzegovina. In the course of several weeks of intense digging this autumn, her archaeological team found the very first traces of an Illyrian trading post that is more than two thousand years old.

The Illyrians were an ancient people who lived by hunting, fishing and agriculture. They were known as warriors and pirates. Not only did they fight Greek colonists and Roman occupants, the various tribes also feuded among themselves. However, the archaeological finds show that the Illyrians also had peaceful trade connections with the Romans.

"The find is unique in a European perspective. We have concluded that Desilo, was the place is called, was an important trading post of great significance for contact between the Illyrians and the Romans,"

Marina Prusac tells the research magazine Apollon at University of Oslo.

Surprisingly large finds have been made in a short period of time. The archaeologists have discovered the ruins of a settlement, the remains of a harbour that probably functioned as a trading post, as well as many sunken boats, fully-laden with wine pitchers – so-called amphorae – from the first century B.C.

The archaeologist Adam Lindhagen, who has a PhD from the University of Lund and has specialised in Roman wine amphorae, says that this is the most important find of all time from the Illyrian areas.

"There is much to suggest that far more is hidden in the mud. We've only scraped the surface so far," he points out.

Pirate theory

It all started in spring 2007 when Professor Snjezana Vasilj of the University of Mostar found 16 Illyrian boats in Desilo, fully-laden with Roman wine amphorae. The find was speedily interpreted as proof that the Illyrians were pirates and that the ships had been sunk by the Romans. Although the pirate theory received considerable attention from the

press in many parts of Europe, Marina Prusac and Adam Lindhagen did not believe this interpretation.

"There certainly were pirate activities along the coast, but we thought it rather odd that the pirates were so far inland and so near the important Roman colony of Narona. In our opinion Desilo might have been a trading centre."

Desilo is located 20 kilometres from the coast on an alluvial plain by the River Neretva. The river is the only traffic artery along the entire Croatian coast that runs into the Balkan mountains. It is broad and free-flowing for the first 30 kilometres or so, after which its course becomes narrow.

Near Desilo there are also ancient traffic arteries on land in the direction of both Narona, which was first a Greek trading post and then a Roman colony, and the Illyrian settlement of "Daorson" – the present-day Osanic.

"Desilo is situated at the innermost point of a quiet bay where it was natural to transfer goods to smaller boats, so the place is perfect for an inner trading harbour. We knew that if we found a harbour it would represent a rare example of a meeting point in this impenetrable landscape. And we found it!" a delighted Ms Prusac tells us.

The harbour

Over the past two thousand years the river has repeatedly changed its bed in the delta. The archaeologists found the remains of the Illyrian trading post under several metres of mud and ooze when the land-owner put his excavator at their disposal. It appears that parts of the wall that stuck up from the mud by the water's edge may have functioned as one of the many quays at the trading post. The wall is 20 metres long and 60 centimetres wide, and is built as a polygonal structure.

"The wall was solid and stable. The other side was not so well constructed and most likely functioned as a dam. There were a number of mooring holes placed at the same height on the wall, almost like a horizontal band."

And as if this was not enough, the archaeologists from the University of Oslo also discovered that there were at least twice as many boats as those that had already been registered. The boats, which the Romans called Lembi, were well known for their fast manoeuvrability.

The many pieces of pottery found indicate that this was a major trading post. And last but not least: about a hundred metres from the harbour site they found an Illyrian settlement. Moreover, in collaboration with the land-owner and along with master's degree student Jo-Simon Frøshaug Stokke, the recently graduated archaeologists Lene Os Johannessen and Ole Christian Aslaksen discovered terrace formations in the mountainside.

"This find can only be interpreted as indicating the presence of a settlement that presumably existed for several hundred years or even longer before the trade between the Illyrians and the Romans started."

Some graves – older than the other finds – were previously discovered close to the settlement. A number of individual finds have also been made in the area: anchor parts, lance tips and fibula, and metal buckles for fastening clothes.

"Thanks to the clay and the fresh water the objects are surprisingly well preserved. Salt water would have destroyed the wood."

Wine

On the sea bed, together with the boats, archaeologists from Moster found hundreds of pieces of wine amphorae and as many as 700 lids from these pitchers.

"Imports from the Roman colony Naronia must therefore have been far more extensive than we previously thought," Adam Lindhagen points out.

He has analyzed the pottery to find out where the amphorae came from.

He can now say that they were exclusively produced along the Dalmatian coast – from where wine was exported to the entire Roman Empire.

"In exchange for wine the Romans may have bought salt, metal, leather and slaves. The price could have been the same as in the north.

According to Julius Caesar (100-44 B.C.), the Gauls were happy to swap a slave for a 25-litre amphora of wine."

While Professor Vasilj was of the view that all the boats were sunk at the same time in a Roman campaign against Illyrian pirates, the Norwegian archaeologists have found indications that the boats were sunk over a period of almost a hundred years. Their evidence is based on the dating of the wine amphorae.

Ritual

One of the big questions is why none of the amphorae are whole. They are all in fragments.

"We don't know why the boats were sunk and the pitchers destroyed.

