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Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

HMS ANNUAL CONFERENCE, CARDIFF,

SEPT. 2011

The call for papers and booking forms for this meeting are now available from the HMS website (<http://www.hist-met.org/conf2011.html>).

The annual conference for 2011 will address the themes:

The South Wales iron and steel industry, particularly the development of rolled and engineering products,

The development of the steel industry in the UK and Europe post-1960

The social history of the iron and steel industry

Most of the programme of the meeting will be held jointly with the Historical Committee of the German Steel Institute (VDEh). The conference is non-residential. The conference involves several different venues and trips; please see the booking form for full details.

Offers of 20-30 minute oral presentations are invited on archaeological, economic, engineering, historical, metallurgical or social aspects of any of the conference themes.

Contact: Tim.Young@geoarch.co.uk

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AGU SESSION: D13C AND BIOMARKERS, DECEMBER 2011, SAN FRANCISCO, CA

Dear all,

We would like to draw your attention to our inter-disciplinary session (see below) at this years **AGU Fall Meeting** (December 2011) in San Francisco, CA. The deadline for abstract submission is 4th August 2011 (around 2 months from now). Abstracts are being accepted from now until then.

Session Title: Modern Insights Into the Paleo-carbon Cycle: d¹³C and a Biomarker Perspective

Convenors: Chris Brodie (Durham University, UK/Hong Kong University); James Casford (Durham University, UK); Erin McClymont (Newcastle University, UK); Melanie Leng (NIGL, UK).

Description:

Understanding the carbon cycle is central to constraining environmental processes from biological productivity to palaeo environmental interpretations. Rigorously quantifying these processes at different spatial and temporal scales requires an integrative inter-disciplinary approach. This session aims to bring together ecologists, biochemists, palaeoclimatologists and geochemists that use bulk and compound specific carbon isotopes and biomarker distributions in marine and terrestrial environments. We particularly encourage contributions investigating biological productivity (i.e. photosynthesis); carbon fluxes; diagenesis and soil processes; the use of carbon to investigate modern and palaeo-environments; and method development.

Link: <http://sites.agu.org/fallmeeting/scientific-program/session-search/92>

Confirmed Speakers so far:

Prof. Philip Meyers (Michigan, USA)

Dr. Jennifer Dungait (BBSRC, UK)

Abstract submission can be done via <http://agu-fm11.abstractcentral.com/>

Student Travel Grant Applications: <https://www.agu.org/education/grants/travel.shtml>

We are very keen to receive abstracts from researchers working in modern through to palaeo, terrestrial and aquatic environments using bulk and compound specific carbon isotopes and biomarker distributions across all disciplines. We hope that this session will be of interest to many users of this forum (and others not on this list, so please do pass this on to any colleagues you think may be interested). We are very open to all strands of research utilising these proxies to gain an insight into modern and palaeo processes, and the caveats in the scientific understanding from an inter-disciplinary perspective.

All the best,

Dr. Chris Brodie

Dr. James Casford

Dr. Erin McClymont
Prof. Melanie Leng

Dr. Chris Brodie
Department of Earth Sciences
James Lee Science Building
Hong Kong University
Pokfulam Road
Hong Kong

<http://durham.academia.edu/ChrisBrodie>

FEED YOUR HEAD: FOOD AS MATERIAL AND METAPHOR, NOVEMBER 11-12, 2011

Deadline for Abstract Submissions: September 1, 2011

Keynote Speaker: Darra Goldstein, Francis Christopher Oakley Third Century Professor of Russian, Williams College, and Founding Editor of *Gastronomica: The Journal of Food and Culture* (<http://www.darragoldstein.com/>)

The need to consume food is a basic, but universal, constant in human life. Yet, food as object and idea is in a constant state of flux. What and how does food mean, and how do the cultural productions of societies manifest these meanings? Food in its absence, presence, or overabundance shapes the individual and society alike. It contributes to identity as well as the physical make-up of the body. Eating can be a spectacle, a ritual, or an event accessible to all or restricted to some. It can likewise be a performance at the intersection of body, sustenance, and architectural space. What is the relationship between where we eat and what (or how) we eat? What is the relationship between what we eat and who we are?

This interdisciplinary symposium invites graduate students in Classics, Archaeology, History of Art, and related fields to present papers that address material and metaphorical aspects of food from the ancient world to modernity. Topics might include:

- visual and textual representations of food
- architectural spaces and food
- material culture of food
- feasting
- fasting
- gluttony; delight and disgust
- hunger and satiation
- food supply and trade
- food production and/or preparation
- politics of food
- relationship of food and body
- food as flesh
- ethics of consumption
- ritual and social aspects of food
- food and cultural/individual identity
- food taboos and anxieties
- poison, contamination, and health

The symposium committee will be accepting and reviewing submissions throughout the summer. Please submit abstracts of less than 250 words by September 1, 2011 to bmcsymposium@gmail.com. If digital submission is not possible, please submit a paper

copy to: Bryn Mawr Graduate Student Symposium, c/o Jennifer Hoit, Box 1623 , Bryn Mawr College , 101 North Merion Ave., Bryn Mawr, PA 19010.

IN THE REALM OF IMAGES -
CONCEPTS IN DECORATING PALACES
IN THE AEGEAN AND NEAR EAST
FROM 1900 – 612 BC, JULY 1 - 2, 2011,
ZENTRUM FÜR
ALTERTUMSWISSENSCHAFTEN,
MARSTALLHOF 2-4, HEIDELBERG

In the Realm of Images

Concepts in Decorating Palaces in the Aegean and Near East from 1900 – 612 BC
Organised by the Graduate Academy “Spaces, Images, Ways of Life in Ancient Civilizations”

July 1 - 2, 2011

Zentrum für Altertumswissenschaften, Marstallhof 2-4, Heidelberg.

For more information: promotionskolleg@zaw.uni-heidelberg.de

—FRIDAY, JULY 1— Room 313

16:00. David KERTAI & Ute GÜNKEL-MASCHEK: Welcome and Introduction

16:30. Session I: “Spaces of Transition”

Noach VANDER BEKEN: Engaging and Overcoming the Powerful Bull: Some Observations about the Functioning of Entrance Spaces at the Minoan Palace of Knossos
Ulrich THALER: Painted Porches and ‘Processional Archaeology’. Some Observations on the Painted Decoration of Monumental Entrances in Mycenaean Palaces

* Coffee Break

Alessandra GILIBERT: The Gate as a Locus for Ritual Performances in Late Hittite Zincirli
Barbara PORTER: "Enter into His Gates with Thanksgiving, Caution, and a Lot of Presents": Approaching the Northwest Palace Throneroom at Nimrud

* Discussion

19:15. End

—SATURDAY, JULY 2— Room 418

Morning Lecture

10:00. Eleftheria PALIOU: From formal to Mundane: Exploring the Social Contexts of Mural Painting "Consumption" at Akrotiri (Thera) Using Computational Spatial Analysis

11:00. Session II: “Spaces of Movement”

Ute GÜNKEL-MASCHEK: Passing Through the Labyrinth. The Role of Painted Decoration in the Late Palace at Knossos David KERTAI: The Ornamentation of Connectivity. Corridors in the Context of Late Assyrian Palaces.

* Discussion

* Lunch Break

13:30. Session III: “Spaces of Authority”

Ute GÜNKEL-MASCHEK: Imaginating Power: the Visual Production of Authority in Spatial and Pictorial Arrangements at Knossos Ulrich THALER: Facing Lions and Griffins. Further Thoughts on the Interrelationship of Movement, Positioning and Painted Decoration in Mycenaean Throne Rooms Barbara PORTER: A Center of Power, Justice, Diplomacy, Worship, Banquets and Magic: Ashurnasirpal II's Throneroom at Nimrud

* Discussion

* Coffee Break

15:45. Session IV: “Spaces of Gathering”

Ute GÜNKEL-MASCHEK: “We are Palace” – Some Thoughts on the Spiral Decoration of Ceremonial Halls in Minoan Palaces David KERTAI: Collecting the Gaze. The Courtyards of the Southwest Palace in Nineveh.

Alessandra GILIBERT: The Theatre Palace of Kapara of Guzana as Space for the Royal Ancestor Cult

* Discussion

* Coffee Break

* Final Discussion

19:00. End

IAMS SUMMER SCHOOL 2011 FOR ANCIENT MINING: 11 TO 15 JULY, LONDON

Dear All,

I would like to invite for the 2011 IAMS Summer School on *Ancient Mining: Technology and Archaeology*. This one-week course will present in the first three days a systematic overview of prehistoric mining technology using a wide range of archaeological examples, by Professor Tim Shaw, one of the founders of the discipline. The second half of the week will give a detailed introduction to the archaeological mining evidence from the British Isles by Simon Timberlake, followed by a presentation of the archaeology of mining and metallurgy in Central Europe, by Brigitte Cech. Both Simon and Brigitte have extensive first-hand archaeological field experience and are leaders in their fields.

The course takes place at the UCL Institute of Archaeology, Room 612, from Monday 11 July to Friday 15 July 2011, 10 am to 4pm with a lunch break in the middle.

There is **no registration fee**, but places are allocated on a first come first serve basis, and we ask all participants to register in advance to facilitate our planning.

Please contact Jane Humphris with your registration or any questions to do with the organisation of this SummerSchool: jane.humphris@gmail.com

Best wishes,
Thilo

Professor Thilo Rehren
Chair, Archaeological Materials and Technologies
UCL Institute of Archaeology
31-34 Gordon Square
London WC1H 0PY

2ND INTERNATIONAL CONFERENCE, **BIOMEDICAL SCIENCES AND** **METHODS IN ARCHAEOLOGY, 15-18** **SEPTEMBER 2011, KUSADASI, AYDIN,** **TURKEY**

The Department of the History of Medicine ([University of Crete](#)) and The Faculty of Health Sciences ([Yeni Yüzyıl University](#)) are organizing the 2nd International Conference on:

Biomedical Sciences and Methods in Archaeology, 15-18 September 2011, Kusadasi, Aydin, Turkey

This Conference aims to highlight numerous new trends in bioarchaeology research that are made possible by the rapid development of current biomedical science and technology. These innovative approaches will shed new light on the mystery of human skeletal remains within their archaeological and historical contexts. Interesting debate on the use of bioarchaeological data as primary sources for the construction of the history of health and disease is expected during this conference. Researchers and scholars in the fields of medicine, history of medicine, bioarchaeology, medical and molecular genetics, paleopathology, physical anthropology, archaeology, and related disciplines are invited to participate.

Conference Topics:

- Bioarchaeological studies
- History of Medicine
- Biomolecular methods in archaeology
- Paleoradiology
- Paleohistology
- Paleoepidemiology
- Reconstruction of dietary patterns
- Paleopathology
- Paleoanthropology

Please visit the site: <http://bioarchaeology-congress.com/index.html>



SECOND ANNUAL
INTERNATIONAL HERITAGE
CONFERENCE
ORGANIZED BY THE
UMASS AMHERST CENTER
FOR HERITAGE AND SOCIETY

HIGH-TECH HERITAGE:

How Are Digital Technologies
Changing Our Views of the Past?

May 2-4, 2012

on the UMass Amherst Campus, Amherst, MA USA



While 3D visualizations, complex databases, interactive websites, social media, and Geographical Information Systems allow us to model, record, analyze, disseminate, map, and interpret information about cultural heritage, they are also profoundly transforming our views of the past. Major questions about the past have long been studied through chronology, typology, space, and narrative. But are digital technologies creating a new means of envisioning past cultures, eras, and landscapes in a virtual, non-narrative immediacy? What implications does that have for historiographical representation? What role do they play in complicating or simplifying the stewardship of historic resources? How do they enhance or trivialize the public interpretation of sites and monuments for the purposes of cultural tourism?

May 2012

2-4

SAVE THE DATE

The goal of this conference is to bring together a wide range of academics, museologists, digital technologists, heritage professionals, and community leaders to examine the achievements, opportunities, and serious social challenges of digital heritage. The program will highlight ongoing projects, technological breakthroughs, educational assessments, economic evaluations, and philosophical reflections on the impact of new technologies on heritage research, on collective memory, and on the very concepts of “Place” and “Time.”

Selected papers will be published in *Heritage & Society*, a peer-reviewed journal, whose editorship has been assumed by the UMass Amherst Center for Heritage and Society.

CALL FOR PAPERS COMING SOON!

Further details at our website:

<http://www.umass.edu/chs/news/conference2012.html>

Photo Credit: (NASA/Bill Ingalls), Hubble Legacy Celebration at the National Air and Space Museum, Washington, DC, USA

2011 IAMS SUMMER SCHOOL ON ANCIENT MINING: TECHNOLOGY AND ARCHAEOLOGY, UCL INSTITUTE OF ARCHAEOLOGY, ROOM 612

Dear All,

Please find below the programme for the 2011 IAMS summer school on *Ancient Mining: Technology and Archaeology*.

There is no registration fee but as places are limited please let me know as soon as possible if you would like to register for this event. Do feel free to email me if you have any questions concerning the summer school.

The 2011 IAMS Summer School on Ancient Mining: Technology and Archaeology.

Monday 11th July - Friday 15th July

10am to 4pm (with lunch break)

UCL Institute of Archaeology, room 612

Monday 11 July

from 9am: Registration (Jane Humphris) and Welcome (Thilo Rehren)

10am to 1pm: Tim Shaw, Systematic Mining Archaeology I

2pm to 4pm: Tim Shaw, Systematic Mining Archaeology II

Tuesday 12 July

10am to 1pm: Tim Shaw, Systematic Mining Archaeology III

2pm to 4pm: Tim Shaw, Systematic Mining Archaeology IV

Wednesday 13 July

10am to 1pm: Simon Timberlake, Mining Archaeology of the British Isles I

2pm to 4pm: Simon Timberlake, Mining Archaeology of the British Isles II

Thursday 14 July

10am to 1pm: Brigitte Cech, Roman mining in the Iberian peninsula I: General overview

2pm to 4pm: Brigitte Cech, Roman mining in the Iberian peninsula II: Gold

Friday 15 July

10am to 1pm: Brigitte Cech, Medieval Mining in Austria (gold)

2pm to 4pm: Brigitte Cech, Roman iron smelting in Austria / Ferrum Noricum

Kind regards,

Jane

Dr Jane Humphris

Research Fellow
University College London-Qatar (UCL-Q)
31-34 Gordon Square
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ARCANE FINAL CONFERENCE IN BERN, DECEMBER 2011

On behalf of the Steering Committee of the project »Associated Regional Chronologies of the Ancient Near East and the Eastern Mediterranean (ARCANE)« we would like to announce the final conference, which will be held in Bern on 9th-11th December 2011 (<www.arcane.unibe.ch>).

ARCANE is an interdisciplinary project, which has been funded by the European Science Foundation for five years. Its aim was to create and synchronize regional chronologies for the 3rd Millennium BC (for further information on the project please see the ARCANE website <www.arcane.uni-tuebingen.de>). Since the project has now reached its final phase it is time to publicise the results and open the discussion of the proposed chronologies. Attendance is free of charge, however we would appreciate if all participants could register online via our website before October 1st 2011.

Miroslav Novak
miroslav.novak@iaw.unibe.ch

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS
SCHOLARSHIPS FOR THE MA IN
HERITAGE MANAGEMENT - THE
UNIVERSITY OF KENT AT
CANTERBURY AND THE ATHENS
UNIVERSITY OF ECONOMICS AND
BUSINESS

The University of Kent at Canterbury and the Athens University of Economics and Business after 5 years of preparatinons are delighted to announce 2 or more fees only scholarships for the MA in Heritage Management.

The MA in Heritage Management is a unique collaboration between the worlds of Archaeology (University of Kent, Canterbury with leading heritage management projects) and Business (Athens University of Economics and Business with one of the 30 best MBAs internationally). The focus is on the teaching of skills required for the management of heritage sites across the world and how to effectively work with archaeologists, architects, conservators, marketing and education specialists while also fundraising and supervising specific projects. Courses include Education and Archaeology, Site Conservation, Human Resources Management for Cultural organisations, Strategic Planning, Public Archaeology, Tourism Marketing and others. All courses are taught in English, in or next to the archaeological site of Eleusis (home of the most famous mysteries of antiquity) near Athens, Greece. Students at the end of their studies receive two titles one from Kent and one from AUEB. Fees are the same for both EU and non EU students (7500 euros for 18 months).

For more information you can visit the following website:
http://www.kent.ac.uk/secl/classics/postgraduate/MA_in_Heritage_Management.html.

For more information and application materials contact : heritage@aueb.gr
For academic enquiries please contact the MA director at: e.kyriakidis@kent.ac.uk

**-NARNIA-NEW ARCHAEOLOGICAL
RESEARCH NETWORK FOR INTEGRATING
APPROACHES TO ANCIENT MATERIAL
STUDIES, A MARIE CURIE INITIAL
TRAINING NETWORK, FP7-PEOPLE-2010-
ITN, EARLY STAGE RESEARCHER
FELLOWSHIP ANNOUNCEMENT, “A STUDY
OF THE USE OF COPPER ALLOYS
THROUGH TIME IN THE EASTERN
MEDITERRANEAN”**

Fellowship Description

This research fellowship (equivalent to PhD research) focuses on identifying and interpreting patterns in copper alloy production used from the Bronze Age up to the Medieval period in the eastern Mediterranean, looking at geographical preferences as well as changes over time.

The project builds on the successful work of earlier research on copper-based artefacts, making extensive use of published analytical data, expanding the existing technological and typological interpretation of alloy preferences into a wider overarching picture of technological traditions across time and space. It is expected that as part of this research, targeted additional analyses will be conducted to supplement existing data sets in strategically relevant regions and periods.

Within the very broad outline of this project, it is expected that the successful applicant will focus only on one segment of time and / or space; interested applicants are welcome to contact Thilo Rehren (th.rehren@ucl.ac.uk) or Marcos Martín-Torres (m.martinon-torres@ucl.ac.uk) for informal enquiries about potential projects, and to discuss the possibility of access for sampling of relevant material.

The UCL Institute of Archaeology

The UCL Institute of Archaeology is one of the world leading centres for research in archaeometallurgy, with dedicated academic staff and technicians and over 20 PhD students working on archaeological materials science. It has state-of-the-art analytical facilities in house, including optical and electron microscopy, XRF, FTIR and access to other facilities. The broad Mediterranean region is one of the main areas of specialisation, with several staff and students carrying out projects there. Training and supervision in databases, statistics and spatial analysis is also offered as needed to PhD students. The ca. 150 doctoral students at the Institute form one of the Institute's most active, dynamic and international communities. For more information, see www.ucl.ac.uk/archaeology

Academic Requirements

Eligible applicants for this Fellowship (equivalent to a PhD position) should, at the start of the fellowship (1 October 2011), be in possession of a Master degree (MA/MSc) or equivalent in the field of archaeometallurgy, or archaeology, or an otherwise appropriate subject area (maths, geology, materials science). All suitable candidates will be interviewed.

Eligibility criteria set by the European Union for Marie Curie fellowships require that the applicants have no more than 4 years research experience prior to the envisaged starting date.

Marie Curie ITN programs mobility requirement

At the time of the selection, applicants must not have resided or carried out their main activity (work, studies, etc.) in the UK for more than 12 months in the 3 years immediately prior to the starting date of the fellowship.

Duration of fellowship

3 years – starting from 3 October 2011.

How to apply

Deadline for Fellowship applications: 15 July 2011

Applications are based on the existing UCL application form for Postgraduate (Research) degrees (<http://www.ucl.ac.uk/prospective-students/graduate-study/application-admission/downloadable-applications/graduateforms.pdf>), and should include:

I. The applicant's Curriculum Vitae

II. A covering letter including a statement concerning their eligibility for this fellowship (see below)

III. Transcripts of relevant studies and – where appropriate – a letter from their course coordinator predicting the expected degree result (for those who still have to complete their current Master's programme)

IV. Two reference letters. ***Reference letters should be sent directly by the referees to th.rehren@ucl.ac.uk, and NOT through the UCL application system.***

V. A research proposal, for which the following guidance is given (potential applicants are encouraged to discuss their proposal with Professor Thilo Rehren or Dr Martín-Torres at the UCL Institute of Archaeology prior to formally submitting):

In order to gain a place to undertake a research degree at the Institute you are required to provide a clear statement of your proposed project which should be 1500 words in length (excluding Key References). Particular emphasis will be placed on the quality of your proposal as part of the admissions process.

Your proposal must describe your research project under the following subheadings (suggested word lengths for each section are an approximate guide):

Research Questions (c. 700 words)

Please provide an outline of the research questions to be addressed, showing their originality and significance within the general field of the research topic referring to key publications. You should identify the key thematic and theoretical aspects of your project as you currently conceive them and then list further specific lines of enquiry that you intend to pursue. You may find it useful to number your specific questions (see Sources, Data and Methods below).

Sources, Data and Methods (c. 350 words)

Describe the sources of information/data that the research will draw upon and identify any ethical considerations. If possible, please identify which sources you intend to use to address your research questions. If your project will involve field, laboratory-based or museums work please state: (1) where and why; (2) how you propose to access these sources; (3) what permissions are required (identifying any likely difficulties or sensitivities); (4) how the research work is to be funded (expenses other than UCL fees, living costs, etc.).

Research Skills (c. 350 words)

Give an account of the knowledge and expertise that you already have which is relevant to the proposed research and, most significantly, any training you will need to acquire to undertake your project (for example, GIS skills, use of analytical instruments, statistical methods). Please bear in mind that certain analytical methods and techniques require considerable time and effort to acquire, so please pay particular attention to the appropriateness and feasibility of your research methods.

Timeliness and Impact (c. 100 words)

Please conclude your Research Proposal with a consideration of why it is important to undertake the research at the present time and how the potential outcomes of your project might impact both on specialists in the given field and the wider academic community.

Financial regime

The fellowship covers UK/EU tuition fees and a monthly salary for three years in line with the FP7-PEOPLE2010-ITN. The annual salary is approximately £25,000 per year before tax and national insurance deductions. A higher rate is payable for fellows with dependent children. A currency exchange rate adjustment will be done at the end of the fellowship. For more information see:

http://ec.europa.eu/research/fp7/understanding/marie-curieinbrief/home_en.html.

More information on NARNIA

<http://www.narnia-itn.eu>

More information about the UCL Institute of Archaeology

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

Maria Dikomitou

FP7 (Marie Curie) NARNIA Project Manager

New Archaeological Research Network for Integrating Approaches to ancient material studies

www.narnia-itn.eu

Research Fellow

Archaeological Research Unit

Department of History and Archaeology

University of Cyprus

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email: m.dikom@ucy.ac.cy

tel. [+357-22-893573](tel:+35722893573)
fax: [+357-22-674101](tel:+35722674101)



MARIE CURIE EARLY STAGE
RESEARCHER POST IN DATING AND
PALAEOENVIRONMENTAL STUDIES
(ESR13), TITLE OF RESEARCH PROJECT
“LUMINESCENCE DATING AND THE
PALAEOENVIRONMENT IN SW
PELOPONNESUS”

Fellowship Title and ID code

Marie Curie Early Stage Researcher Post (ESR13) at the Institute of Materials Science, National Centre for Scientific Research “Demokritos”, Greece

Title of Research Project

“Luminescence dating and the palaeoenvironment in SW Peloponnesus”

Fellowship Description

An opportunity has arisen for an Early Stage Researcher (ESR) to carry out PhD research focusing on palaeoenvironmental and geoarchaeological studies at selected sites of S. Peloponnesus (Greece).

The research will form part of the Institute of Material Science commitment to the 'New Archaeological Research Network for Integrating Approaches' to ancient material studies (NARNIA). This is a Marie Curie Initial Training Network, financed under the FP7 'People' program of the European Union and coordinated by the University of Cyprus.

The post offers the possibility of gaining a doctoral degree with a leading research team. Topics indicatively encompassed are luminescence dating studies (OSL, TL, *TT*-OSL) including basic research for further development of the techniques and applications, Upper-quaternary sea-land interactions, geomorphologic investigation, neotectonics, sedimentation rate assessments, soil studies, reconstruction and diachronic evolution of ancient landscape, palaeoenvironmental relevance and anthropogenic implications, investigated by employing a wide range of modern geoarchaeological approaches. In autumn 2011, the ESR will attend training courses on the Quaternary-employed dating techniques and on the palaeoenvironmental methodologies, offered by leading scholars in the respective fields.

Academic Requirements and Directions

Eligible applicants for this ESR fellowship must possess a Masters degree in Material Science or in Geology or in Geography or in Chemistry, preferably related to Quaternary absolute dating techniques or to palaeoenvironmental studies. Previous experience in geological field work and/or field data management, particularly acquired from Mediterranean environments is desirable.

The Early Stage Researcher post is offered in the context of a Marie Curie Initial Training Network and transnational mobility is a key element of eligibility. As such, applications will only be accepted from candidates who have spent less than 12 months in the country of the host organization (Greece) within the last three years. The posts are open to all nationalities.

Applicants should send via e-mail a CV (including published works), a covering letter briefly describing their research activities and defining the post (ESR 13) they apply for, and the names of two referees, to Dr. Yannis Bassiakos (e-mail: bassiakos@ims.demokritos.gr).

Duration of fellowships

Three (3) years; the post starts on the 1st of September 2011.

Closing date for applications

10 July 2011

Financial regime

Fellowship covers monthly salary for three years and other allowances in line with FP7-PEOPLE-2010-ITN. The annual salary is approximately 34.860 Euros before tax and national insurance deductions. For more information:

http://ec.europa.eu/research/fp7/understanding/marie-curieinbrief/home_en.html

Contact person

Dr. Yannis Bassiakos

Institute of Materials Science, National Centre for Scientific Research “Demokritos”

bassiakos@ims.demokritos.gr

For more information about **the Institute of Materials Science, National Centre for Scientific Research “Demokritos”**:

http://www.ims.demokritos.gr/ims_field.php?lang=en&ergo=G304

For more information about the **NARNIA ITN** please visit the project’s website at www.narnia-itn.eu or contact the project’s manager Maria Dikomitou, email: m.dikom@ucy.ac.cy

Maria Dikomitou

FP7 (Marie Curie) NARNIA Project Manager

New Archaeological Research Network for Integrating Approaches to ancient material studies

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Research Fellow

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MARIE CURIE EARLY STAGE RESEARCHER POST IN DATING AND PALAEOENVIRONMENTAL STUDIES (ESR14), TITLE OF RESEARCH PROJECT “LUMINESCENCE DATING AND THE PALAEOENVIRONMENT IN SE CYPRUS”

Fellowship Title and ID code

Marie Curie Early Stage Researcher Post (ESR14) at the Institute of Materials Science, National Centre for Scientific Research “Demokritos”, Greece.

Title of Research Project

“Luminescence dating and the palaeoenvironment in SE Cyprus”

Fellowship Description

An opportunity has arisen for an Early Stage Researcher (ESR) to carry out PhD research focusing on palaeoenvironmental and geoarchaeological studies at selected sites of S. Cyprus.

The research will form part of the Institute of Material Science commitment to the 'New Archaeological Research Network for Integrating Approaches' to ancient material studies (NARNIA). This is a Marie Curie Initial Training Network, financed under the FP7 'People' program of the European Union and coordinated by the University of Cyprus.

The post offers the possibility of gaining a doctoral degree with a leading research team. Topics indicatively encompassed are luminescence dating studies (OSL, TL, *TT*-OSL) including basic research for further development of the techniques and applications, Upper-quaternary sea-land interactions, geomorphologic investigation, neotectonics, sedimentation rate assessments, soil studies, reconstruction and diachronic evolution of ancient landscape, palaeoenvironmental relevance and anthropogenic implications, investigated by employing a wide range of modern geoarchaeological approaches. In autumn 2011, the ESRs will attend training courses on the Quaternary-employed dating techniques and on the palaeoenvironmental methodologies, offered by leading scholars in the respective fields.

Academic Requirements and Directions

Eligible applicants for this ESR fellowship must possess a Masters degree in Material Science or in Geology or in Geography or in Chemistry, preferably related to Quaternary absolute dating techniques or to palaeoenvironmental studies. Previous experience in geological field work and/or field data management, particularly acquired from Mediterranean environments is desirable.

This Early Stage Researcher post is offered in the context of a Marie Curie Initial Training Network and transnational mobility is a key element of eligibility. As such,

applications will only be accepted from candidates who have spent less than 12 months in the country of the host organization (Greece) within the last three years. The post is open to all nationalities.

Applicants should send via e-mail a CV (including published works), a covering letter briefly describing their research activities and defining the post (ESR14) they apply for, and the names of two referees, to Dr. Yannis Bassiakos (e-mail: bassiakos@ims.demokritos.gr).

Duration of fellowships

Three (3) years; the post starts on the 15th September 2011.

Closing date for applications

10 July 2011

Financial regime

Fellowship covers monthly salary for three years and other allowances in line with FP7-PEOPLE-2010-ITN. The annual salary is approximately 34.860 Euros before tax and national insurance deductions. For more information:

http://ec.europa.eu/research/fp7/understanding/marie-curieinbrief/home_en.html

Contact person

Dr. Yannis Bassiakos

Institute of Materials Science, National Centre for Scientific Research “Demokritos”

bassiakos@ims.demokritos.gr

For more information about **the Institute of Materials Science, National Centre for Scientific Research “Demokritos”**:

http://www.ims.demokritos.gr/ims_field.php?lang=en&ergo=G304

For more information about the **NARNIA ITN** please visit the project’s website at www.narnia-itn.eu or contact the project’s manager Maria Dikomitou, email: m.dikom@ucy.ac.cy

**-NARNIA- NEW ARCHAEOLOGICAL
RESEARCH NETWORK FOR INTEGRATING
APPROACHES TO ANCIENT MATERIAL
STUDIES, A MARIE CURIE INITIAL
TRAINING NETWORK, FP7-PEOPLE-2010-
ITN, EARLY STAGE RESEARCHER
FELLOWSHIP ANNOUNCEMENT, TITLE OF
RESEARCH PROJECT: TECHNIQUES AND
MATERIALS USED IN WALL PAINTINGS,
FROM THE CLASSICAL TO THE ROMAN
PERIOD, IN THE EASTERN
MEDITERRANEAN**

Fellowship Title and ID code

Marie Curie Early Stage Research Fellowship (ESR12) at the Université Paris Ouest-Nanterre: Ecole doctorale 395 Milieux Cultures et Sociétés du Passé et du Présent (MCSP), Unité Mixte de recherche Archéologies et Sciences de l'Antiquité (ArScAn)

Title of Research Project

Techniques and materials used in wall paintings, from the Classical to the Roman period, in the Eastern Mediterranean.

Fellowship Description

This will be a study of the evolution of techniques and materials used in wall paintings dated from the Classical to the Roman period with a specific focus on the geometric and vegetal iconography. This will be a diachronic assessment of the different kinds of painting techniques and uses, and their evolution in the Eastern Mediterranean.

Academic Requirements

Eligible applicants for this Fellowship (equivalent to a PhD position) must be in possession of a Master degree (MA/MSc), in the field of archaeology, or materials science, or chemistry, or conservation.

It is required that the degree has been acquired not more than 4 years earlier to the envisaged starting date.

Applicants should also have good knowledge of both English and French languages, as the successful candidate will be asked to submit project reports in English and his/her doctoral thesis written partly in French.

The Post is offered in the context of a Marie Curie Initial Training Network and transnational mobility is a key element of eligibility. **As such, applications will only be accepted from candidates who have spent more than 12 months in France within the last three years.** Candidates' eligibility for the post is determined by Marie Curie terms and conditions.

Duration of fellowship

3 years – starting from October 2011. **This post is full time and fixed-term.**

Submitting an application

Deadline for Fellowship application: **31 July 2011**

Applicants should send via e-mail

I: Their Curriculum Vitae

II: A relevant recent essay or published works, if available

III: A covering letter briefly describing their research activities and the way they intend to conduct their research

IV: Two reference letters

All documents must be sent to Prof. Anne-Marie Guimier-Sorbets (e-mail: amgs@mae.u-paris10.fr). Please note that the two reference letters should be sent **directly** by the referees to this email address.

Financial regime

Fellowship covers monthly salary for three years and other allowances in line with FP7-PEOPLE-2010-ITN. The annual salary is approximately 42.388 Euros before tax and national insurance deductions.

For more information: http://ec.europa.eu/research/fp7/understanding/marie-curieinbrief/home_en.html

Contact person

Prof. Anne-Marie Guimier-Sorbets, Université de Paris Ouest-Nanterre, Unité mixte de recherche ArScAn (CNRS, Université de Paris Ouest, Université de Paris I, Ministère de la Culture), e-mail: amgs@mae.u-paris10.fr

More information about Université Paris Ouest:

Unité Mixte de Recherche Archéologies et Sciences de l'Antiquité: <http://www.mae.u-paris10.fr/arscan/>

Ecole doctorale 395 (MCSPP): <http://www.u-paris10.fr/>

More information about NARNIA

Visit the following link: <http://www.narnia-itn.eu> or contact the project's manager Maria Dikomitou (email: m.dikom@ucy.ac.cy).

Maria Dikomitou

FP7 (Marie Curie) NARNIA Project Manager

New Archaeological Research Network for Integrating Approaches to ancient material studies

www.narnia-itn.eu

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fax: +357-22-674101

**-NARNIA-NEW ARCHAEOLOGICAL
RESEARCH NETWORK FOR INTEGRATING
APPROACHES TO ANCIENT MATERIAL
STUDIES, A MARIE CURIE INITIAL
TRAINING NETWORK, FP7-PEOPLE-2010-
ITN, EARLY STAGE RESEARCHER
FELLOWSHIP ANNOUNCEMENT, TITLE OF
RESEARCH PROJECT: TECHNIQUES AND
MATERIALS USED IN MOSAICS IN THE
EASTERN MEDITERRANEAN**

Fellowship Title and ID code

Marie Curie Early Stage Research Fellowship (ESR11) at the Université Paris Ouest-Nanterre: Ecole doctorale 395 Milieux Cultures et Sociétés du Passé et du Présent (MCSP), Unité Mixte de recherche Archéologies et Sciences de l'Antiquité (ArScAn)

Title of Research Project

Techniques and materials used in mosaics in the Eastern Mediterranean.

Fellowship Description

The main objective of this research fellowship (equivalent to doctoral research) is the interdisciplinary study of the materials and the evolution of the techniques used in mosaics in the Eastern Mediterranean, from the Hellenistic to the Roman period. A similar project will be carried out in Cyprus, within the framework of NARNIA, and another aim of this research is to compare and contrast the results in an effort to identify regional differences and/or similarities.