It's absurd to think that the Romans sank almost a thousand amphorae containing their own wine. The amphorae may have been dumped when they'd been emptied. But animal bones, horse teeth, Illyrian pottery and weapons like axes and spear tips have also been found in the sea.

So it's possible that they made ritual offerings to the sea – a well-known phenomenon in Scandinavia during the Iron Age. If we can confirm that this is the case, then this is the first example we have heard of from the Illyrian area."

Cultural identity

Archaeological research on the Illyrians was used politically as the culture-historical glue of the various groups in the former Yugoslavia. Today the focus is more on the differences between the Illyrian peoples.

"The neutral term 'Illyrian' was applied to all ethnic groups in the former Yugoslavia. The Illyrians have been described as warriors, and little focus has been placed on peaceful connections between the Illyrians and the Romans. So it's important to be able to reveal peaceful relations and to show that the Illyrians had come a long way in their cultural contact with other nations, at the same time as there were great differences between the Illyrian tribes. Our discovery is therefore important for understanding cultural identities in the Balkans in ancient times," Marina Prusac tells us.

Please visit the site:

<http://www.sciencedaily.com/releases/2008/12/081208092151.htm>

SALONICA UNIVERSITY INITIATES RESEARCH PROGRAM IN CYPRUS

The History and Archaeology Department of the Aristotle University of Thessalonica (AUT), continuing its long research presence in Cyprus, initiated in November 2008 a five-year Prehistoric Research Program.

According to a press release issued here, the scientific aim of AUT program is to search and locate installations of the early prehistory of the island (pre-Neolithic period) through an archaeological surface survey on part of Troodos.

Troodos has not been surveyed yet and as a result the research interest is confined to the south lower regions of Pafos, Lemesos, Ammochostos and the central part of the island. The first hunter-gatherers on the island and their material remains, which have been found until now in the above regions have been dated to around 10000 BC.

The study of these remains is maybe the most interesting research field during the last years. The dating of the arrival of the first inhabitants to the island and their settlement choices is an open archaeological issue, which awaits archaeologically founded answers.

The research team of AUT History and Archaeology Department was headed by Nicos Efstratiou, Professor of Prehistoric Archaeology and consisted of Professor Paolo Biagi of Venice University, the Cypriot archaeologist and teacher Dimitris Kyriakou and the student Eleni Mloukie.

The team, after the results of its research on mountain Pindos in Greece, decided to investigate in a systematic way the possibility that the Troodos range could have been as well inhabited from the earliest period.

With the permission of the Director of the Department of Antiquities Pavlos Flourentzos, and the help of the Forest Department, the team started the systematic surface survey of regions of southern Troodos, specifically the upper parts of the rivers Xeros and Diarizos.

The results of these first investigations, although preliminary, are judged as completely satisfactory, as important archaeological indications for the presence of pre-Neolithic groups of hunter and gatherers (10000 BC) were found in the hinterland and mountainous parts of the island. These first indications, when confirmed, will open an important new chapter in the archaeological research of the island, since they will incorporate the archaeology of Troodos region into the developments of the earliest human presence on the island.

Please visit the site:

http://www.financialmirror.com/News/Cyprus_and_World_News/13030

POMPEII FAMILY'S FINAL HOURS **RECONSTRUCTED ROSSELLA** **LORENZI, DISCOVERY NEWS**

Italian researchers have reconstructed the last hours in Pompeii of a dozen people who managed to survive Mount Vesuvius' devastating eruption for more than 19 hours.

Volcanologist Claudio Scarpati, and colleagues Giuseppe Luongo and Annamaria Perrotta of the University of Naples Federico II in Italy, analyzed layers of volcanic deposits in a Pompeian house and examined 13 skeletons found there on a carpet of pumice to reconstruct the events that occurred when the eruption was in progress. The team reported their findings at a recent international conference on ancient DNA in Naples.

Located in Pompeii's main street, Via dell'Abbondanza, the home of Iulius Polybius is one of the most studied in the ancient Roman town.

"This house has yielded rich and diverse archaeological findings. Moreover, it features the most complete stratified sections of Pompeii's volcanic deposit," Scarpati told Discovery News.

Please visit the site:

<http://dsc.discovery.com/news/2008/12/11/pompeii-vesuvius-escape.html>

For slide show, go to <http://dsc.discovery.com/news/slideshows/pompeii.html>

PREHISTORIC BRONZE HOARD FOUND OFF GREEK BEACH

Authorities say a hoard of 4,500-year-old copper weapons recovered off a northern beach is the largest of its kind ever found in Greece.

ATHENS, Greece —

Authorities say a hoard of 4,500-year-old copper weapons recovered off a northern beach is the largest of its kind ever found in Greece.

A Culture Ministry statement says the discovery includes at least 110 ax and hammer heads, but several more should be extracted from compacted masses of corroded metal.

The ministry says they were probably buried at a time of unrest or war. The hoard would have represented a fortune at the time.

Thursday's statement says there were no traces of a shipwreck. The site was probably a coastal area flooded by rising sea levels.

The tools were discovered near the village of Mesi, 50 miles (80 kilometers) northeast of Athens. Archaeologists recovered it from a depth of 3 1/2 yards (meters).

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Please visit the sites:

http://seattletimes.nwsources.com/html/nationworld/2008494998_apeugreeceprehistorictreasure.html

<http://www.in.gr/news/article.asp?lngEntityID=967163&lngDtrID=253>

<http://www.tovima.gr/default.asp?pid=2&artid=246330&ct=4>

Text in English:

<http://www.sparta.markoulakispublications.org.uk/index.php?id=210>

EURASIA INSIGHT: TURKEY: ANCIENT PAGAN TEMPLE SITE YIELDS NEW ARCHEOLOGICAL CLUES ON ORIGINS OF FARMING NICHOLAS BIRCH

It's the last day of the excavating year at Gobekli Tepe, the hill-top neolithic site whose circles of huge decorated T-shaped stones are at least 5,000 years older than any other monumental structure ever found.

Workmen have already buried the bases of the stones in rubble to protect them from the winter rain. Now they are laying raised walkways into the centre of a site that was previously off-limits to visitors.

In between shouted instructions, the German archaeologist who has been excavating the site since 1994 sums up four more months of digging.

"This is not like an ordinary excavation, uncovering a wall here and the corner of a house there," Klaus Schmidt says, standing at the highest point of a 15-metre high artificial mound that covers nine hectares.

"In 14 years, we have uncovered barely five percent of what is here. There are decades of work ahead."

Apart from a new transverse cut to the left of the main dig, and the excavation of a small, late circle that probably dates from about 8,500 B.C., little appears to have changed since March. [For background see the Eurasia Insight archive].

But there have been striking discoveries: a U-shaped stone sculpted with leopards and a boar that Schmidt compares to the Lion Gate at Mycenae; two almost life-size sculptures of a boar and wild cat found embedded within the rubble walls surrounding one early enclosure.

Schmidt and his team have also uncovered a hollowed-out stone, roughly four-foot square, lying cracked in the middle of one of the circles.

"We found similar stones in other enclosures, and we assumed they are some sort of door", Schmidt says. "The position of this one makes us wonder whether the circles weren't vaulted," like the trulli of southern Italy, or the famous bee-hive houses at Harran, just south of Gobekli Tepe.

Potentially much more significant, although almost invisible to the untrained eye, archaeologists have also uncovered evidence that the builders of at least one of the oldest circles had dug roughly five meters down through the mound before erecting the standing stones on the bedrock.

"For the time being this is just hypothesis, but this leaves us wondering whether the site dates back to before [c. 9500 b.c.], when the earliest circles were built," Schmidt says. "Piling up a five-meter mound is not the work of one night."

Whatever the carbon-dating eventually shows, Gobekli Tepe stands at the cusp of what is arguably the biggest social revolution in human history - the transformation of semi-nomadic hunters into settled farmers.

Archaeologists now know a great deal about the whens and wheres of the birth of agriculture.

DNA tests on wild wheat growing on Karacadag, a mountain just east of Gobeklitepe, suggest it may have been the source of early cultivated strains. At Nevali Cori, a neolithic village 40 miles northwest of Schmidt's site, archaeologists found seeds of domesticated einkorn wheat dating from 9000 b.c.

But debate still rages - and probably always will - about what it was that led neolithic groups to transfer almost all their energies into farming.

For many experts, climate change was behind the transformation. Global temperatures had been warming gradually since the last Ice Age. Between 10,800 and 9,500 b.c., they suddenly plummeted again.

The Greenland ice cap cooled by roughly 15 degrees. Rain stopped falling on the Fertile Crescent. "The region where grasses could be cultivated shrank to the very upper edges of the Middle East, northern Syria and southeastern Turkey," says Ofer Bar-Yosef, MacCurdy Professor of Prehistoric Archaeology at Harvard and a doyen of paleolithic studies.

"Even there, resources were limited - people wanted to keep them for themselves."

But the location, age and sheer size of Gobekli Tepe have led some to posit a radically different explanation for the change. "The intense cultivation of wild wheat may have first occurred to supply sufficient food to the hunter-gatherers who quarried 7-ton blocks of limestone with flint flakes," writes Stephen Mithen, Professor of Archaeology at the University of Reading, in the United Kingdom.

The move to farming may "have been driven as much by ideology as by the need to cope with environmental stress."

Klaus Schmidt appears in two minds about the theory. In a book he wrote in German about Gobekli Tepe, he suggests that "temples came first, and cities followed." Sipping sugary tea outside a portakabin at the entrance to the site, he is more circumspect.

"There is no doubt this was a place of huge feasts, and hunter-gatherers would have had difficulty gathering together enough food to feed large groups," he says. "Some American colleagues say such feasts may have been the origin of domestication."

His caution stems from growing evidence uncovered over the last five years or so that domestication was a much longer process than previously believed.

Experts now think farmers probably sowed grain for at least a thousand years before domesticated strains appeared. In 2004, French archaeologists showed how neolithic settlers had corralled wild cattle in southern Turkey before transporting them to Cyprus.