Academic Requirements

Eligible applicants for this Fellowship (equivalent to a PhD position) must be in possession of a Master degree (MA/MSc), in the field of archaeology, or materials science, or chemistry, or conservation.

It is required that the degree has been acquired not more than 4 years earlier to the envisaged starting date.

Applicants should also have good knowledge of both English and French languages, as the successful candidate will be asked to submit project reports in English and his/her doctoral thesis written partly in French.

The Post is offered in the context of a Marie Curie Initial Training Network and transnational mobility is a key element of eligibility. **As such, applications will only be accepted from candidates who have spent more than 12 months in France within the**

last three years. Candidates' eligibility for the post is determined by Marie Curie terms and conditions.

Duration of fellowship

3 years – starting from October 2011. **This post is full time and fixed-term.**

Submitting an application

Deadline for Fellowship application: **31 July 2011**

Applicants should send via e-mail

I: Their Curriculum Vitae

II: A relevant recent essay or published works, if available

III: A covering letter briefly describing their research activities and the way they intend to conduct their research

IV: Two reference letters

All documents must be sent to Prof. Anne-Marie Guimier-Sorbets (e-mail: amgs@mae.u-paris10.fr). Please note that the two reference letters should be sent **directly** by the referees to this email address.

Financial regime

Fellowship covers monthly salary for three years and other allowances in line with FP7-PEOPLE-2010-ITN. The annual salary is approximately 42.338 Euros before tax and national insurance deductions.

For more information: http://ec.europa.eu/research/fp7/understanding/marie-curieinbrief/home_en.html

Contact person

Prof. Anne-Marie Guimier-Sorbets, Université de Paris Ouest-Nanterre, Unité mixte de recherche ArScAn (CNRS, Université de Paris Ouest, Université de Paris I, Ministère de la Culture), e-mail: amgs@mae.u-paris10.fr

More information about Université Paris Ouest

Unité Mixte de Recherche Archéologies et Sciences de l'Antiquité: <http://www.mae.u-paris10.fr/arscan/>

Ecole doctorale 395 (MCSPP): <http://www.u-paris10.fr/>

More information about NARNIA

Visit the following link: <http://www.narnia-itn.eu> or contact the project's manager Maria Dikomitou (email: m.dikom@ucy.ac.cy).

Maria Dikomitou

FP7 (Marie Curie) NARNIA Project Manager

New Archaeological Research Network for Integrating Approaches to ancient material studies

www.narnia-itn.eu

Research Fellow

Archaeological Research Unit

Department of History and Archaeology
University of Cyprus
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tel. +357-22-893573
fax: +357-22-674101

TECHNICIAN IN ARCHAEO MATERIALS PREPARATION AND ANALYSIS, UCL INSTITUTE OF ARCHAEOLOGY

Dear all,

See below some details of a new vacancy at the UCL Institute of Archaeology. Please circulate to potential candidates.

For further details, please go to <http://www.ucl.ac.uk/hr/jobs/> and use job reference number **1195206**.

If you have any queries regarding the vacancy or the application process, please contact Louisa Goldsmith at l.goldsmith@ucl.ac.uk

Technician in Archaeomaterials Preparation and Analysis (Part-time, 0.5FTE)

Grade 7 £31,905 - £38,594 including £2,806 London Allowance per annum (pro rata)

Line Manager: Professor Ian Freestone

Closing date: Friday, 8 July 2011

The UCL Institute of Archaeology (<http://www.ucl.ac.uk/archaeology/>) is recognised as one of the leading academic departments of Archaeology not just in the UK but globally. The Institute is the largest department in its field in the UK, with the largest graduate research community, and the broadest range of coverage, of any UK department, and offers a uniquely stimulating environment for the study of all fields of archaeology and related areas of cultural heritage. With a total of 60+ research-active staff pursuing high-quality research across five continents, the Institute is an international pace-setter in all aspects of archaeology and heritage.

The Wolfson Archaeological Science Laboratories at the UCL Institute of Archaeology are a major analytical research facility within UCL, and have helped the Institute to establish itself among the world-leaders in the field of archaeological materials characterisation and interpretation. The SEM suite contains three Scanning Electron Microscopes, including two with variable pressure and one with a Field Emission electron gun, and two electron microprobes (a JEOL 8600 Superprobe and a new JEOL 8100 with high-sensitivity wavelength dispersive spectrometers). The XRF Suite houses the Institute's SpectroXLab 2000 Pro (P)ED-XRF as well as a hand-held portable InnovX Delta XRF. The optical microscopy lab contains polarizing and reflected light microscopes for ceramic petrography and metallography. These facilities are supported by a large range of specialized mounting, cutting, grinding and polishing equipment, housed within the adjacent sample preparation laboratories.

With the appointment of a part-time Technician in Archaeomaterials Preparation and Analysis, we want to maintain and further develop our reputation and competence in the study of ancient materials by providing high quality preparation and laboratory support for research and teaching in the analysis of metals, ceramics and glass.

Role of the Technician in Archaeomaterials

The position is crucial to the research and teaching functions of the Wolfson Archaeological Science Laboratories. The incumbent will provide specialised laboratory preparation and general support for the analysis of archaeological materials by SEM, electron microprobe, XRF and optical microscopy. The technician will work as part of a team of several academic, research and technical staff providing MSc and PhD students with technical training in the preparation and analysis of artefacts. He/she will work closely with the Senior Research Associate in Ceramic Petrography (SRA) to ensure the efficient operation of the sample preparation laboratories and the XRF suite.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

- Cold mounting, grinding and polishing of metal, ceramic and glass artefacts for SEM, electron microprobe analysis and metallography, as required by academic staff and external clients
- Preparation of pressed pellets for XRF analysis of ceramics, slag and glass for academic staff and external clients, using ball mill and hydraulic press
- Occasional thin section preparation of pottery, plaster and ceramic building materials for external clients (with SRA)
- Upkeep and calibration of XRF machine (with SRA)
- Maintenance and repair of specialised materials science cutting, grinding and polishing equipment (with SRA)
- Upkeep and ordering of consumables for sample preparation laboratories (with SRA)
- Training postgraduate students in the sample preparation of archaeological materials, including polished block for SEM analysis, XRF pellet prep and carbon coating
- Occasional operation of SEM, microprobe and XRF for academic staff

As duties and responsibilities change, the job description will be reviewed and amended in consultation with the post holder.

PERSON SPECIFICATION:

The successful candidate will have experience in the preparation and analysis of inorganic materials including at least one of the following: stone, metals, ceramics, glass, slag and plaster. The candidate will have previously held a technical position in a laboratory or may have recently completed significant analytical research into ancient materials.

Applicants are required to demonstrate that they possess the following attributes:

Education and Qualifications

- BSc in a scientific discipline and/or MSc in the analysis of archaeological materials

Knowledge and Experience

Essential:

- Experience in the preparation and analysis of inorganic materials or related engineering materials
- Knowledge of general laboratory chemistry

- Well-organised, tidy and efficient
- Ability to work as part of a team
- Good interpersonal skills

Dr Marcos Martín-Torres
Senior Lecturer in Archaeological Science and Material Culture
Institute of Archaeology
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31-34 Gordon Square
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ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

MUSEUM ANTHROPOLOGY REVIEW

Museum Anthropology Review (MAR) is an open access journal whose purpose is the wide dissemination of articles, reviews, essays, and other content advancing the field of material culture and museum studies, broadly conceived.

While centered on the concerns of museum anthropology, Museum Anthropology Review is a highly interdisciplinary journal that embraces work being done in numerous fields concerned with the role of museums in social life and with the study of material culture, past and present. Since its founding in February 2007, the journal has published smart, significant work by scholars--both junior and well established--working in folklore studies, vernacular architecture studies, archaeology, linguistic anthropology, religious studies, museum studies, history, art history, and ethnomusicology, in addition to cultural anthropology. It is hoped that the journal can promote cross-disciplinary dialogue between all of these fields and others with which they share an interest in material culture and the multifaceted work of museums. The journal is committed to an international perspective and to rigorous scholarship, as well as to presenting work that can improve professional practice in museums and further the theoretical, empirical and methodological development of material culture studies.

As an open access journal, Museum Anthropology Review is committed to the development of new approaches to scholarly communication. Like many other open access journals, Museum Anthropology Review seeks to rewrite the terms under which scholarship is made available in a era of dramatic technological change, breathtaking media consolidation, accelerating corporate enclosure of scholarship and scholarly publishing, deep financial strain in research libraries, and demands by diverse publics for access to knowledge and interpretive work that has often been pursued with public support and that takes, in anthropology and folklore studies especially, the life of local communities as its object.

In addition to peer-reviewed research articles, Museum Anthropology Review also publishes shorter contributions intended to stimulate debate, promote improved professional practice, and disseminate information on new developments within the field. Authors considering submission of such essays are encouraged to contact the editor to discuss the scope and form of their submissions. Books, catalogs, exhibitions, online exhibitions, websites, and other media of interest to the field are reviewed regularly in Museum Anthropology Review.

Such reviews are typically solicited by the editorial team, but suggestions of materials appropriate for review are especially welcome. Scholars interested in being called upon to serve as reviewers may contact the editor. Authors, curators and other interested parties are encouraged to forward to the editor's attention press releases and other publicity materials produced by museums staging or hosting special exhibitions. These, together with publisher's catalogs and direct correspondence, all assist the editors in identifying materials suitable for review in the journal.

Please visit the site: <http://ancientworldonline.blogspot.com/2011/06/open-access-journal-museum-anthropology.html>

OPEN ACCESS CONFERENCE **PROCEEDINGS**

Dear friends and colleagues,

We are delighted to announce the launch of the CSPA Open Access resource on our website. This will house our most recent online publication, hot off the press:

Honouring the Dead in the Peloponnese Proceedings of the conference held at Sparta 23-25 April 2009. Edited by Helen Cavanagh, William Cavanagh and James Roy. CSPA Online Publication 2 prepared by Sam Farnham.

There are lots of papers which will be of interest to Aegeanetters – please browse the list of contents.

Our earlier online publication, *'Being Peloponnesian'* is also available on the same site.

Follow the link: <http://www.nottingham.ac.uk/csps/open-source/index.aspx>

We are keen to develop this online resource not only for publications, but also for external links, videos and further interactive multimedia content of interest to CSPA members. If you have materials of relevance do get in touch.

Hope you have a fruitful and enjoyable summer,

Very best wishes,

Steve Hodkinson and Bill Cavanagh

Professor W. G. Cavanagh MA PhD FSA
Director of the Centre for Spartan and Peloponnesian Studies
Head of Department
Department of Archaeology
University of Nottingham
Nottingham NG7 2RD

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INTERNET SITES

PRELIMINARY RESULTS FROM THE SWEDISH CYPRUS EXPEDITION AT HALA SULTAN TEKKE IN SPRING 2011

Preliminary results from the Swedish Cyprus Expedition at Hala Sultan Tekke in spring 2011 on preliminary website

http://www.fischerarchaeology.se/?page_id=1142

Peter M. Fischer

Professor, Cypriote Archaeology

University of Gothenburg, Sweden

<http://www.fischerarchaeology.se>

Field School, Near Eastern Archaeology

Oriental Institute, University of Vienna, Austria

<http://orientalistik.univie.ac.at/lehrgrabungen/>

PROVENANCE STUDIES ON POTTERY IN THE CENTRAL MEDITERRANEAN

FACEM: Provenance Studies on Pottery in the Central Mediterranean

Provenance Studies on Pottery

in the Southern Central Mediterranean from the 6th to the 2nd c. B.C.

Facem (= Fabrics of the Central Mediterranean) is a database for specialists of Greek, Punic and Roman pottery. Its aim is to give an overview of production centres in the Central Mediterranean region by presenting images and descriptions of fabrics.

We are proud to present the first release of FACEM on 6th of June 2011. In this version mainly samples from the area of Magna Grecia and from the Central Mediterranean Punic area are included, and to a minor degree also fabrics from the Greek mainland and from the North- and East Aegean region which have come to the sampling area as imports.

If you are interested in contributing to the FACEM project, please read "About FACEM".

[project](#) [search](#) [maps](#) [workspace](#) [impressum](#) [login](#)

About Facem

Learn more about the project and the methodology used.

Using Facem

Instructions how to use data in FACEM and how to create your own workspace.

Papers

Download contributions concerning fabrics, wares and production sites as PDFs

GREECE

Greek Mainland

-

Attic Black Glaze Ware in Elea/Velia on the Tyrrhenian Coast: A Case Study (M. Trapichler, version 21.06.2011, 692 kb) • Fabrics of the Attic Black Glaze Ware (M. Trapichler, version 06.06.2011, 74 kb) • Fabrics of Korinthos/Corinth (V. Gassner & M. Trapichler, version 06.06.2011, 106 kb) North Aegean Area • Fabrics of the North Aegean Area (V. Gassner, version 06.06.2011, 106 kb) East Aegean Area • Fabrics of East Aegean Amphorae (V. Gassner, version 06.06.2011, 127 kb) • Fabrics from Chios (V. Gassner, version 06.06.2011, 102 kb)

ITALY

Gulf of Naples

-

Fabrics of Ceramic Building Materials of Pithekoussai/Ischia (M. Trapichler, version 06.06.2011, 102 kb)

-

Fabrics of Ceramic Building Materials of the Region of Naples (M.

Trapichler, version 06.06.2011, 86 kb)

Lucania

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IGNOTA GREEK AND PUNIC

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[Go there for links]

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

PIRAEUS, THE ANCIENT ISLAND OF ATHENS: EVIDENCE FROM HOLOCENE SEDIMENTS AND HISTORICAL ARCHIVES *GEOLOGY*, JUNE 2011, V. 39, P. 531-534

Jean-Philippe Goiran^{1,*},
Kosmas P. Pavlopoulos²,
Eric Fouache³,
Maria Triantaphyllou⁴ and
Roland Etienne⁵

Abstract

The famous Greek geographer Strabo wrote in the first century A.D., that Piraeus was formerly an island and lay ‘over against’ the mainland, from which it got its name. To validate Strabo's hypothesis, cartographic and historical data were compiled with multiproxy paleoenvironmental analyses and radiocarbon dating from a series of boreholes drilled in the Cephissus coastal plain, southwest of Athens, Greece. The results of this interdisciplinary geoarchaeological research demonstrate the reliability of Strabo's text by revealing that Piraeus was indeed an island. In early Holocene time, the rocky hill of Piraeus was linked to the mainland of Attica. During the late to final Neolithic Period (4850–3450 B.C.), Piraeus became an island in a shallow marine bay, due to sea-level rise in the Holocene.

Between 2850 and 1550 B.C., in the Early and Middle Bronze Age, Piraeus was separated from the mainland by a wide lagoon. In the fifth century B.C., Themistocles, Cimon, and then Pericles connected Athens to Piraeus by building two “long walls” partly built on a residual coastal marsh called the Halipedon. This study reveals an impressive example of past landscape evolution.

Please visit the site: <http://geology.gsapubs.org/content/39/6/531> [Go there for download of full article]

[See also <http://arstechnica.com/science/news/2011/06/ancient-greek-oral-traditions-got-geology-right.ars>]

THE SEA PEOPLES, FROM CUNEIFORM TABLETS TO CARBON DATING

David Kaniewski^{1,2,3*}, Elise Van Campo^{1,2}, Karel Van Lerberghe⁴, Tom Boiy⁴, Klaas Vansteenhuyse⁴, Greta Jans⁴, Karin Nys⁵, Harvey Weiss⁶, Christophe Morhange⁷, Thierry Otto^{1,2}, Joachim Bretschneider⁴

The 13th century BC witnessed the zenith of the Aegean and Eastern Mediterranean civilizations which declined at the end of the Bronze Age, ~3200 years ago. Weakening of this ancient flourishing Mediterranean world shifted the political and economic centres of gravity away from the Levant towards Classical Greece and Rome, and led, in the long term, to the emergence of the modern western civilizations. Textual evidence from cuneiform tablets and Egyptian reliefs from the New Kingdom relate that seafaring tribes, the Sea Peoples, were the final catalyst that put the fall of cities and states in motion. However, the lack of a stratified radiocarbon-based archaeology for the Sea People event has led to a floating historical chronology derived from a variety of sources spanning dispersed areas.

Here, we report a stratified radiocarbon-based archaeology with anchor points in ancient epigraphic-literary sources, Hittite-Levantine-Egyptian kings and astronomical observations to precisely date the Sea People event. By confronting historical and science-based archaeology, we establish an absolute age range of 1192–1190 BC for terminal destructions and cultural collapse in the northern Levant. This radiocarbon-based archaeology has far-reaching implications for the wider Mediterranean, where an elaborate network of international relations and commercial activities are intertwined with the history of civilizations.

Please visit the site:

<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0020232> [Go there for full download]

DATING ARCHAEOLOGICAL LEAD ARTIFACTS FROM MEASUREMENT OF THE CORROSION CONTENT USING THE VOLTAMMETRY OF MICROPARTICLES

Antonio Doménech-Carbó , María Teresa Doménech-Carbó , and María Amaparo Peir-o-Ronda Anal. Chem., Just Accepted Manuscript

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Abstract

A methodology for dating archaeological lead artifacts based on the voltammetry of microparticles is described. This is based on the comparison of the height of specific voltammetric features from PbO₂ and PbO corrosion products formed under long-term alteration conditions and the voltammetric signals from the “young” patina formed during ordinary handling of the pieces. Calibration of the method was performed with the help of a series of well-documented, non-restored lead pieces from the funds of different museums of the Comunitat Valenciana (Spain) covering since the 5th century BC to nowadays.