Professor Bar-Yosef has had his doubts about the theory of ideological farmers since the start. "First you need to get your economy working," he says. "Then you build the monuments that justify the complex social organization that requires."

Complex, he adds, can sometimes mean unjust. "You can't build places like Gobekli with kibbutzim," he says. "I wouldn't be surprised if somebody somewhere in the Fertile Crescent finds evidence of slave labour in the near future."

Editor's Note: Nicolas Birch specializes in Turkey, Iran and the Middle East.

Please visit the site:

<http://www.eurasianet.org/departments/insight/gobekli/pp120908c.shtml>

CAVE'S CLIMATE CLUES SHOW ANCIENT EMPIRES DECLINED DURING DRY SPELL

(PhysOrg.com) -- The decline of the Roman and Byzantine empires in the Eastern Mediterranean more than 1,400 years ago may have been driven by unfavorable climate changes.

Based on chemical signatures in a piece of calcite from a cave near Jerusalem, a team of American and Israeli geologists pieced together a detailed record of the area's climate from roughly 200 B.C. to 1100 A.D. Their analysis, to be reported in an upcoming issue of the journal *Quaternary Research*, reveals increasingly dry weather from 100 A.D. to 700 A.D. that coincided with the fall of both Roman and Byzantine rule in the region.

The researchers, led by University of Wisconsin-Madison geology graduate student Ian Orland and professor John Valley, reconstructed the high-resolution climate record based on geochemical analysis of a stalagmite from Soreq Cave, located in the Stalactite Cave Nature Reserve near Jerusalem.

"It looks sort of like tree rings in cross-section. You have many concentric rings and you can analyze across these rings, but instead of looking at the ring widths, we're looking at the geochemical composition of each ring," says Orland.

Using oxygen isotope signatures and impurities — such as organic matter flushed into the cave by surface rain — trapped in the layered mineral deposits, Orland determined annual rainfall levels for the years the stalagmite was growing, from approximately 200 B.C. to 1100 A.D.

While cave formations have previously been used as climate indicators, past analyses have relied on relatively crude sampling tools, typically small dental drills, which required averaging across 10 or even 100 years at a time. The current analysis used an advanced ion microprobe in the Wisconsin Secondary-Ion Mass-Spectrometer (Wisc-SIMS) laboratory to sample spots just one-hundredth of a millimeter across. That represents about 100 times sharper detail than previous methods. With such fine resolution, the scientists were able to discriminate weather patterns from individual years and seasons.

Their detailed climate record shows that the Eastern Mediterranean became drier between 100 A.D. and 700 A.D., a time when Roman and Byzantine power in the region waned, including steep drops in precipitation around 100 A.D. and 400 A.D. "Whether this is what weakened the Byzantines or not isn't known, but it is an interesting correlation," Valley says. "These things were certainly going on at the time that those historic changes occurred."

The team is now applying the same techniques to older samples from the same cave. "One period of interest is the last glacial termination, around 19,000 years ago — the

most recent period in Earth's history when the whole globe experienced a warming of 4 to 5 degrees Celsius," Orland says.

Formations from this period of rapid change may help them better understand how weather patterns respond to quickly warming temperatures.

Soreq Cave — at least 185,000 years old and still active — also offers the hope of creating a high-resolution long-term climate change record to parallel those generated from Greenland and Antarctic ice cores.

"No one knows what happened on the continents... At the poles, the climate might have been quite different," says Valley. "This is a record of what was going on in a very different part of the world."

In addition to Valley and Orland, the paper was authored by Miryam Bar-Matthews and Avner Ayalon from the Geological Survey of Israel, Alan Matthews of the Hebrew University in Jerusalem and Noriko Kita of UW-Madison.

Provided by University of Wisconsin-Madison

Please visit the site:

<http://www.physorg.com/news147625840.html>

Thera Volcano in 1613 BC

Two olive branches buried by a Minoan-era eruption of the volcano on the island of Thera (modern-day Santorini) have enabled precise radiocarbon dating of the catastrophe to 1613 BC, with an error margin of plus or minus 10 years, according to two researchers who presented conclusions of their previously published research during an event on Tuesday at the Danish Archaeological Institute of Athens.

Speaking at an event entitled "The Enigma of Dating the Minoan Eruption - Data from Santorini and Egypt", the study's authors, Dr. Walter Friedrich of the Danish University of Aarhus and Dr. Walter Kutschera of the Austrian University of Vienna, said data left by the branch of an olive tree with 72 annular growth rings was used for dating via the radiocarbon method, while a second olive branch -- found just nine metres away from the first -- was unearthed in July 2007 and has not yet been analysed.

The researchers said both olive tree branches were found near a Bronze Age man-made wall, giving the impression that they were part of an olive grove situated near a settlement very close to the edge of Santorini's current world-famous Caldera. The two trees were found standing when unearthed, and apparently had been covered by the Thera pumice immediately after the volcano's eruption.