Variation of peak currents with the time of corrosion can be fitted to the same potential rate law as Reich ($\alpha = 0.0700 \pm 0.005$) using measurements on the Meissner fraction in the superconducting state of lead. The proposed electrochemical methodology enables for dating archaeological lead artifacts with a time-dependent uncertainty estimated as 150 years for the most ancient samples in this study.

Please visit the site: <http://pubs.acs.org/doi/abs/10.1021/ac200731q> [Go there for link to pdf download]

ANCIENT DNA REVEALS MALE DIFFUSION THROUGH THE NEOLITHIC MEDITERRANEAN ROUTE

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Abstract

The Neolithic is a key period in the history of the European settlement. Although archaeological and present-day genetic data suggest several hypotheses regarding the human migration patterns at this period, validation of these hypotheses with the use of ancient genetic data has been limited. In this context, we studied DNA extracted from 53 individuals buried in a necropolis used by a French local community 5,000 y ago. The relatively good DNA preservation of the samples allowed us to obtain autosomal, Y-chromosomal, and/or mtDNA data for 29 of the 53 samples studied. From these datasets, we established close parental relationships within the necropolis and determined maternal and paternal lineages as well as the absence of an allele associated with lactase persistence, probably carried by Neolithic cultures of central Europe. Our study provides an integrative view of the genetic past in southern France at the end of the Neolithic period. Furthermore, the Y-haplotype lineages characterized and the study of their current repartition in European populations confirm a greater influence of the Mediterranean than the Central European route in the peopling of southern Europe during the Neolithic transition.

Please visit the site: <http://www.pnas.org/content/early/2011/05/24/1100723108>

KLISSOURA CAVE 1 AND THE UPPER PALEOLITHIC OF SOUTHERN GREECE IN CULTURAL AND ECOLOGICAL CONTEXT, *Eurasian Prehistory*, 7 (2): 309– 321

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Abstract

Klissoura Cave 1 preserves a long series of Middle Paleolithic, Upper Paleolithic and Mesolithic cultural layers, interrupted by at least three significant erosional hiatuses. The sedimentary features, artifacts and animal remains of the Upper Paleolithic through Mesolithic layers testify a wide range of on-site activities, with complex cycles of feature construction and abandonment. The industry of Layer V closely resembles Uluzzian assemblages from southern Italy. Its age remains uncertain but almost certainly exceeds 39 kyrs BP. The most intense use of the site occurred during the formation of Aurignacian layers IV and III e.g., distinguished by many superimposed plain and clay-lined hearths, and in Layer IV, the remnants of a small structure enveloping a dense concentration of perforated shell beads. Fire places were fed mainly with dicotyledonous wood and bark-producing plants, whereas grass remains are concentrated in other parts of the occupied area. Post-dating the Aurignacian are two non-Aurignacian layers, followed by an ephemeral Epipaleolithic occupation and substantial Mesolithic occupations. The botanical, faunal and geological data identify a gradual trend toward climatic cooling through the Upper Paleolithic sequence. Warmer, wetter conditions returned only well after MIS 2, during the Mesolithic. Faunal data indicate opportunistic hunting of a variety of ungulate species, but mainly fallow deer, one or a few animals at a time. The patterns of small game exploitation reveal a trend of increasing dietary breadth that began in the early Upper Paleolithic and involved progressively greater use of animals such as hares and/or birds with time. Land snail exploitation became important in the later Upper Paleolithic phases and peaked in the Mesolithic. Perforated shell ornaments are present in the Uluzzian layer (V) and in all subsequent layers. The ornaments consist almost exclusively of finished products, worn from use and lacking evidence of production debris.

Key words: Mesolithic, phytoliths, anthracology, zooarchaeology, lithic industries, osseous technology, paleoecology.

**LA GRÈCE CONTINENTALE AU
BRONZE MOYEN - THE GREEK
MAINLAND IN THE MIDDLE BRONZE
AGE ACTES DU COLLOQUE
INTERNATIONAL ORGANISÉ PAR
L'ÉCOLE FRANÇAISE D'ATHÈNES (8-12
MARS 2006)**

Touchais, P. - Touchais, G. - Voutsaki, S. - Wright, J. (ed.), Mesohelladika.

La Grèce continentale au Bronze Moyen - The Greek Mainland in the Middle Bronze Age Actes du colloque international organisé par l'École française d'Athènes (8-12 mars 2006)

18,5 x 24 cm, 1046 p., 17 ill. couleur, 467 ill. n/b, ISBN 978-2-86958-210-1, 120 €
(École française d'Athènes, Athènes 2010)

Compte rendu par Raphael Orgeolet, Université de Provence <raphael.orgeolet@univ-provence.fr>

Mesohelladika réunit la grande majorité des communications et des posters présentés à l'occasion d'un colloque international organisé à Athènes en mars 2006 et consacré à l'Helladique Moyen, une période peu explorée de la Protohistoire égéenne. O. Dickinson avait fait œuvre pionnière dans les années 1970 avec la parution de *The Origins of Mycenaean Civilisation*, une version remaniée de sa thèse consacrée à la transition du Bronze Moyen au Bronze Récent en Grèce continentale. C'est donc à lui qu'est revenu d'ouvrir la conférence, et le constat qu'il dresse aujourd'hui n'a pas varié, donnant de l'Helladique Moyen l'image d'une période de repli, dans laquelle il convient néanmoins de rechercher les fondements de la brillante civilisation mycénienne. C'est certainement du reste cet effacement qui explique la longue désaffection qu'elle a connue, dont Mesohelladika montre qu'elle est désormais bel et bien révolue.

Surtout, ce volume montre que la simplicité que l'on prête à la période tient surtout au regard qu'on lui porte, tant les contributions rassemblées ici apportent leur part de nuances, de corrections et de précisions. Ce sont en quelque sorte les recherches engagées durant les vingt dernières années qui sont rassemblées dans cet imposant volume de plus de mille pages dont les contributions, présentées en grec, en anglais ou en français, sont réparties dans sept sections différentes (Topographie et habitat, Pratiques funéraires et anthropologie physique, Univers symbolique et rituel, Céramique et chronologie, Production, technologie et économie, Organisation et évolution sociales, Relations extérieures et interaction).

La première partie, consacrée à la topographie et à l'habitat, est la plus importante de ce volume. C'est certainement la conséquence d'une pratique souvent regrettable, mais qui trouve toute sa justification ici. Les grandes réunions internationales comme Mesohelladika constituent en effet généralement des tribunes pour la publication de

données de fouilles, présentées très (trop) rapidement, de manière à peine plus développée que dans les différentes chroniques qui rendent compte chaque année des découvertes archéologiques en Grèce. Dans le cas de la période mésohelladique, longtemps restée dans l'ombre et dont la documentation est très éparse, la réunion de ces informations de base est utile, même si on peut regretter que le format du colloque rende leur présentation encore succincte. Les communications consacrées à un site isolé présentent le plus souvent de façon rapide les données topographiques, l'organisation de l'habitat et les vestiges architecturaux, et accordent une grande place à la présentation et au commentaire de la céramique. Dans ce domaine, et de façon peut-être plus aiguë encore que pour les périodes mieux connues de la Protohistoire égéenne, l'étude de la céramique fine est privilégiée, avec un intérêt très marqué pour les indices qu'elle procure sur les contacts entre les différentes zones géographiques de l'Égée mésohelladique. De cet ensemble émergent quelques communications qui, par le caractère inhabituel de certaines trouvailles qu'elles exposent, ou le parti-pris synthétique de leurs auteurs, tranchent avec les autres. Ainsi, les opérations archéologiques des dernières décennies ont transformé la cartographie de l'Helladique Moyen, avec la multiplication des découvertes dans des régions qui jusque-là apparaissaient en blanc sur les cartes (par exemple les communications d'E. Konsolaki-Yiannopoulou sur la région de Trézène en Argolide, ou encore de Ph. Saranti pour l'Étolo-Acarmanie). Dans un autre registre, les environs de l'Acropole d'Athènes se distinguent par la présence d'un atelier de potier pourvu de deux fours (G. Venieri), tandis que les spectaculaires trouvailles à Kolonna d'Égine, en l'espèce un édifice de grande taille et des cylindres en terre cuite décorés (W. Gauss et R. Smetana), polarisent la réflexion autour des problématiques de « complexification sociale » qui auparavant se dessinaient essentiellement en négatif. Enfin, saluons les quelques contributions qui, proposant des études régionales, ne se limitent pas à une énumération des vestiges et tentent de saisir les particularismes locaux et les changements dans le temps long (par exemple N. Papadimitriou sur l'Attique).

La seconde partie, consacrée aux défunts, accorde une grande place à l'anthropologie physique aux côtés des plus traditionnelles pratiques funéraires. Certes, les premières études dans ce domaine pour le monde égéen ont été effectuées par L. Angel dans les années 1960, mais ce n'est que très récemment qu'elles se sont multipliées, s'appuyant sur des méthodes et des outils scientifiques de plus en plus pointus. Il convient au reste de noter qu'il s'agit certainement de l'aspect le plus novateur et le plus fécond de cette section de Mesohelladika, montrant toute la richesse des dernières recherches dans un domaine qui en est encore à l'élaboration de ses outils et de ses protocoles (voir A. Bouwman et al.). Ces récentes avancées permettent l'exploration plus poussée des questions relatives à la santé des populations anciennes (R. Arnott et A. Morgan-Forster pour un aperçu général, A. Lagia et W. Cavanagh pour Kouphovouno, A. Ingvarsson-Sundström pour Asinè), ou à celles de leur régime alimentaire : les analyses d'isotopes stables de carbone et d'azote viennent compléter les données fournies par les assemblages botaniques et zoologiques (A. Lagia et W. Cavanagh, S. Triantaphyllou). Les analyses ADN enfin viennent éclairer un domaine qui jusque-là était très largement la proie de la spéculation : on peut espérer que la connaissance des relations de parenté dans la population des cimetières jettera quelque lumière sur la structure des sociétés mésohelladiques (A. Bouwman et al. pour Mycènes, L. Kovatsi et al. pour Lerne). Les études plus traditionnelles, c'est-à-dire fondées sur l'analyse des pratiques funéraires en tant que telles, abordent essentiellement trois questions. Les gender studies sont représentées (F. Ruppenstein), tandis que les questions les plus débattues sont d'une part celle de l'organisation des sépultures et de leur rapport avec

l'habitat, et d'autre part celle de l'émergence des élites, problématique majeure déjà évoquée par O. Dickinson dans son texte inaugural. Il est désormais clair que l'organisation des sépultures mésohelladiques ne peut plus être abordée avec pour seule question :

intra ou extra muros ? La situation est bien plus complexe (M. Pomadère) et E. Milka démontre ce que l'on pressentait déjà (voir la communication de V. Adrymi-Sismani sur Dimini dans la section précédente) : bien des sépultures que l'on croyait avoir été installées dans des maisons ont en fait été creusées dans des ruines, et c'est un rapport sensiblement différent entre les cimetières et l'habitat qui se dessine. M. Pomadère met par ailleurs en relation l'émergence des élites militaires à la fin de la période avec le traitement particulier réservé aux enfants, ce qui témoigne de profondes transformations sociales à l'HM III / HR I. À ce propos, la communication de V. Petrakis sur les sépultures complexes propose de manière convaincante de reconsidérer l'absence totale de hiérarchisation sociale avant l'HM III, et vient en cela nuancer la vision très tranchée proposée par O. Dickinson et généralement admise par l'ensemble de la communauté des spécialistes.

Après une troisième partie consacrée à l'Univers symbolique et rituel, sont rassemblées dans une quatrième section les communications concernant spécifiquement la Céramique et la chronologie. Dans ce domaine également, les comptes rendus témoignent du défrichement en cours dans les études mésohelladiques. À côté de quelques présentations consacrées à un site en particulier (M. Cosmopoulos pour Eleusis, A. Stamoudi pour Lamia par exemple) ou à une région (K. Dakoronia pour l'ensemble Phthiotide – vallée du Sperchios – Phocide), des études typologiques tentent d'éclairer les zones d'ombres de la céramique de l'Helladique Moyen. Ainsi, K. Sarri évoque frontalement et avec clairvoyance les problèmes méthodologiques relatifs à la définition de la céramique Minyenne, qui incarne depuis le XIX^e siècle. l'emblème de la période, invitant à porter un regard plus nuancé sur cette production. La céramique polychrome qui apparaît à la fin de la période fait l'objet de deux communications qui, esquissant une approche à l'échelle continentale, montrent à la fois l'importance des variations régionales, mais aussi celle des points qui réclament encore des éclaircissements (J. Overbeck et I. Mathioudaki).

La cinquième partie, intitulée Production, technologie et économie, s'ouvre avec deux études portant sur la technologie céramique. D. Skorda décrit dans la première les différents fours de potier mis au jour dans les fouilles de sauvetage à Kirrha, tandis que L. Spencer résume dans la seconde son travail sur la céramique de la fin de l'Helladique Ancien et des deux premières phases de l'Helladique Moyen à Lefkandi. Toutes deux, comme pour souligner la relative complexité de la période au rebours des idées reçues, concluent à une spécialisation de plus en plus poussée, que celle-ci soit spatiale à l'intérieur du village (D. Skorda), ou technologique et sociale en ce qui concerne les modes de production, qui peuvent également varier d'une région à l'autre (L. Spencer). Ces variations régionales ne semblent pas concerner une classe de céramique particulière, dite « minoïsante » et que l'on retrouve dans diverses régions du Péloponnèse. Plusieurs éléments désignent Cythère comme lieu d'origine, mais les modalités précises de production et de diffusion de ces vases qui mélangent influences crétoises et influences continentales restent à déterminer (E. Kiriatzi).

Concernant les restes botaniques et fauniques, dont les données sont particulièrement lacunaires pour l'Helladique Moyen, on relève trois communications. Des deux présentations consacrées au site de Kolonna d'Égine, l'une concerne l'exploitation des

ressources marines, tandis que l'autre englobe les ressources fauniques et botaniques mobilisées par les habitants du Grand Bâtiment (voir supra). Enfin, A. Gardeisen propose une synthèse embrassant le Péloponnèse, la Grèce centrale et des régions plus septentrionales en Albanie et en Roumanie, permettant d'inscrire le Bronze Moyen dans la continuité de la période précédente.

Plusieurs raisons expliquent que la sixième partie, intitulée Organisation et évolution sociales, soit l'une des plus courtes du volume. D'une part, notons que les thématiques déployées ici ont déjà été abordées ailleurs. Ensuite, comme le soulignent les contributions de S. Voutsaki et d'A. Philippa-Touchais sur l'espace domestique et l'habitat, si l'on écarte la problématique de la complexification, les données de l'Helladique Moyen n'ont pas encore fait l'objet d'analyses poussées en ce qui concerne l'organisation sociale. Il demeure là tout un champ fécond à explorer, et la proposition méthodologique de J. Wright, qui entend revenir à la matière archéologique brute en se départissant des schémas historicistes traditionnellement invoqués, aurait pu faire figure d'introduction au colloque tant ces problèmes sont au cœur de la réflexion actuelle.

Le huitième et dernier chapitre, Relations extérieures et interactions, comporte un grand nombre de contributions. Certaines se conforment tout à fait au titre annoncé, comme celles de Peter Pavúk sur la céramique grise d'Anatolie occidentale, ou celle de G. Cadogan et K. Kopaka sur les relations entre la Grèce mésohelladique et la Crète protopalatiale. D'autres sont essentiellement consacrées à des régions extérieures à la Grèce continentale et n'embrassent qu'imparfaitement la question des interactions. Loin de constituer une faiblesse, ceci est en fait une force qui permet d'une part de juxtaposer les situations (P. Sotirakopoulou sur les Cyclades), et d'autre part de venir étoffer une documentation souvent elle aussi déficiente pour cette période en dehors de la Grèce continentale. Enfin, s'il a été régulièrement souligné au cours de cette conférence que l'Helladique Moyen devait s'étudier dans la continuité des périodes précédente et suivante (voir notamment l'article de J. Wright), il est évident que l'espace continental ne peut se comprendre que par une approche multiscalaire combinant l'étude de sites, l'échelon régional et les ensembles plus vastes.

En définitive, ce volume montre à la fois tous les progrès qui ont été accomplis en plus de vingt années, mais souligne aussi les vides qui appellent à être comblés, notamment au regard de certains thèmes. En cela, il n'est pas seulement un bilan, mais également une source à laquelle puiser pour l'élaboration des problématiques de recherches futures.