According to the two scientists, other radiocarbon testing from archaeological locations on Santorini and the surrounding islands, as well as at Tel el-Dab'a in the Nile delta in Egypt, corroborate the dating based on the olive tree.

On the other hand, as the two researchers pointed out, archaeological evidence linked with the Historical Dating of Ancient Egypt indicate that the Thera eruption must have occurred after the start of the New Kingdom in Egypt in 1530 BC.

The two researchers said their find (olive tree) represents a serious contradiction between the results of the scientific method (radiocarbon dating) and scholarly work in the humanities (history-archaeology), with both sides holding strong arguments to support their conclusions.

The radiocarbon dating places the cataclysmic eruption, blamed for heralding the end to the Minoan civilisation, a century earlier than previous scientific finds.

Please visit the site:

<http://www.ana.gr/anaweb/user/showplain?maindoc=7093518&maindocimg=1564949&service=100>

SUDAN STATUE FIND GIVES CLUES TO ANCIENT LANGUAGE, BY ANDREW HEAVENS

KHARTOUM, Dec 16 (Reuters) - Archaeologists said on Tuesday they had discovered three ancient statues in Sudan with inscriptions that could bring them closer to deciphering one of Africa's oldest languages.

The stone rams, representing the god Amun, were carved during the Meroe empire, a period of kingly rule that lasted from about 300 BC to AD 450 and left hundreds of remains along the River Nile north of Khartoum.

Vincent Rondot, director of the dig carried out by the French Section of Sudan's Directorate of Antiquities, said each statue displayed an inscription written in Meroitic script, the oldest written language in sub-Saharan Africa.

"It is one of the last antique languages that we still don't understand ... we can read it. We have no problem pronouncing the letters. But we can't understand it, apart from a few long words and the names of people," he told reporters in Khartoum.

Sudan has more pyramids than neighbouring Egypt, but few people visit its remote sites, and repeated internal conflicts have made excavation difficult.

Rondot said the dig at el-Hassa, the site of a Meroitic town, had uncovered the first complete version of a royal dedication, previously found only on fragments of carvings from the same period.

He said experts were still trying to work out the meaning of the words by comparing them with broken remnants of similar royal dedications in the same script.

"It's an important discovery ... quite an achievement," Rondot said.

The statues were found three weeks ago under a sand dune at the site of a temple to the god Amun, an all-powerful deity represented by the ram in Sudan.

The site is close to Sudan's Meroe pyramids, a cluster of more than 50 granite tombs 200 kms (120 miles) north of the capital that are one of the main attractions for Sudan's few tourists.

Rondot said the dig, funded by the French foreign ministry, would also provide vital information on the reign of a little-known king, Amanakhareqerem, mentioned in the inscriptions on the rams.

"Before we started the dig we only had four documents in his name ... We don't even know where he was buried," he said. "We are beginning to understand the importance of that king." (Editing by Katie Nguyen and Tim Pearce)

Please visit the site:

<http://africa.reuters.com/wire/news/usnLG432974.html>

RESEARCHERS RESURRECT EXTINCT JUDEAN DATE PALM TREE FROM 2,000- YEAR-OLD SEED - ANCIENT DATE SEEDS FROM MASADA

Later, Roman forces would storm Masada, triggering mass suicides by the barricaded Zealots. For centuries, the fruit seeds remained buried beneath the fallen citadel, once the luxurious palace of King Herod.

Now researchers led by Dr. Sarah Sallon of Jerusalem's Louis L. Borick Natural Medicine Research Center, part of the Hadassah Medical Organization have brought an extinct date palm back to life by resurrecting the oldest seed ever. They call it Methuselah, and they describe their carbon-dating and genetic-analysis efforts in the 13 June 2008 issue of the journal Science.

Using the writings of ancient Jewish historian Flavius Josephus as a guide, the late archeologist Yigael Yadin (1917-1984) began excavating Masada in 1963. For 40 years, Yadin's recovered date palm seeds were housed at Bar-Ilan University, under the care of botanical archeologist Mordechai Kislev. In 2005, the famous Hebrew University archeologist Ehud Netzer granted permission to release five seeds to Sallon.

She then asked Markus Egli at the University of Zurich's Radio-Carbon Laboratory to figure out the age of two seeds based on a form of carbon found in all living things that decays at a predictable rate.

Next, Sallon gave the three remaining seeds to Elaine Solowey of the Arava Institute of the Environment. A specialist in plants that grow in arid regions, Solowey soaked the seeds in warm water, fertilizer and hormones, and finally potted them on 19 January 2005-the traditional Jewish New Year of Trees.

After eight weeks, a small green shoot emerged from one seed, and by 26 months, Methuselah had grown to a height of nearly four feet. Except for a few white spots on its first leaves, the plant remains healthy.

Carbon dating of two unsprouted seeds as well as original seed-shell fragments clinging to Methuselah's roots suggested that its parents grew in ancient Judea about 2,000 years ago. Masada was built some 2,044 years ago, and destroyed roughly a century later. So, Yadin's seeds most likely came from dates stored by Jewish Zealots, Sallon said.