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BIOCOLONIZATION OF STONE: **CONTROL AND PREVENTIVE** **METHODS: PROCEEDINGS FROM THE** **MCI WORKSHOP SERIES**

Biocolonization of Stone: Control and Preventive Methods: Proceedings from the MCI Workshop Series, A. Elena Charola, Christopher McNamara, Robert J. Koestler, editors 116 pages, 87 figures, 5 tables 2011 (Date of Issue: 10 June 2011), Number 2, Smithsonian Contributions to Museum Conservation

Abstract: Charola, A. Elena, Christopher McNamara, and Robert J. Koestler, editors. Biocolonization of Stone: Control and Preventive Methods, Proceedings from the MCI Workshop Series. Smithsonian Contributions to Museum Conservation, number 2, 116 pages, 87 figures, 5 tables, 2011. — The Smithsonian Museum Conservation Institute Workshop on Biocolonization of Stone was the second workshop in a series and was dedicated to research on removal and control of biocolonization in stone objects. Twelve presentations were made, and the workshop ended with a roundtable discussion open to the 71 attendees. The goal was to provide a discussion forum for biologists, material scientists, and conservators interested in stone biodeterioration. Seven papers were presented, ranging from microbiological laboratory studies to combination of on-site testing and laboratory evaluation for World Heritage Sites such as Angkor Wat, to a literature overview. Five case studies were also presented, covering control of biodeterioration at Veterans Affairs cemeteries, experience gathered from the installation of zinc strips at the Stanford Mausoleum in San Francisco, the red staining found on the marble of the Memorial Amphitheater at Arlington National Cemetery, problems posed by deer stones in Mongolia, and the site test installed at San Ignacio Miní Jesuit mission in Misiones, Argentina. The roundtable and discussions drew attention to the importance of exploring new methods to prevent microbial colonization of stone. Finally, in a closed session, suggestions were offered for developing criteria to evaluate microbial growth and determine when treatment is necessary. It was recommended that a database be prepared on stone biocolonization and its control. Description: Smithsonian Contributions to Museum Conservation, no. 2, viii front matter plus 116 pages, 87 figures, 5 tables Biocolonization of Stone: Control and Preventive Methods: Proceedings from the MCI Workshop Series.

Please visit the site:

http://www.sil.si.edu/smithsoniancontributions/museumconservation/sc_RecordSingle.cfm?filename=scmc-0002

EΙΔΗΣΕΙΣ - NEWS RELEASE

BEHOLD, THE NIMRUD IVORIES, THE MOST IMPORTANT BRITISH ARCHAEOLOGICAL DISCOVERIES IN THE MIDDLE EAST, BY RAY MOSELEY

Almost 3,000 years ago, the rulers and wealthy elite of the powerful Assyrian empire adorned their chairs, stools and other furniture—even their chariots along with horses' halters and blinkers—with exquisitely decorated pieces of elephant ivory produced mostly by expert Levantine craftsmen.

With the collapse of the empire in 612 BC, and the sacking and burning of royal palaces by conquering Babylonians and Medes, the ivory disappeared under the rubble—not to be seen again until archaeologists began excavating it in the mid-19th century.

The British Museum in London has recently saved for the nation a horde of the so-called Nimrud ivories—1,000 intact pieces, 5,000 fragments—after a public fund-raising campaign that netted £1.17 million. That was about a third of the value of the ivories, and another third of the collection was donated by the British Institute for the Study of Iraq. The remaining third is expected to be returned to Iraq.

The Nimrud ivories, named for the Assyrian capital where they were found in modern Iraq, are regarded by the museum as probably the most important British archaeological find in the Middle East.

“Every aspect of the decoration of the ivories reveals just wonderful craftsmanship,” Nigel Tallis, the museum’s Middle East curator, told about 300 museum members in a lecture. “Even now a full analysis of the significance of the collection has barely begun. Its acquisition by the museum is a cause for celebration.”

The first group of ivories, dating from the 9th and 8th centuries BC, was excavated by the archaeologist Austin Henry Layard in 1845 at Nimrud, just south of Mosul on the Tigris River. They came from the ruins of the palace of Shalmaneser III, who ruled from 859 to 824 B.C., and more came to light a few years later.

But it was not until 1949-63 that the next discoveries were made by a team led by the celebrated archaeologist Max Mallowan, second husband of the crime novelist Agatha Christie. Many of the ivories had been thrown into wells after having been stripped of colored glass, semi-precious stones and gold leaf that adorned them. A few of the ivories retain fragments of glass inlays.

Christie herself went on the expedition and helped photograph and preserve many of the ivories. In her autobiography, she wrote that she cleaned them using a fine knitting needle, an orange stick and a pot of face cream. Mallowan also credited her with coming

up with the idea of placing newly excavated pieces under damp towels to prevent cracking.

“Oh what a beautiful spot it was,” the novelist wrote. “The Tigris just a mile away, and on the great mound of the Acropolis, big stone Assyrian heads poked out of the soil. In one place there was the enormous wing of a great genie.”

It was this aspect of the story—a woman writing novels in the morning and helping recover buried treasure in the afternoon—that caught the imagination of the British public and probably accounted in part for the enthusiastic response to the museum’s fund appeal.

Tallis is particularly intrigued by the craftsmanship that went into incising and decorating some tiny pieces of ivory, no more than 1.5 or 2 centimeters (0.6 or 0.8 of an inch) high. The craftsmen, he said, must have been very young and probably were unable to go on working after their eyesight became damaged by the delicate task of incising such minute pieces.

The ivories depict bulls, lions, griffins, wild goats, serpents, fighting heroes, flowers and geometric designs. A few were decorated in Assyria, but most came from the Levant and are believed to have been brought to Nimrud as war booty or imported as luxury goods. There is also an Egyptian influence in some of the pieces, for example those representing the sphinx and those using imitation hieroglyphs that have no apparent meaning.

The ivory came from Syrian elephants, endemic in the Middle East in ancient times, but by the 8th century BC they had been hunted to extinction and later ivory may have been imported from India.

The collection was long ago divided between Iraq and Britain, and those that were assigned to Britain were put in storage at the British Museum but not displayed. Many of the ivories at the National Museum of Iraq in Baghdad were looted or damaged after the American-led invasion in 2003, when US troops failed to secure the museum’s contents. Some were also stored in a Baghdad bank vault but were damaged by water when the building was shelled.

Tallis said it is highly likely that there are more ivories buried in the Iraqi soil and awaiting discovery.

The British Museum has recently put some of its collection on permanent display and intends to make others available for traveling exhibitions.

(Ray Moseley is a London-based former chief European correspondent of the Chicago Tribune and has worked in Nashville, TN 37240)

Please visit the site: <http://english.alarabiya.net/articles/2011/06/07/152288.html>

NEOLITHIC SITE ‘VIRTUALLY UNTOUCHED’, BY PATRICK WERR

Lake Qarun - Egypt's popular uprising may have arrived just in time to save a Neolithic site that holds the country's oldest evidence of agriculture and could yield vital clues to the rise of Pharaonic civilisation.

The site lies in a protected nature reserve along the shore north of Lake Qarun that until recently had remained virtually untouched, even though it lies only 70km from Cairo, Egypt's fast-expanding capital.

A month before the protests that toppled President Hosni Mubarak erupted in January, the Egyptian government carved 2.8 square kilometres of prime land from the reserve and awarded it to property developer Amer Group for a tourist resort.

Since Mubarak was ousted, three government ministers who sat on a committee that approved the sale have been jailed while they battle corruption charges not related to the Amer deal.

One of them, Housing Minister Ahmed el-Maghrabi, told Reuters in January that archaeology officials had given the re-development the necessary green light.

Egypt's archaeology chief now says that was untrue.

“I did not give any permission to anyone. The excavations are not finished,” Zahi Hawass, head of the Supreme Council for Antiquities, told Reuters.

Property developers have come under increasing public scrutiny for their land purchases from Mubarak's government, and some firms have relinquished tracts of land.

Egyptian conservation groups have decried the Amer deal, saying it was done without proper oversight and that the arrival of large numbers of holidaymakers would wreak heavy damage to a wide swathe of the delicate desert landscape.

“This is the thin end of the wedge. It is the destruction of Egyptian natural heritage for future generations.” said Ali Fahmi, director of the conservation group Friends of Lake Qarun. “It sets a precedent in desecrating a protected area.”

Egypt's cabinet in 1989 declared 1,110 square km north of the lake a nature protectorate, an area that also contains unique geology, Pharaonic basalt quarries from the Old Kingdom and fossils of early whales and primates.

Archaeologists say the remains of rain-based Neolithic farming in the reserve may hold vital clues to a technological leap that led to irrigation-based farming along the Nile.

Around 4,000 BC, humans occupying a strip along the northern shore of the lake seized a window of only a few centuries of rainfall to grow grain in previously inhospitable desert, archaeologists say.

“We have the evidence of the earliest agriculture activity in Egypt.

So it's before the Pharaohs, it's before the early dynastic period when Egypt becomes a state,” said Willeke Wendrich, an archaeology professor at the University of California in Los Angeles.

“What we have on the north shore of Fayoum is something unique worldwide. What we have is a Neolithic landscape which, because it's desert, has not been overbuilt,” she said in an interview.

Khaled Saad, department manager for prehistory at Egypt's Supreme Council for Antiquities (SCA), said that four years ago the Tourism Ministry decided it wanted to build hotels and tourist attractions on a 20 square km tract stretching 10 km along the lake's northern shoreline.

It formed a committee to approve designating the land for development that included Prime Minister Ahmed Nazif, Tourism Minister Zoheir Garrahan, Maghrabi and other officials, Saad said.

In December, the Tourism Development Authority (TDA), which is under the Tourism Ministry, awarded Amer Group the land under a 99-year concession, charging \$28,000 in the first year, rising to an annual \$92,000 in the fourth to 10th years.

Maghrabi said in early January that the SCA had brought in archaeologists to survey the area before the project went ahead.

“It has been completely cleared by the department of antiquities. We made sure of that,” Maghrabi told Reuters at the time. “This project was approved several years ago but no progress was going to be made until the department of antiquities finished their work. And they did finish their work.”

But Hawass of the antiquities council said the work was still ongoing and he was now demanding a fresh assessment.

“Two weeks ago I asked Khaled Saad to come to me with a report to tell me as an archaeologist what he thinks. And now I asked him that we will appoint a large committee of archaeologists to decide the future of the land,” Hawass said.

Saad said the survey mentioned by Maghrabi took place between March 2009 and October 2010 and was designed to see if there were antiquities on the site.

“I proved that there were,” he said.

The site holds a wealth of prehistoric remains from mid-Mesolithic period 200,000 years ago to the Pharaonic period and later, said Saad.

They also found the remains of 24 ancient whales that swam in the region's waters 42 million years ago, including one belonging to an entirely new species.

Weidrich said further research in the area is crucial to cast light on the origins of Egyptian civilisation.

She said agriculture probably arrived late in Egypt because the technology in use elsewhere in the Near East did not fit with the climate, at least until the short period of rainfall in the Neolithic period.

“We have a big research project going on looking at the climate change in that period,” she said.

The Neolithic farming community that appeared around six millennia ago had little material to build with and left no sign of permanent buildings or structures, she said.

“They probably lived in some sort of reed matting huts. But what we do see is a whole pattern on the surface of fireplaces for different purposes - to make pottery, for the fish, to roast their meat. From that pattern we're trying to understand their activities,” Wendrich said.

As the moisture disappeared, the desert winds blew away most of the topsoil. Stone tools, pottery and bones once held in soil a metre deep were now concentrated in a thin surface layer.

“There's a howling wind coming from the north, which means the sand blows away, but the heavy things don't,” Wendrich said.

“It's great because we can see it, but it's not so great because if you remove the top centimetre, it's gone forever. That's the precarious situation we're dealing with at the moment.”

Shortly after the Neolithic period, irrigation began spreading along the Nile Valley.

“By that time, people were looking at different ways for continuing what they by then they were used to doing for a number of centuries,” said Wendrich. - Reuters

Please visit the site: <http://www.iol.co.za/scitech/science/discovery/neolithic-site-virtually-untouched-1.1079067>

ATLANTIS HUNT: A THIRD ATTEMPT

ATLANTIS researcher Robert Sarmast has returned to Cyprus after a four-year hiatus ahead of a third expedition to try and locate the lost ancient city, he believes is underwater off Cyprus.

Sarmast said yesterday he wanted to be here for the Kataklysmos festival, or the ‘festival of the flood’. This will be held islandwide next weekend.

“The Kataklysmos festival is really about the great flood that sunk Atlantis, so it’s not surprising to me that the celebrations are unique to Cyprus,” said Sarmast.

Sarmast’s team plan to film a documentary during the Kataklysmos festival, while preparing for a third expedition.

Sarmast conducted two highly-publicised expeditions to find the remains of Atlantis in 2004 and 2006. The expedition utilised state-of-the-art deep sea equipment to survey the seafloor between Cyprus and Syria. Their attempt to prove that the legendary lost island was more than a myth was funded in part by the History Channel, private investors, and the CTO. Sarmast’s theories on Cyprus are laid out in his book *Discovery of Atlantis: The Startling Case for the Island of Cyprus*, which was based on the writings of Plato.

“There is really a mystery within a mystery associated with this project, regarding Atlantis and the Garden of Eden, and it’s time for Cypriots to know the full story,” said Sarmast.

During his previous expeditions, aSonar scans of the area explored showed what Sarmast believes to be the remains of two man-made walls.

He claimed to have “definitely” found Atlantis after the sonar scans appeared to have located a rise on the seabed around a mile down in an area halfway between Cyprus and Syria.

The American researcher has been challenged by several scientists, who say all he has found are old mud volcanoes.

Please visit the site: <http://www.cyprus-mail.com/cyprus/atlantis-hunt-third-attempt/20110604>

EGYPTIAN MUMMIES HOLD CLUES OF ANCIENT AIR POLLUTION, BY OWEN JARUS, LIVESCIENCE CONTRIBUTOR

This mummy <<http://i.livescience.com/images/i/17030/i02/mummy-1.jpg?1307104419>> was discovered in Dakhleh Oasis, a remote outpost in southwest Egypt and lived around 1,800 years ago, at a time when the Romans occupied Egypt. Although much of the mummy remains are lost, the area around the lungs, where particulates were found, is well preserved.

Ancient Egyptians may have been exposed to air pollution way back when, according to new evidence of particulates in the lungs of 15 mummies, including noblemen and priests.

Particulates, tiny microscopic particles that irritate the lungs, have been linked to a wide array of modern-day illnesses, including heart disease, lung ailments and cancer. The particulates are typically linked to post-industrial activities, such as fossil-fuel burning.

But after hearing of reports of such particulates being found in mummy tissue, Roger Montgomerie, a doctoral student at the KNH Centre for Biomedical Egyptology at the University of Manchester, decided to take a closer look at mummified lung tissue. His work represents the first attempt to identify and study particulates in multiple Egyptian mummies. [Gallery: Scanning Mummies for Heart Disease]

The 15 mummified lungs he's examined so far all showed particulates and the levels of them are not much below what he'd expect in modern-day lungs.

"I would say it would be less than modern day, but not much less," Montgomerie told LiveScience. This is "quite bizarre if you think about it, considering we have the mass burning of fossil fuels and an awful lot of pollution that has been going on since the industrial revolution."

In the world of Egyptology, where well-preserved lung tissue is rare, and permission to examine it is rarer still, 15 is a significant sample, Montgomerie said.

All walks of life

These mummies come from a broad cross section of Egyptian life. Some were ordinary workers who lived in a remote outpost called the Dakhleh Oasis, while others were of the upper class — nobles and priests or priestesses.

"Everyone seems to have a degree of it," Montgomerie said of the particulates, "it doesn't seem to be confined to one social group."

The finding suggests the ancient Egyptians may have suffered from a wide range of negative health effects. [Egyptian Mummy Shows Earliest Case of Heart Disease]

"It would definitely increase your chances of getting a lung infection and also probably increase your chances of something like pneumonia as well," Montgomerie said.

Lung disease has been detected before in Egyptian mummies. One notable case was documented in the 1970s by Eddie Tapp, also from the University of Manchester.

Tapp examined the lungs of a 3,800-year old-mummy named Nekht-ankh. Although this person lived to be nearly 60, his lungs were in bad shape and he may have had trouble breathing, Tapp found.

"The lung tissue appeared to be damaged and to contain a good deal of scarring," Tapp wrote in the book "The Manchester Mummy Project" (Manchester University Press, 1979). "Amongst the fibrous tissue were several aggregations of fine particles."

Ancient air pollution

The question now facing researchers is why were particulates so prevalent in Egyptian society?

While ancient Egypt was a preindustrial society, its people did engage in cooking, metal working and mining, all activities that can generate air pollution. In addition, the Egyptian climate, with its deserts and sandstorms, would have whipped up any grounded particulates into the air where they could easily be inhaled.

Now, Montgomerie has devised an experiment that he hopes will shed light on the origin of these tiny particles.

He is burning different sources of fuel used by the Egyptians and capturing the particulates they create. "What I can do is go back to the ancient soot, from the ancient lung tissue, and compare the two."

In addition, he is gathering sand from archaeological sites in Egypt and comparing them to sandy particulates found in the lungs. He said that sand from the desert is eroded and should be "nice and rounded" whereas sand from manufacturing or quarrying "should be fresh sand and should be sharp and angular."

He told LiveScience that it will be at least three months until he has results back from his experiment.

This research was presented at the 12th annual Current Research in Egyptology conference, held in March at Durham University in the United Kingdom.

Please visit the site: <http://www.livescience.com/14420-ancient-egyptian-mummies-lung-disease-pollution.html>

PUMPING UP THE PYRAMID OF DJOSER

The step pyramid of Djoser was at risk of collapse after an earthquake in 1992 caused damage to the burial chamber.

Last December structural repair and reinforcement systems company Cintec was chosen for the job of propping up Egypt's oldest pyramid.

They've now completed phase one of the work which involved setting up pressurised air-filled bags as temporary structural supports in preparation for more permanent reinforced steel rods to be inserted diagonally through the steps of the pyramid knitting together the six levels.

Here is an excerpt from the BBC story:

“We were all packed and ready to begin work in January, just when the Egyptian government began to fall,” said Mr James.

“We've had to sit on our hands for another four months before getting the go-ahead; all the while hearing stories of looting, and worrying about how much additional damage was going to be caused.”

“Fortunately, even though most of our computers and equipment were stolen, the pyramid itself wasn't touched; which is just as well considering how unstable it was when we got in there.”

Mr James, who started his career as a buildings inspector for Cardiff Council, said, even with the amount of preparation they'd done, they still weren't prepared for quite how badly damaged the supporting ceiling of the burial chamber really was.

“The earthquake had essentially shifted everything sideways, and an 8m section, in the shape of an inverted cup, had dropped out.”

“Until we got the scaffolding in place, we had no idea what was holding up the remaining 60m of stone.”

“It was a lethal and massive game of Ker-Plunk; trying to hold everything up, without dislodging anything further.”

The air bag technology Cintec employed, was originally created by Mr James to aid in the safer disposal of IEDs in Afghanistan.

It works on the principal of surrounding an explosive with a bag, strong enough to withstand an explosion or collapse, but with such precise control over the pressure, that it only just kisses the surface of an object, without adding even greater forces to unstable materials.

However in the case of the Pyramid of Djoser, Mr James was forced to adapt his technology; substituting a water filling for compressed air.

“We’d originally planned to use our Water Wall system, but as soon as we got a good look at the chamber, it was clear that inflating the bags with water wasn’t going to work.”

“The rocks in the ceiling were too jagged, and posed an unacceptable risk of deluging the 4,500-year old pyramid, which has been bone-dry since it was built.

“But also we hadn’t realised that there were secret tunnels running under the chamber’s floor, so I didn’t think it would be able to take the weight of water-filled supports.”

Please visit the site: <http://www.talkingpyramids.com/pumping-up-the-pyramid-of-djoser/>

BRONZE AGE BRAIN SURGEONS, BY **WILL HUNT**

5,000 years ago, people living in Turkey were surprisingly good at what seems like a purely modern practice.

You might shudder at the mere thought of ancient brain surgery, but recent studies of the practice at Bronze Age sites in Turkey suggest that early neurosurgeons were surprisingly precise and that a majority of their patients may have survived.

At Ikiztepe, a small settlement near the Black Sea occupied from 3200 to 1700 B.C., archaeologist Önder Bilgi of Istanbul University has uncovered five skulls with clean, rectangular incisions that are evidence for trepanation, or basic cranial surgery. The procedure may have been performed to treat hemorrhages, brain cancer, head trauma, or mental illness. Last August Bilgi also unearthed a pair of razor-sharp volcanic glass blades that he believes were used to make the careful cuts.

There is ample evidence that Bronze Age sawbones knew what they doing. Last summer, biological anthropologist Handan üstündag of Anadolu University in Turkey excavated the 4,000-year-old trepanned skull of a man at Kultepe Höyük in central Turkey. üstündag says the surgeon cut a neat 1- by 2-inch incision, and “there are clear signs of recovery in the regrowth of bone tissue at the edges.” Judging from the frequency of healed bone in such skulls, anthropologist Yilmaz Erdal of Hacettepe University in Turkey recently proposed that about half of all Bronze Age trepanation patients—and 60 percent of those in Turkey—survived the procedure.

Please visit the site: <http://discovermagazine.com/2011/apr/08-bronze-age-brain-surgeons>

BROKEN IDOLS OF KEROS: BRITISH ARCHAEOLOGISTS EXPLAIN GREEK MYSTERY

Cambridge scientists dig up evidence of beautiful marble figurines broken then buried by Greeks 4,500 years ago

Some of the thousands of deliberately broken figurines, none of which fit together, which archaeologists believe were part of a mysterious rite which took place about 4,500 years ago on the Aegean island of Keros.

To say it has been an archaeological mystery may be an understatement: why are fragments of beautiful but deliberately smashed bronze age figurines buried in shallow pits on a small, rocky Greek island whose main inhabitants have always been goats?

Today, academics at Cambridge University will release findings that shed light on the 4,500-year-old puzzle of Keros, a tiny Cycladic island in the Aegean.

It appears Keros was the ceremonial destination for a ritual that involved islanders breaking prized possessions and making a pilgrimage with fragments for burial.

"It is rather remarkable," said Professor Colin Renfrew, who led the most recent excavations.

"We believe that the breaking of statues and other goods was a ritual and that Keros was chosen as a sanctuary to preserve the effects."

The Keros story began in 1963 with Renfrew himself. Then a long-haired research student – he is now Lord Renfrew – he stepped off a caique boat on to the island (human population: two goatherders) after being tipped off about a site of archaeological interest.

"I was amazed to find fragments of marble bowls and marble figurines," said Renfrew. The fragments were of a type of sculpture found across the Cyclades, examples of which can be seen in the British Museum and have inspired artists including Pablo Picasso, Constantin Brancusi and Henry Moore.

The Keros sculptures were almost all broken. Archaeologists found thousands of marble vessel fragments and hundreds of figurine body parts, such as a pair of thighs, a folded arm or an elongated foot.

The matter rested there until 1987 when Renfrew, by now the Disney professor of archaeology at Cambridge, returned to Keros to begin more serious excavation.

That led him to the discovery that the breakages were not the result of careless looting. "It became clear that this was a very strange site."

In 2006 Renfrew found an unlooted site of buried broken figurines and the remains of a settlement on an islet about 100 metres away, Dhaskalio.

There the team found evidence of a kind of bronze age guesthouse where visiting villagers would have congregated on their pilgrimage.

Geological examinations showed it was built from imported marble rather than the flaky local limestone.

The team had found – from around the same time the Pyramids were being built – evidence of huge amounts of marble being transported across the sea to build Dhaskalio.

Renfrew's theory is that Cycladic villagers would have used the figurines and bowls in a ritualistic way, perhaps carrying them in processions as icons are carried in Greek villages today.

"After they had been used for some time, perhaps decades, the time would come that it would go out of use," he said. So they were broken and fragments taken to "one remarkable ritual centre".

Renfrew said it was likely that the islanders would go to Keros at regular intervals, in much the same way that the ancient Greeks held the Olympics every four years.

"No doubt it was a ceremony of renewal – a new generation of icons being used and a new generation of people growing up."

The evidence suggests fragments were ritualistically deposited on Keros for about 400-500 years, until around 2000BC.

Renfrew said there were still many more puzzles at Keros and Dhaskalio to be answered. The latest research will be published as a basis for further investigations.

Please visit the site:

<http://www.guardian.co.uk/artanddesign/2011/jun/10/archaeology-mystery-keros-island-greece?INTCMP=SRCH>

TUT'S HURRIED BURIAL

Tut, tut: Microbial growth in pharaoh's tomb suggests burial was a rush job A Harvard expert in cultural heritage microbiology, investigates a “fingerprint” left by ancient Egyptian microbes

In the tomb of King Tutankhamen, the elaborately painted walls are covered with dark brown spots that mar the face of the goddess Hathor, the silvery-coated baboons—in fact, almost every surface.

Despite almost a century of scientific investigation, the precise identity of these spots remains a mystery, but Harvard microbiologist Ralph Mitchell thinks they have a tale to tell.

Nobody knows why Tutankhamen, the famed "boy king" of the 18th Egyptian dynasty, died in his late teens. Various investigations have attributed his early demise to a head injury, an infected broken leg, malaria, sickle-cell anemia, or perhaps a combination of several misfortunes.

Whatever the cause of King Tut's death, Mitchell thinks those brown spots reveal something: that the young pharaoh was buried in an unusual hurry, before the walls of the tomb were even dry.

Like many ancient sites, Tutankhamen's tomb suffers from peeling paint and cracking walls. In the oppressive heat and humidity, throngs of tourists stream in and out of the cave, admiring it but also potentially threatening it.

Concerned about the tomb's preservation, the Egyptian Supreme Council of Antiquities approached the Getty Conservation Institute for help. The Getty, in turn, had questions for Mitchell.

What are the brown spots? Are visiting tourists making them worse? Most importantly, do they present a health hazard?

In his investigation, Mitchell, the Gordon McKay Research Professor of Applied Biology at Harvard's School of Engineering and Applied Sciences (SEAS), combines classical microbiology with cutting-edge genomic techniques. His research team has been culturing living specimens swabbed from the walls of the tomb as well as conducting DNA sequence analyses.

Meanwhile, chemists at the Getty have been analyzing the brown marks, which have seeped into the paint and the plaster, at the molecular level.

So far, the chemists have identified melanins, which are characteristic byproducts of fungal (and sometimes bacterial) metabolism, but no living organisms have yet been matched to the spots.

"Our results indicate that the microbes that caused the spots are dead," says Archana Vasnathakumar, a postdoctoral fellow in Mitchell's lab. "Or, to put it in a more conservative way, 'not active.'"

Further, analysis of photographs taken when the tomb was first opened in 1922 shows that the brown spots have not changed in the past 89 years.

While the identity of the ancient organism remains a mystery, all of this is good news for tourists and Egyptologists alike, because the evidence suggests that not only are the microbes not growing—they're actually part of the history, offering new clues to the circumstances of King Tut's death.

"King Tutankhamen died young, and we think that the tomb was prepared in a hurry," explains Mitchell. "We're guessing that the painted wall was not dry when the tomb was sealed."

That moisture, along with the food, the mummy, and the incense in the tomb, would have provided a bountiful environment for microbial growth, he says, until the tomb eventually dried out.

Exotic as the project may sound, investigations like this are typical of Mitchell's research in applied microbiology.

In past years, his lab has studied the role of bacteria in the deterioration of the USS Arizona at Pearl Harbor, Hawaii, and the microorganisms living within limestone at Mayan archaeological sites in southern Mexico. Nick Konkol, a former postdoctoral research associate, and Alice DeAraujo, a current research assistant, have developed rapid new ways to detect mold growing within the paper of historical manuscripts, paintings, and museum artifacts.

The field is referred to as "cultural heritage microbiology," and Mitchell literally wrote the textbook on it.

For microbiologists with broad interests, cultural heritage provides an endless supply of surprising, new applications, crossing disciplines and cultures and providing important insight into modern environmental problems.

"This type of research is typical of the interactive activity of SEAS, where modern scientific and engineering techniques are integrated to solve complex problems," Mitchell says.

Just a few years ago, he was called down to the Smithsonian National Air and Space Museum to investigate the collection of Apollo space suits. In the heat and humidity of the museum's Maryland storage facility, black mold was chewing through the many-layered polymers, damaging the priceless suits.

The relatively simple solution in that case was the installation of a climate control system. Unfortunately, however, there is a difference between prevention and treatment. Once a historical artifact has begun to deteriorate, the damage is usually irreversible.

Mitchell points to the example of the cathedral in Cologne, Germany. Built over the course of 632 years and listed as a UNESCO World Heritage site, the walls of the magnificent cathedral feature angels and historical figures carved out of stone.

In just the past 100 years, the angels' faces have been eaten away by air pollution.

"I always use the analogy of cancer," Mitchell says. "You want to get to it early enough that it isn't doing major destruction."

But what to do about King Tut's 3000-year-old microbial vandalism?

The damage is already done, so Mitchell predicts that the conservators will want to leave the spots alone, particularly as they are unique to that site.

"This is part of the whole mystique of the tomb," he says.

Please visit the site: http://www.eurekalert.org/pub_releases/2011-06/hutt060811.php [Contact: Caroline Perry <cperry@seas.harvard.edu>] Harvard University

MYSTERY OF EGYPTIAN PYRAMID'S SECRET HIEROGLYPHICS

A hidden chamber deep within the Great Pyramid of Giza revealed a stunning secret last month: strange hieroglyphs written in red paint and sealed within the structure for 4,500 years.

And now one researcher may have unlocked that mystery.

"The markings are hieratic numerical signs. They read from right to left, meaning 100, 20, 1. The builders simply recorded the total length of the shaft: 121 cubits," Luca Miatello, an independent researcher who specializes on ancient Egyptian mathematics, told Discovery News.

The markings, red ochre figures painted on the floor of the hidden "Queen's Chamber" deep within the pyramid, corresponds to the length of the shaft leading to them, Miatello said.

But there's nothing "simple" about this discovery, said Shaun Whitehead of the Djedi Project, the archaeology group that found the hidden chamber through a special, shaft-spelunking robot.

"If the figures are numbers and they are the precise measurement of the shaft, then it's amazing," he said. "It would be a huge, rare clue to what the architect was thinking. For example, why take the trouble to precisely measure and record the length if the shaft was only used for a mundane purpose or simply abandoned?"

The shaft, one of four leading deep within the pyramid, was first discovered in 1872.

According to Miatello, who has written about the pyramid's numerical patterns in the journal *Ankh*, and also more recently in *PalArch's Journal of Archaeology of Egypt/Egyptology*, multiples of 7, 9 and 11 cubits occur frequently in the design of the Great Pyramid.

Built for the pharaoh Cheops, also known as Khufu, the Great Pyramid is the largest of a family of three pyramids on the Giza plateau, on the outskirts of Cairo and has long been rumored to have hidden passageways leading to a secret chamber.

Please visit the site: <http://www.foxnews.com/scitech/2011/06/08/mystery-egyptian-pyramids-secret-hieroglyphics-solved/?test=faces> [Go there for pict]

SHORING UP ISRAEL'S TREASURE- RICH COASTLINE, BY KARIN KLOOSTERMAN

An infusion of governmental funds aims to keep natural and human occurrences from washing ancient artifacts out to sea.

A devastating December storm washed a Roman statue of Aphrodite out of a coastal escarpment.

No one knows when she lost her head or arm, but the 1,500-year-old sculpture believed to depict the Roman goddess Aphrodite rolled out into the Mediterranean Sea last December, looking as fresh as the day she was made. Her discovery after falling out from an escarpment onto the coast of Ashkelon, a southern Israeli city near the Gaza Strip, highlights Israel's growing need to protect its eroding coastline.

A new government initiative worth \$135 million will turn about 10 miles of stretches of the Israeli coast into a series of reinforcements and public parks to be enjoyed by locals and tourists. Some of the parks will run through archeological sites of interest.

Geological archeologist Dr. Beverly Goodman, from the University of Haifa's Leon Charney School of Marine Sciences, stands to receive some of the much-needed funds for her research on coastal tsunamis and underwater geo-archeological surveying.

She tells ISRAEL21c that coastal protection is a social, cultural, economic and environmental imperative. "The coastal area is extremely important because so many infrastructure facilities lie on the world's coastlines," she says, "whether it's a power station; a cosmopolitan area like Tel Aviv, which includes hotels and tourist sites; and, of course, nature areas. These are all things that rely on the coastline being protected, and kept stable and somewhat reliable."

Antiquities are being eroded

Goodman explains that the economy of every country is impacted by how its coastline is protected. "The majority of the world's population lives on the coastline, within one kilometer. And daily life is most heavily impacted there. If you look at a nighttime map of the Earth, you can make out the continents by looking at the coastal regions. This shows how dominant the coastline regions are," she says.

Working in and around Caesarea, where she has surveyed underwater archeology remains and geophysical properties of the ancient port city built by the Romans, she hopes at least to record what is underwater and on the beach before more culture is lost through natural erosion processes or damaging winter storms.

"What we are looking at in Caesarea, on the coastal cliffs, is that we have areas where the coastline has changed so much - and we actually have antiquities that are being eroded into the sea."

Last December, a devastating winter storm hit the length of the Israeli coast, exposing archeological remains. The storm temporarily closed down the modern-day Caesarea National Park and caused great damage to the ancient port city.

Goodman had just finished recording details about the seafloor and archeological remains. After the storm, she returned to her underwater lab to find that some 80 percent of what she'd surveyed had been destroyed or washed away.

This makes Goodman very relieved to know that the State of Israel will support this unique cultural heritage site.

"For the short term, we don't know how to protect what's there and we want a record before it's destroyed. That's the purpose of [my] research, from the protection aspect. I am also looking at geo-archeology research questions. Within those coastal features, we are studying the sediment and what happens over time."

The barefoot archeologist

Her field of underwater archeology is almost as old as scuba diving itself, but studying ancient tsunamis - including one that is thought to have devastated Caesarea thousands of years ago -- is very cutting edge.

Rather than doing a lot of excavating, she says, "one can go to a site and get a cut section of archeology without having to dig for it. We are also working on the coastline on the beach, sometimes barefoot -- and underwater, of course, where we are diving and using excavation equipment."

Besides the geological aspects of her work, the intimate human side of what she sees underwater fascinates Goodman. Personal items she locates underwater can be quite exciting. A 2,000-year-old sandal caught her attention not long ago. Perhaps it was once worn by a fisherman?

"It was something that seemed so real to me," she says about the size 7 men's sandal that is being prepared for display. "It was something so personal and I know the annoying feeling when you lose one sandal," she says. Other ancient items she's unearthed include women's hair combs and earrings.

Securing the past and future

According to the Israeli government, the new coastal protection fund will allow for a network of public parks along the coastal area from southern Ashkelon to northern Haifa.

The parks will reinforce precipitous slopes that fall off periodically, damaging real estate and even occasionally killing beach-goers who don't heed the warnings to sunbathe away from the dangerous coastal escarpments.

Historically, Israel's coastal area is important not only for today's population. According to the Christian Gospels, the Apostle Peter was imprisoned in Caesarea after being

arrested in Jerusalem, and an inscription bearing the Christian scriptural name Pontius Pilate was found here.

The area began to take shape after King Herod built the world's first artificial port in Caesarea, in 22 BCE, to be the seat of the Roman government. The ancient Jewish historian Josephus noted that "the firmness of his building could not easily be conquered by the sea."

He'd obviously never heard about global warming.