Preliminary genetic studies show that Methuselah may share some 50 percent of its DNA with modern dates. If Methuselah turns out to be female, then it might be possible to regrow the Judean date palm, revered in antiquity for its remarkably large, sweet and medicinal fruit.

Two millennia ago, forests of date palms blanketed the Jordan River valley from the Dead Sea to the Sea of Galilee. But, those original forests disappeared with the destruction of Judea, and today, modern Israel imports date palms.

As a physician turned medical plant researcher, Sallon said that she also wonders if the date tree, once known as the "Tree of Life," may have therapeutic properties. The ancients described it as a laxative, an aphrodisiac and even a cure for cancer.

For now, though, the big question is whether Methuselah is a "boy," or a "girl"-in which case, researchers may be sampling its fruit by 2010.

Note: This story has been adapted from a news release issued by the American Association for the Advancement of Science.

Please visit the site:

http://www.geneticarchaeology.com/research/Researchers_Resurrect_Extinct_Judean_Date_Palm_Tree_from_2000-Year-Old_Seed.asp

RARE LEAD BARS DISCOVERED OFF THE COAST OF IBIZA MAY BE CARTHAGINIAN MUNITIONS ENLARGE

ScienceDaily (Dec. 16, 2008) — Dr. Marcus Heinrich Hermanns from the Department of Archaeology at the University of Cologne has recovered three lead bars which may originate from the third century before Christ, 39 meters under the sea off the north coast of Ibiza. One of the bars has Iberian characters on it. According to the German Mining Museum in Bochum, the lead originates from the mines of Sierra Morena in southern Spain.

With the help of local volunteer divers, some of whom he also trained in crash courses in underwater archaeology financed by the local government, Dr. Hermanns examined the three lead bars. A fourth specimen had already been found on an earlier occasion. The characters on the upper surfaces of two of the four known bars are syllabary symbols from the script of Northeastern Iberian. "The characters must have been added to the metal before it had set, shortly after it had been cast," says the underwater archaeologist Dr. Hermanns, "in which case, the characters are more likely to be related to production as opposed to commercial information."

The meaning of the characters has not yet been determined, however, the dating of the objects to the third century B.C., i.e. the period of the Second Punic War, raises further questions. The reason for this is that there is very little evidence for the downsizing of silver works in the Sierra Morena region for this period. There is, however, evidence for this in the mining area around Cartagena in the eastern part of the Iberian Peninsula, i.e. the language area of Northeastern Iberian. For this reason, scientists suspect that the raw lead was processed and branded in this area, before it was placed on board a freighter that was shipwrecked off the north coast of Ibiza.

The destination planned for the lead remains unknown. The reason why the lead was transported from the Spanish mainland to the Balearic Islands, even though silver mines were in operation on the islands, has not been established. During antiquity, lead was a by-product of silver mining and used mainly for coinage. Dr. Hermanns therefore assumes that the lead was used as munitions for mercenaries provided by the Balearians during antiquity.

Due to the dating of the lead, it would make sense that this was for the Second Punic War. "The examination of the recovered lead bars provides a further basing point for the examination of the pre-Roman metal industry in the western Mediterranean region," according to Dr.

Hermanns, "there have been some relevant discoveries in the past, however, it is very difficult to establish anything concrete with certainty, due to the research done so far." This project was sponsored by the Fritz-Thyssen-Stiftung.

Please visit the site:

<http://www.sciencedaily.com/releases/2008/12/081215074650.htm>

ANCIENT GRAVES FOUND **ACCIDENTALLY, DOĞAN NEWS** **AGENCY**

MUĞLU - Two ancient graves, dating back to the 7th century B.C., have been uncovered during construction of a cesspool at the house of Mehmet Çoban in the Damlıboğaz village of Muğla's Milas district, which hosts the ancient city of Hydai.

First excavated and thought to pertain to a noble family, the ancient graves have human skeletons, prayer pots, ceramic pots, wineglasses, accessories, hunting equipment and candles.

The local officials said they were really surprised the graves had been so well preserved. "We initiated the work in the area after getting the necessary permissions. We have to conduct the works by kneeling down or crawling since the graves are quite narrow. We also try to understand the burying techniques and the traditions," said Erol Özen, director of the local museum. "I think the equipment in the graves will give us important clues about the living conditions of the time.

Moreover the workmanship on the pots reveals the expertise in Hydai. The police forces will be on guard at the graves since the work will take time. Similar examples of the artifacts in Damlıboğaz only exist at the Sadberk Hanım Museum."

Mehmet Çoban was very surprised that the ancient graves were found while digging for a cesspool. Noting that he inherited the house from his father, who inherited it from his father, Çoban said, "We have been living on a cultural treasure for years without knowing it. On the one hand, I am no longer allowed to dig a cesspool in my house; on the other hand, we have discovered a historical finding of great importance. I really do not know if I should be happy or not."

Ancient city of Hydai

There is no visible architectural structure on the ground since the alluviums carried by the Sarıçay in the Damlıboğaz village covered it up. The name of the city comes from 'Hydai' meaning 'water' in ancient Greek. Two other graves in the village were found in 2000 through excavation work conducted in collaboration with the Muğla University Department of Archeology and Art History. The works are exhibited at the Milas Museum.

It is also known that the people of the time spoke Greek, and the Damlıboğaz ceramics were exported to Rhodes, which was a Karia Island from the 3rd century B.C. to Byzantine times.

Please visit the site:

<http://www.hurriyet.com.tr/english/domestic/10650483.asp?scr=1>

SATELLITES UNEARTHING ANCIENT EGYPTIAN RUINS, BY CAMERON TANKERSLEY

(CNN) -- Archaeologists believe they have unearthed only a small fraction of Egypt's ancient ruins, but they're making new discoveries with help from high-tech allies -- satellites that peer into the past from the distance of space.

"Everyone's becoming more aware of this technology and what it can do," said Sarah Parcak, an archaeologist who heads the Laboratory for Global Health at the University of Alabama at Birmingham. "There is so much to learn."

Images from space have been around for decades. Yet only in the past decade or so has the resolution of images from commercial satellites sharpened enough to be of much use to archaeologists. Today, scientists can use them to locate ruins -- some no bigger than a small living room -- in some of the most remote and forbidding places on the planet.

In this field, Parcak is a pioneer. Her work in Egypt has yielded hundreds of finds in regions of the Middle Egypt and the eastern Nile River Delta.

Parcak conducted surveys and expeditions in the eastern Nile Delta and Middle Egypt in 2003 and 2004 that confirmed 132 sites that were initially suggested by satellite images. Eighty-three of those sites had never been visited or recorded.

In the past two years, she has found hundreds more, she said, leading her to amend an earlier conclusion that Egyptologists have found only the tip of the iceberg.

"My estimate of 1/100th of 1 percent of all sites found is on the high side," Parcak said.

These discoveries are of no small significance to the Egyptian government, which has devoted itself anew to protecting archaeological sites from plunder and encroachment.

The Supreme Council of Antiquities has restricted excavation in the most sensitive areas along the Nile -- from the Great Pyramids at Giza on the outskirts of Cairo to the carvings of Ramses II in the remote south.

Antiquities officials hope the move will encourage more surveys in the eastern Nile Delta in northern Egypt, Parcak said, where encroaching development in the burgeoning nation of 82 million poses the greatest threat to the sites.

Old and modern methods

Parcak's process weds modern tools with old-fashioned grunt work.

The archaeologist studies satellite images stored on a NASA database and plugs in global positioning coordinates for suspected sites, then tramps out to see them. Telltale signs such as raised elevations and pot shards can confirm the images.

As a result, the big picture comes into view.

"We can see patterns in settlements that correspond to the [historical] texts," Parcak said, "such as if foreign invasions affected the occupation of ancient sites.

"We can see where the Romans built over what the Egyptians had built, and where the Coptic Christians built over what the Romans had built.

"It's an incredible continuity of occupation and reuse."

The flooding and meanders of the Nile over the millennia dictated where and how ancient Egyptians lived, and the profusion of new data has built a more precise picture of how that worked.

"Surveys give us information about broader ancient settlement patterns, such as patterns of city growth and collapse over time, that excavations do not," said Parcak, author of a forthcoming book titled "Satellite Remote Sensing and Archaeology."

The vagaries of climate in the region make satellite technology advantageous, too.

"Certain plants that may indicate sites grow during certain times of the year," Parcak said, "while sites may only appear during a wet or dry season. This is different everywhere in the world."

Archaeologists working in much more verdant climates, such as Cambodia and Guatemala, also have used the technology to divine locations of undiscovered ruins.

They have been able to see similarities between the vegetation at known sites and suspected sites that showed up in fine infrared and ultraviolet images covering wide areas of forbidding terrain.

"For the work I do [in Egypt], I need wet season images as wet soil does a better job at detecting sites with the satellite imagery data I use," Parcak said. "I can pick the exact months I need with the NASA satellite datasets."

Benefits of a bird's-eye view

Remote subsurface sensing has been used in archaeology in one form or another for years, though the term "remote" doesn't necessarily imply great distance. Typically, a surveyor has wheeled a sensing device over a marked-out area to determine what lies below.

The sensing devices employ any of an array of technologies, such as Ground Penetrating Radar. They bounce signals off objects below the surface and translate the data into images that a scientist's trained eye can decipher.

Multispectral imaging encompasses technologies that "see" what the human eye can't, such as infrared and ultraviolet radiation.

Scientists have used it for years to study the Earth's surface for a variety of purposes. Until resolution of these images improved, though, the only way to produce a sharp image was to be relatively close to the ground.

For those lugging unwieldy gear across jungle and desert, an effective bird's-eye view can change the world. It lets them leave behind the days and days of meticulous "prospecting" and get results from airplane-mounted sensors or, later on, a flyover by an advanced satellite.

One of the most advanced is called QuickBird, which has been in orbit since 2001 and can provide high-resolution images of 11-mile-wide swaths. The satellite can collect nearly 29 million square miles of imagery data in a year, according to DigitalGlobe, which developed and operates QuickBird.