Please visit the site: <http://www.israel21c.org/201106059108/environment/shoring-up-israels-treasure-rich-coastline>

WORMLIKE PARASITE DETECTED IN ANCIENT MUMMIES SCHISTOSOMIASIS STILL PLAGUES HUNDREDS OF MILLIONS TODAY, BY KER THAN

A tiny, wormlike parasite that plagues people worldwide also infected ancient Africans, new analyses of mummies reveal for the first time.

The waterborne creature, *Schistosoma mansoni*, hitches a ride in aquatic snail tissue before emerging into water, where it can bore into swimming or wading people, according to the U.S. Centers for Disease Control and Prevention. Inside the human body the worms can lay eggs, which escape the body via urine or feces. If the eggs land in water, the hatched worms may find their ways to a snail host, beginning the cycle anew.

The resulting disease, called schistosomiasis, is not generally lethal. But it can cause anemia, damage internal organs, impair growth and cognitive development in children, and lead to a general chronic weakening of its human hosts. (See a human-body interactive.)

"It keeps you from working as much or forces you to work twice as hard as someone who doesn't have the disease," said study co-author George Armelagos, an anthropologist at Emory University in Atlanta.

Today schistosomiasis affects an estimated 200 million people worldwide and thrives in regions that use irrigation channels for farming.

"Before this study, it was always assumed that *S. mansoni* was a product of modern urbanization," Armelagos said.

(See "Mummies With Lice Offer New Clues to Human Migration.")

First Proof of Ancient Schistosomiasis

Since the discovery of parasite eggs on mummies in the 1920s, scientists have suspected that the Nubians might have been infected by schistosomiasis. Nubia was a former African kingdom that existed from about A.D. 250 to 1400 in what is now northern Sudan. (Read about the black pharaohs in National Geographic magazine.)

But researchers generally assumed that the disease in Nubians had been caused by *S. haematobium*, a close cousin of *S. mansoni* that causes similar symptoms but that doesn't require irrigation channels to thrive.

"The snail that transmits *S. haematobium* thrives better in water that's moving and well oxygenated and that is not very polluted, whereas the *S. mansoni* snail does very well in

water that's been standing around and has more yuck in it," said study first author Amber Campbell Hibbs, who conducted the study while at Emory.

Campbell Hibbs and colleagues examined hundreds of naturally mummified Nubian mummies.

"What happened is they were buried, and it's so dry that you usually get mummification of the external skin, and sometimes some of the organs."

An analysis of the mummified skin revealed traces of proteins belonging to *S. mansoni*—the first proof that the ancient Nubians, or any ancient civilization, were afflicted by schistosomiasis.

(Also see "Are Humans Furless to Thwart Parasites?")

Parasite Afflicted Farmers the Most

S. mansoni infection appeared to be most prevalent in a group of Nubians known as the Wadi Halfa, who farmed along the Nile about 1,500 years ago using irrigation-channel techniques. (See pictures of black pharaohs of Nubia.)

The study found that up to a quarter of Wadi Halfa people had schistosomiasis.

The findings also run counter to previous theories that ancient Nubian farmers weren't sophisticated enough to make irrigation channels that could spread the disease, Campbell Hibbs added.

"That's something we don't really give them credit for," she said.

The traditional view "is that they were these primitive people who were at the mercy of the world around them."

The research will be detailed in the June in the American Journal of Physical Anthropology.

Please visit the site: <http://news.nationalgeographic.com/news/2011/05/110531-africa-mummies-parasites-schistosomiasis-science/>

ROMAN SHIP HAD ON-BOARD FISH TANK - HAND-OPERATED PUMP WOULD HAVE KEPT CATCH ALIVE DURING LONG TRIPS, BY JO MARCHANT

A Roman ship found with a lead pipe piercing its hull has mystified archaeologists. Italian researchers now suggest that the pipe was part of an ingenious pumping system, designed to feed on-board fish tanks with a continuous supply of oxygenated water. Their analysis has been published online in the *International Journal of Nautical Archaeology*¹.

Historians have assumed that in ancient times fresh fish were eaten close to where they were caught, because without refrigeration they would have rotted during transportation. But if the latest theory is correct, Roman ships could have carried live fish to buyers across the Mediterranean Sea.

The wrecked ship, which dates from the second century AD, was discovered six miles off the coast of Grado in northeastern Italy, in 1986. It was recovered in pieces in 1999 and is now held in the Museum of Underwater Archaeology in Grado. A small trade ship around 16.5 metres long, the vessel was carrying hundreds of vase-like containers that held processed fish, including sardines and salted mackerel.

Carlo Beltrame, a marine archaeologist at the Ca' Foscari University of Venice in Italy, and his colleagues have been trying to make sense of one bizarre feature of the wreck: a lead pipe near the stern that ends in a hole through the hull. The surviving pipe is 1.3 metres long, and 7–10 centimetres in diameter.

The team concludes that the pipe must have been connected to a piston pump, in which a hand-operated lever moves pistons up and down inside a pair of pipes. One-way valves ensure that water is pushed from one reservoir into another. The Romans had access to such technology, although it hasn't been seen before on their ships, and the pump itself hasn't been recovered from the Grado wreck.

Archaeologists have previously suggested that a piston pump could have collected bilge water from the bottom of the boat, emptying it through the hole in the hull. But Beltrame points out that chain pumps — in which buckets attached to a looped chain scooped up bilge water and tipped it over the side — were much safer and commonly used for this purpose in ancient times. "No seaman would have drilled a hole in the keel, creating a potential way for water to enter the hull, unless there was a very powerful reason to do so," he writes.

Another possible use is to pump sea water into the boat, to wash the decks or fight fires. A similar system was used on Horatio Nelson's flagship, HMS Victory, in the eighteenth and nineteenth centuries. But Beltrame and his colleagues argue that the Grado wreck

wasn't big enough to make this worthwhile. They say that the ship's involvement in the fish trade suggests a very different purpose for the pump — to supply a fish tank.

The researchers calculate that a ship the size of the Grado wreck could have held a tank containing around 4 cubic metres of water. This could have housed 200 kilograms of live fish, such as sea bass or sea bream. To keep the fish alive with a constant oxygen supply, the water in the tank would need to be replaced once every half an hour. The researchers estimate that the piston pump could have supported a flow of 252 litres per minute, allowing the water to be replaced in just 16 minutes.

Tracey Rihll, a historian of ancient Greek and Roman technology at Swansea University, UK, cautions that there is no direct evidence for a fish tank. The researchers "dismiss fire-extinguisher and deck-washing functions too easily in my view", she says. But although no trace of the tank itself remains, Rihll says the pipe could have been used for such a purpose in the ship's younger days. Literary and archaeological evidence suggests that live fish were indeed transported by the Greeks and Romans "on a small but significant scale", she adds.

The first-century Roman naturalist Pliny the Elder wrote that parrotfish taken from the Black Sea were transported to the Neopolitan coast, where they were introduced into the sea. And the second- and third-century Greek writer Athenaeus described an enormous ship called the Syracousia, which supposedly had a lead-lined saltwater tank to carry fish for use by the cook.

However, a fish tank on board a small cargo ship such as the Grado wreck might mean that transport of live fish was a routine part of Roman trade, allowing the rich to feast on fish from remote locations or carrying fish shorter distances from farms to local markets.

"It would change completely our idea of the fish market in antiquity," says Beltrame. "We thought that fish must have been eaten near the harbours where the fishing boats arrived. With this system it could be transported everywhere."

Please visit the site:

<http://www.nature.com/news/2011/110531/full/news.2011.335.html>

TESTS SUPPORT 'JORDAN TEXTS' **AUTHENTICITY, BY TAYLOR LUCK**

Preliminary lab results indicate that a collection of metal books unearthed in northern Jordan may indeed represent the earliest Christian texts ever discovered, according to experts.

According to the Department of Antiquities (DoA), initial carbon tests to determine the authenticity of lead-sealed metal books billed as the greatest find in biblical archaeology since the Dead Sea scrolls have been “encouraging”.

“We really believe that we have evidence from this analysis to prove that these materials are authentic,” DoA Director Ziad Saad told The Jordan Times.

The tests, carried out at the Royal Scientific Society labs, indicate that the texts may date back to the early first century AD, at a time when Christians took refuge from persecution on the east bank of the Jordan River.

The codices, which were retrieved by Jordanian security services from the black market last month, are believed to be part of a greater cache of 70 lead-sealed books allegedly uncovered in Jordan and smuggled across the River Jordan into Israel.

The majority of the texts are currently in the possession of Hassan Saeda, an Israeli bedouin farmer who claims that the books, which may tell of the last days of Jesus Christ, were uncovered by his shepherd grandfather some 90 years ago.

Jordanian authorities, however, believe the codices were unearthed four years ago in a cave near the northern village of Sarhan and are property of the Hashemite Kingdom.

The texts made international headlines in March when Jordanian authorities and British author David Elkington announced their existence in a bid to prevent Saeda from selling the cache to a private collector and to launch a campaign to repatriate the books.

Efforts to repatriate the texts from Israel are pending the final results of the carbon dating, currently being carried out at the University of New Mexico, the Getty Conservation Institute and Sheffield University.

Please visit the site: <http://www.jordantimes.com/index.php?news=38498>

HISTORY SHINES THROUGH THE GLASS

“All glass is beautiful,” Belgian researcher Patrick Degryse said, gently turning a delicate, Roman-era vessel, its bluish sheen glowing under the fluorescent lights of the Semitic Museum’s basement collections.

Degryse, a research professor from Katholieke Universiteit Leuven, was on one of his twice-yearly pilgrimages to Harvard to examine the Semitic Museum’s archaeological collections. Degryse is one of several international researchers investigating the properties of ancient glass and other materials to understand more about where and how they were manufactured and what the background says about their makers.

Together with Katherine Eremin, the Patricia Cornwall Conservation Scientist at the Harvard Art Museums’ Straus Center for Conservation and Technical Studies, Degryse is examining Roman-era glass to reconstruct trade patterns, looking at associated collections at the museums, which hold items of an artistic nature. He is also meeting with Eremin to discuss progress on a project to investigate glass from the ancient Mesopotamian city of Nuzi, which was destroyed in 1,350 B.C. The site is in modern Iraq.

Though less spectacular than the far younger Roman specimens, the glass from Nuzi is in some ways the crown jewel of the ancient glass collection, according to Joseph Greene, assistant director of the Semitic Museum.

Excavated in the 1930s by an international team that included Harvard archaeologist Richard Starr, who was associated with the Fogg Museum of Art, the Nuzi finds were divided between the Semitic Museum, which received historic-era materials, the Peabody Museum of Archaeology and Ethnology, which received prehistoric items, and the Harvard Art Museums, which received items created as art. At the Semitic Museum, the Nuzi glass collection has something going for it that some similar collections do not: clay tablets.

The excavation of Nuzi turned up not only glass artifacts, but also thousands of clay tablets, marked in cuneiform, one of the earliest forms of writing. The tablets describe the society of the day and, when combined with the material excavated from Nuzi, create a powerful resource for scholars seeking to understand the Mesopotamian region of more than three thousand years ago.

“Together, they tell us much, much more,” Greene said.

For example, the tablets say the city had large stores of gold and silver, as well as weapons. Though the excavations turned up some metal blades and tools like adze heads, very little silver and gold have been found. Researchers believe it was probably taken when Nuzi was looted in 1,350 B.C.

“We assume the Assyrians took all the gold,” Greene said.

In recent decades, unrest in the Middle East — especially in Iraq — made collections at the Semitic Museum and a handful of other institutions critically important resources for a generation of Mesopotamian scholars, Greene said. Nuzi is located near the Iraqi city of Kirkuk, in a region dangerous for archaeologists to visit. In addition, the looting of the Iraq Museum after the U.S. invasion of Iraq eight years ago created great uncertainty about other Nuzi materials.

“We can access materials [at Harvard] we can’t otherwise access,” Degryse said.

Degryse uses isotopic analysis to read the molecular signature of minerals in the glass’ raw material to trace it back to its source. So far, it seems that glass at the time of Nuzi was mainly manufactured in two regions: Mesopotamia and Egypt. Though the glass appears to have been widely traded, Egyptian glass doesn’t show up in Mesopotamia and Mesopotamian glass doesn’t show up in Egypt. Both, however, are present in ancient Greece, Degryse said.

Glassmaking goes back to at least 3,000 B.C. and perhaps earlier, Degryse said. Early glass was made by combining a silica source such as sand with plant ash. The plant ash was a key component because it reduced the melting point of the silica considerably, from 1,700 degrees Centigrade to 1,000 degrees, within reach of the furnaces of that period.

Because the technique of glass blowing wasn’t invented until 100 B.C., early glass vessels were made by applying glass around a clay mold, which was then broken up and removed when the glass cooled. The result was that early glass vessels tended to be thick-walled compared with the more delicate glass of the Roman era.

Early glass was a rare item, reserved for the elite, Eremin said. In Nuzi, it was often colored dark blue, perhaps to mimic the gemstones lapis lazuli or turquoise.

It was only later, during the Roman era, when manufacturing changed to replace plant ash with natron, a mineral soda, that glass became more common outside of the elite classes and began to be used for more functional purposes.

Modern analytical techniques like isotopic analysis weren’t even dreamed of by Richard Starr when the Nuzi materials were originally excavated 80 years ago. Greene said that points to the importance of maintaining collections such as those at the Semitic Museum because future scholars may have ways of analyzing materials that don’t presently exist.

“Archaeological collections are repositories to be interrogated with techniques that weren’t thought of when they were originally collected,” Greene said.

Please visit the site: <http://www.physorg.com/print227267524.html>

ROMAN PALACE IN UPPER EGYPT

A huge palace from the Roman ages (31-395 BC) has been discovered by a US expedition in the Amhada region, 500km south of Cairo, in the New Valley Governorate in Upper Egypt.

The palace belonged to a person named Sornius.

The Ministry of Antiquities said the palace cannot be opened to the public due to erosion, but it said a copy will be constructed for visitors.

Please visit the site: <http://allaboutegypt.org/2011/06/giant-roman-palace-unearthed-in-upper-egypt/> [Go there for link to audio]

FLASHBACK: VANISHED PERSIAN ARMY FOUND IN DESERT

The remains of a mighty Persian army said to have drowned in the sands of the western Egyptian desert 2,500 years ago might have been finally located, solving one of archaeology's biggest outstanding mysteries, according to Italian researchers.

Hundreds of bleached bones and skulls found in the desolate wilderness of the Sahara desert may be the remains of the long lost Cambyses' army, according to Italian researchers. Bronze weapons, a silver bracelet, an earring and hundreds of human bones found in the vast desolate wilderness of the Sahara desert have raised hopes of finally finding the lost army of Persian King Cambyses II. The 50,000 warriors were said to be buried by a cataclysmic sandstorm in 525 B.C.

"We have found the first archaeological evidence of a story reported by the Greek historian Herodotus," Dario Del Bufalo, a member of the expedition from the University of Lecce, told Discovery News.

According to Herodotus (484-425 B.C.), Cambyses, the son of Cyrus the Great, sent 50,000 soldiers from Thebes to attack the Oasis of Siwa and destroy the oracle at the Temple of Amun after the priests there refused to legitimize his claim to Egypt.

After walking for seven days in the desert, the army got to an "oasis," which historians believe was El-Kharga. After they left, they were never seen again.

"A wind arose from the south, strong and deadly, bringing with it vast columns of whirling sand, which entirely covered up the troops and caused them wholly to disappear," wrote Herodotus.

A century after Herodotus wrote his account, Alexander the Great made his own pilgrimage to the oracle of Amun, and in 332 B.C. he won the oracle's confirmation that he was the divine son of Zeus, the Greek god equated with Amun.

The tale of Cambyses' lost army, however, faded into antiquity. As no trace of the hapless warriors was ever found, scholars began to dismiss the story as a fanciful tale.

Now, two top Italian archaeologists claim to have found striking evidence that the Persian army was indeed swallowed in a sandstorm.

Twin brothers Angelo and Alfredo Castiglioni are already famous for their discovery 20 years ago of the ancient Egyptian "city of gold" Berenike Panchrysos.

Presented recently at the archaeological film festival of Rovereto, the discovery is the result of 13 years of research and five expeditions to the desert.

"It all started in 1996, during an expedition aimed at investigating the presence of iron meteorites near Bahrin, one small oasis not far from Siwa," Alfredo Castiglioni, director of the Eastern Desert Research Center (CeRDO) in Varese, told Discovery News.

While working in the area, the researchers noticed a half-buried pot and some human remains. Then the brothers spotted something really intriguing -- what could have been a natural shelter.

It was a rock about 35 meters (114.8 feet) long, 1.8 meters (5.9 feet) in height and 3 meters (9.8 feet) deep. Such natural formations occur in the desert, but this large rock was the only one in a large area.

"Its size and shape made it the perfect refuge in a sandstorm," Castiglioni said.

Right there, the metal detector of Egyptian geologist Aly Barakat of Cairo University located relics of ancient warfare: a bronze dagger and several arrow tips.

"We are talking of small items, but they are extremely important as they are the first Achaemenid objects, thus dating to Cambyses' time, which have emerged from the desert sands in a location quite close to Siwa," Castiglioni said.

About a quarter mile from the natural shelter, the Castiglioni team found a silver bracelet, an earring and few spheres which were likely part of a necklace.