The company, based in Longmont, Colorado, is working on an upgrade. WorldView-2, to be launched in 2009, will offer sharper resolution of visual and multispectral images than QuickBird, according to the company's Web site.

In the end, though, a tool is only as useful as its wielder.

"Most of the advances have come through processing on the ground by end users such as Dr. Parcak," said DigitalGlobe spokesman Chuck Herring.

Please visit the site:

<http://www.cnn.com/2008/TECH/science/12/23/satellites.archaeology.egypt/index.html> [Go there for a pic]

TWO 4,300-YEAR-OLD TOMBS **UNVEILED NEAR CAIRO**

SAQQARA, Egypt (AP) — A pair of 4,300-year-old pharaonic tombs discovered at Saqqara indicate that the sprawling necropolis south of Cairo is even larger than previously thought, Egypt's top archaeologist said Monday.

The rock cut tombs were built for high officials — one responsible for the quarries used to build the nearby pyramids and other for a woman in charge of procuring entertainers for the pharaohs.

"We announce today a major, important discovery at Saqqara, the discovery of two new tombs, dating back to 4,300 years ago," said Zahi Hawass, as he showed reporters around the site Monday. "The discovery of the two tombs are the beginning of a big, large cemetery."

The discovery indicates that there is even more to the vast necropolis of Saqqara located 12 miles south of the capital, Cairo, he added.

In the past, excavations have focused on just one side of the two nearby pyramids — the Step Pyramid of King Djoser and that of Unas, the last king of the 5th Dynasty. The area where the two tombs were found, to the southwest, has been largely untouched.

"This means the royal cemetery is bigger than we thought," said Saleh Suleiman, the archaeologist responsible for the excavation of the two tombs.

Hawass said excavations will continue and further finds should shed light on the 5th and 6th dynasties of the Old Kingdom, which ruled over four thousand years ago.

One of the tombs is about a yard wide and 2.75 yards long with a description above the entrance about the man, Yaamat, for whom it was built. The second tomb is twice the size and includes inscriptions and an image of seated woman.

Dr. Aidan Dodson, a research fellow at the University of Bristol's Department of Archaeology and Anthropology in Bristol, England who was not involved in the dig, said that while the tombs themselves aren't especially significant, the possibility of a much larger cemetery is.

"It shows that the blank areas of the maps of Saqqara aren't really empty at all. It's just that archaeologists haven't got round to digging them," he said.

Excavations have been going on at Saqqara for about 150 years, uncovering a vast necropolis of pyramids, tombs and funerary complexes mostly from the Old Kingdom, but including sites as recent as the Roman era.

But despite the years of excavation, new finds are constantly being made. In November, Hawass announced the discovery of a new pyramid at Saqqara, the 118th in Egypt, and the 12th to be found just in Saqqara.

According to Hawass only 30% of Egypt's monuments have been uncovered, with the rest still under the sand.

Hawass also said that a bust of Pharaoh Amenhotep III which has been outside the country for about 15 years was returned to the Egypt on Sunday after a lengthy legal battle with an antiquities dealer in Britain.

Hawass said Egypt and the dealer were eventually able to resolve the question of the bust's ownership out of court without Egypt paying the dealer any money.

Egypt has been actively trying to recover artifacts stolen or looted over the years. The bust is one of about 5,000 pieces retrieved by Egypt since 2002. Hawass said he also expects the return of four statues from Sweden in the next two weeks.

The bust is one of the great statues of Amenhotep III, the ninth pharaoh of the 18th dynasty, who ruled for almost 40 years during the 14th century B.C., and is considered one of the most important rulers of ancient Egypt, said Hawass.

Amenhotep was the father of Akhenaten who attempted to make Egypt worship a single god, the sun, making him one of the first known proponents of monotheism.

Please visit the site:

http://www.usatoday.com/news/world/2008-12-22-egypt-tombs_N.htm?csp=34

TOMB OF CYRUS RESTORED

TEHRAN (FNA)- The restoration of the tomb of the founder of the Persian Empire, Cyrus the Great, was completed and its metal scaffolding removed.

After three stages of restoration, the structure stands strong and will not sustain any further damage. The work on the historical site has gained UNESCO approval.

According to manager of the restoration work, Hassan Rahsaz, the restoration and documentation of the process has been carried out with great precision by 8 archeological experts and modern-day equipment, press tv reported.

The first stage of restoration began in 2000 when metal scaffolding was put around the tomb to allow experts to access every inch of the stone exterior to find, document and restore the damage to its 180 bricks and the 11 slabs of stone that make up its roof.

Broken pieces were also gathered and used to rebuild and protect the sections exposed to snow and rain.

In the second stage of the project, cement used for restoration in 1930 was removed and the process of anastylosis of broken and fallen parts began.

The stone parts were then reattached in the Achaemenid style with the help of dovetail joints; laser scanners were used to determine their exact positions.

In the last stage of restoration, the northern and western sides of the tomb were completely cleaned of limestone.

Please visit the site:

<http://english.farsnews.com/newstext.php?nn=8709290873>