"An analysis of the earring, based on photographs, indicate that it certainly dates to the Achaemenid period. Both the earring and the spheres appear to be made of silver. Indeed a very similar earring, dating to the fifth century B.C., has been found in a dig in Turkey," Andrea Cagnetti, a leading expert of ancient jewelry, told Discovery News.

In the following years, the Castiglioni brothers studied ancient maps and came to the conclusion that Cambyses' army did not take the widely believed caravan route via the Dakhla Oasis and Farafra Oasis.

"Since the 19th century, many archaeologists and explorers have searched for the lost army along that route. They found nothing. We hypothesized a different itinerary, coming from south. Indeed we found that such a route already existed in the 18th Dynasty," Castiglioni said.

According to Castiglioni, from El Kargha the army took a westerly route to Gilf El Kebir, passing through the Wadi Abd el Melik, then headed north toward Siwa.

"This route had the advantage of taking the enemy aback. Moreover, the army could march undisturbed. On the contrary, since the oasis on the other route were controlled by the Egyptians, the army would have had to fight at each oasis," Castiglioni said.

To test their hypothesis, the Castiglioni brothers did geological surveys along that alternative route. They found desiccated water sources and artificial wells made of hundreds of water pots buried in the sand. Such water sources could have made a march in the desert possible.

"Termoluminescence has dated the pottery to 2,500 years ago, which is in line with Cambyses' time," Castiglioni said.

In their last expedition in 2002, the Castiglioni brothers returned to the location of their initial discovery. Right there, some 100 km (62 miles) south of Siwa, ancient maps had erroneously located the temple of Amun.

The soldiers believed they had reached their destination, but instead they found the khamsin -- the hot, strong, unpredictable southeasterly wind that blows from the Sahara desert over Egypt.

"Some soldiers found refuge under that natural shelter, other dispersed in various directions. Some might have reached the lake of Sitra, thus surviving," Castiglioni said.

At the end of their expedition, the team decided to investigate Bedouin stories about thousands of white bones that would have emerged decades ago during particular wind conditions in a nearby area.

Indeed, they found a mass grave with hundreds of bleached bones and skulls.

"We learned that the remains had been exposed by tomb robbers and that a beautiful sword which was found among the bones was sold to American tourists," Castiglioni said.

Among the bones, a number of Persian arrow heads and a horse bit, identical to one appearing in a depiction of an ancient Persian horse, emerged.

"In the desolate wilderness of the desert, we have found the most precise location where the tragedy occurred," Del Bufalo said.

The team communicated their finding to the Geological Survey of Egypt and gave the recovered objects to the Egyptian authorities.

"We never heard back. I'm sure that the lost army is buried somewhere around the area we surveyed, perhaps under five meters (16.4 feet) of sand."

Mosalam Shaltout, professor of solar physics at the National Research Institute of Astronomy and Geophysics, Helwan, Cairo, believes it is very likely that the army took an alternative western route to reach Siwa.

"I think it depended on their bad planning for sufficient water and meals during the long desert route and most of all by the occurrence of an eruptive Kamassen sandy winds for more than one day," Shaltout told Discovery News.

Piero Pruneti, editor of Archeologia Viva, Italy's most important archaeology magazine, is also impressed by the team's work.

"Judging from their documentary, the Castiglioni's have made a very promising finding," Pruneti told Discovery News. "Indeed, their expeditions are all based on a careful study of the landscape...An in-depth exploration of the area is certainly needed!"

Source: Discovery News

Please visit the site:

<http://archaeologynewsnetwork.blogspot.com/2010/06/flashback-vanished-persian-army-found.html>

PORT OF ATHENS WAS ONCE AN ISLAND, FRENCH-GREEK TEAM FINDS

Piraeus, the main port of Athens, was an island from 4 800 -- 3 400 BC, in other words 4 500 years before the Parthenon was built on the Acropolis. This discovery was made by a French-Greek team (1) led by Jean-Philippe Goiran, a CNRS researcher at the 'Archéorient -- Environnements et Sociétés de l'Orient Ancien' Unit (CNRS/Université Lyon 2), who studied and dated sediments collected in the Piraeus area. The research was carried out in collaboration with colleagues from the Universities of Athens, Paris 1 and Paris Ouest, and is published in the June 2011 issue of the *Looking at Piraeus today*, it is hard to believe that this urban area was once an island separated from the mainland by a stretch of water. And yet, in the first century AD, the Greek geographer Strabo hypothesized that Piraeus had once been an island. Located approximately seven kilometers southwest of Athens, this vast rocky hill was home to the three ancient ports of the Greek capital, Zea, Mounichia and Cantharos. During the fifth century BC, this strategic place was connected to Athens by a road protected by high walls, known as the 'Long Walls', that guaranteed safe travel.

Until recently, no archeological research had ever been carried out to verify Strabo's hypothesis. To put his intuition to the test, researchers from France and Greece took around ten geological core samples from boreholes over 20 meters deep in what is today the Cephissus (Kifisos) plain located between Piraeus and Athens. They compared the sedimentary records contained in the core samples with written records. Each sedimentary bed was dated using the carbon-14 method. This stratigraphic study enabled the researchers to discover four main stages in the evolution of coastal landscapes in the Piraeus region.

During the first stage, 6 700 -- 5 500 BC, sea levels in the Mediterranean were considerably lower than today. The hill of Piraeus was not an island and was geographically connected to the mainland. Then from 4 800 -- 3 400 BC, sea levels rose, and Piraeus became an island. During the third stage, from 2 800 BC on, sea levels started to rise more slowly, while at the same time massive amounts of sediment were carried down by rivers in the region. This dual phenomenon caused sediments to build up on the Cephissus plain, which led to the establishment of a lagoon environment. Finally, in the fifth century BC, at the time the Parthenon was being built on the Acropolis, the lagoons were still present. To build the Long Walls, the engineers of the time were therefore forced to fill in these wetlands.

Since Strabo lived some 3 500 years after Piraeus was an island, what lies behind his intuition? One possible explanation is that he based his opinions on texts written by his predecessors. Another possibility is that he carried out an analysis of the coastal landscape when he travelled to Athens in the first century AD: at the time, the rocky hill of Piraeus stood above a still marshy coastal plain. And finally, Strabo may have used both these sources to work out that the sea must have been present between Athens and Piraeus at an earlier period.

(1) In France, this work involved the following three laboratories:

the 'Archéorient -- Environnements et Sociétés de l'Orient Ancien' Unit (CNRS/Université Lyon 2), the 'Archéologies et Sciences de l'Antiquité' Unit (CNRS/Universités Paris 1 and Paris Ouest/French Ministry of Culture and Communication), and the Centre de Recherche de Géographie Comparée des Suds et des Nords (Université Paris Ouest -- Nanterre La Défense)

Story Source:

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Journal Reference:

Jean-Philippe Goiran, Kosmas P. Pavlopoulos, Eric Fouache, Maria Triantaphyllou and Roland Etienne. Piraeus, the ancient island of Athens : Evidence from Holocene sediments and historical archives.
Geology, June 2011

Please visit the site:

<http://www.sciencedaily.com/releases/2011/06/110616081855.htm> [Go there for maps]

EXCAVATIONS SHED LIGHT ON **ANCIENT PAPHOS CITY**

ARCHAEOLOGICAL investigations at the edges and to the south of the Hellenistic-Roman theatre of Nea Paphos have identified significant structures of the ancient city, according to an official announcement by the Department of Antiquities yesterday.

The investigations were carried out October 6 to November 17 of last year by the University of Sydney, under the direction of Emeritus Professor Richard Green, Dr Craig Barker and Dr Smadar Gabrieli.

The announcement said the work had aimed at exploring the relationship between the theatre and the ancient city's infrastructure.

To this end, a ground-penetrating radar (GPR) survey had been carried out to record a large area to the south of the theatre.

The announcement added that a number of important structures had been identified, but that earthquake damage had made it difficult to delineate the precise outline of the city.

Additionally, excavations had continued to the south-east of the theatre, near the site of a long, narrow building, deemed to be a Roman fountain house or 'nymphaeum'.

The announcement noted that a limestone-paved Roman road, cleared by the team and running from the southern edge of the nymphaeum, would have been one of the city's major thoroughfares - particularly for pedestrians travelling to the theatre. Two wheel ruts were also found along a section of the road.

Excavations in the western entranceway of the theatre, or 'parodos', had exposed the edge of a deep bedrock quarry that had probably provided stone for the original phases of the theatre, as well as barrier walls meant to anchor the soil built up to provide support for theatre seating.

The announcement added that the team had also excavated a geometric mosaic probably dating back to the 5th century AD, which, if accurate, may provide insight into post-theatre activity on the site.

Finally, the announcement said that cataloguing of medieval finds from a well on the site had also been carried out.

Further excavations for the area south of the theatre are in the pipeline.

Please visit the site:

<http://www.cyprus-mail.com/archaeology/excavations-shed-light-ancient-paphos-city/20110617>

750 SACKS OF HUMAN EXCREMENT RECOVERED FROM HERCULANEUM

Archaeologists are discovering new insights into how the Romans lived in Herculaneum 2,000 years ago by what they left behind - in the ancient city's sewers.

Herculaneum, which lies on the Bay of Naples in southern Italy, was buried by the eruption of Mount Vesuvius that destroyed Pompeii, Stabiae and other nearby towns in 79 AD.

Specialists involved in the Herculaneum Conservation Project have excavated the ancient sewers of the city and uncovered the largest deposit of organic material ever found in the Roman world.

Layers of excrement that lay buried by volcanic mud for centuries are giving experts new clues about the diet and health of the city's ancient inhabitants.

Project manager Jane Thompson told ANSA the team has recovered some 750 large sacks of human excrement.

"Studying this waste and linking it to the inhabitants or workers in the buildings above is allowing us to learn more about their lives, the types of food people ate and the work they did," Thompson said. "This is even more unusual because it emerged from a conservation project".

Herculaneum Sewer [Credit: Herculaneum Conservation Project] When Vesuvius erupted the Roman city had an efficient system of water drainage with subterranean sewers that flowed beneath several roads that ran on a north-south axis in the city. One of the channels is only 60 cm wide and a metre high and is believed to have served the town's main public baths and several houses, and a second channel with similar dimensions.

Both ran through the town to the shoreline.

"We cleaned out the two principal Roman sewers that ran to the shoreline," Thompson said. "The sewer under the Cardo III road was cleaned out with a high pressure pump and it is immaculate.

But it was the third of Herculaneum's north-south roads that revealed the biggest surprise - a large tunnel measuring 3.6 metres high that runs under Cardo V street along an entire city block.

"The sewer we found under the Cardo V road in the lower stage of the city is so large and spectacular we could use human beings instead of pressure hoses," Thompson said.

"This was crucial because it has never been completely excavated and we found a half-metre deposit of organic waste along its entirety." The 86-metre tunnel is linked to chutes that flowed from the latrines and kitchens of the homes and shops above. Instead of

draining into the sea, this sewer was more like a giant septic tank that collected human waste, food scraps and discarded objects.

Food remains from a latrine pit: grape pips, fig pips, fish bones, sea urchin shell [Credit: University of Oxford] Apart from 170 crates of artefacts including pottery, a lamp and 60 coins, the excavation team has recovered bone pins, necklace beads and a gold ring with a decorative gemstone from the sewers. But it is the organic deposits that may provide the most innovative research - giving researchers an unprecedented insight into the diet and health of the Roman inhabitants.

Early analysis confirmed that the human faeces were rich in vegetable fibres and one sample showed a high white blood cell count, which according to researchers, indicated a bacterial infection.

The Herculaneum Conservation Project, directed by Professor Andrew Wallace-Hadrill, is a joint initiative involving the Special Superintendency for Archeology in Naples and Pompeii, the Packard Humanities Institute and the British School at Rome. American philanthropist David Packard has committed more than 15 million euros to the project to date.

Please visit the site: <http://tinyurl.com/428wmdd>

BURIED UNDER ANCIENT HOUSES, BY **OWEN JARUS**

Buried under ancient houses: Who are they?

No family plots, just communal burials found beneath Turkish settlement

At the Catalhoyuk settlement in Turkey, people were buried beneath houses, like this one, which contained multiple burials dating back about 9,000 years.

Human remains discovered beneath the floors of mud-brick houses at one of the world's first permanent settlements, were not biologically related to one another, a finding that paints a new picture of life 9,000 years ago on a marshy plain in central Turkey.

Even children as young as 8 were not buried alongside their parents or other relatives at the site called Catalhoyuk, the researchers found.

"It speaks a lot to the type of social structure that they might have had," study researcher Marin Pilloud, a physical anthropologist with the United States military at Joint Accounting Command in Hawaii, told LiveScience.

An ancient society

Catalhoyuk covered 26 acres, and its people — estimated to be as many as 10,000 — would have made a living by growing crops and herding domesticated animals. It was built on a marshy plain in central Turkey.

Catalhoyuk Research Project

The researchers used dental remains from 266 individuals to determine how they were related, with an example of a human jaw found at the site shown here.

Before Catalhoyuk, most people on the planet made their living as hunter-gatherers, moving around the landscape in order to survive. In the period after Catalhoyuk was founded, more agricultural settlements were created in the Middle East, paving the way for large cities and the birth of the first civilizations.

When archaeologists first dug up the site in the 1950s and '60s, they found that the settlement contained no streets. Its plastered mud-brick houses were bunched up against each other, and the inhabitants entered them by way of a ladder on the roof. Inside the homes, the people drew art on the walls and created spear points and pottery.

They also buried their dead (up to 30 of them per house) beneath the floors.

Teeth tell all

To figure out how the buried humans were related, scientists tried — unsuccessfully, due to the advanced age and contamination — to extract DNA from the skeletons.

So Pilloud and Clark Spencer Larsen of Ohio State University analyzed the next best thing: the size and shape of their teeth. Since people who are related should have similarities in tooth morphology, the researchers compared the ancient dental remains of

266 individuals from the site. Their results are detailed in a paper recently published in the American Journal of Physical Anthropology.

They found that the people buried beneath the floor of each house were, in general, not related to each other. With the possible exception of one building, this occurred throughout the entire site for as long as the settlement existed.

Catalhoyuk Research Project

A reconstruction of how a burial may have happened at Catalhoyuk.

"It doesn't look as if there was a strong genetic component to determining who would be buried together," Pilloud said. The discovery suggests people living at Catalhoyuk were not tied to each other through strong bonds of kinship, she added.

"I'm not trying to argue that biological relationships would not have been perhaps meaningful to the people at Catalhoyuk," Pilloud said.

But rather, biological kinship "wasn't the sole defining principle much like we presume it was in the hunter-gatherer era."

Professor Ian Hodder of Stanford University, who directs current excavations and research efforts at Catalhoyuk, told LiveScience that the results offer a new perspective on what life was like at the ancient settlement.

"It's really quite exciting. Normally archaeologists have to just infer what the biological relationships might be; it opens up a whole new world," said Hodder, who was not directly involved in this study.

"In some ways the results are counterintuitive; they're not really what we expected."

Collective living

The results support one idea scientists have put forth: that Catalhoyuk society was determined by membership in houses in which a group of people passed down rights and resources, Hodder said.

"Membership of the house was not based on biological kin but on a wide range of processes by which people could join the house," he explained.

Each house may have had access to its own tools, hunting grounds, water sources and agricultural lands. The organization of each house at Catalhoyuk may have in fact encompassed several actual homes at the site.

"What distinguishes each entity is their co-ownership of a series of resources," Hodder said.

Becoming urbanites

The change from biological to more practically based bonds may have been the result of the Catalhoyuk people's move to adopt an urban lifestyle, based on agriculture. That could have altered their view of family relationships.

"Before, you were hunters and gatherers, in loose groups that were very highly mobile. Now you're all tied together, and you're all living in close quarters," Pilloud said.

"They might have called on other groups of individuals, outside of their biological family, to do things like take the herd to the pasture or to help with the harvest, things that might have required more people."

Hodder said this discovery suggests Catalhoyuk was a more complex society than had been thought.

"I think that as society becomes more sedentary and complex that kinship itself doesn't seem to be sufficient to hold it together," he said. "This is suggesting that they've got (a) sufficiently complex level that they needed something more complex than kinship."

Please visit the site:

http://www.msnbc.msn.com/id/43580320/ns/technology_and_science-science/#

NEW PHARAONIC ARTEFACTS **DISCOVERED IN NORTH EGYPT'S SITE** **OF SAN EL-HAGAR, BY NEVINE EL-** **AREF**

A collection of painted blocks used in the construction of king Osorkon II's temple have been unearthed in San El-Hagar in the Delta city of Sharqia

During routine excavation work, French excavators working at the San El-Hagar archaeological site unearthed hundreds of painted limestone blocks that were once used in the construction of the temple of the XXII dynasty king Osorkon II.

Minister of State for Antiquities Zahi Hawass said that early studies on site revealed that these blocks were dismantled and reused in the construction of edifices during the Late Ancient Egyptian period and the Ptolemaic era.

He promised that after unearthing all the blocks the archaeological team would study and reconstruct the blocks into their original shape in order to discover whether they formed a temple or a chapel.

French archaeologist Philip Brissaud, head of the French mission, claims the newly discovered blocks were reused in the construction of the enclosed wall of goddess Mut's sacred lake, which the mission has been working hard to locate since last year. The lake is 30 meters in width, 12 meters long and six meters deep.

In his report, Brousseau wrote that cleaning 120 blocks revealed that 78 of them were skillfully painted and decorated while two were engraved with the names of kings Osorkon III or IV.

Meanwhile, he continued, other blocks bear hieroglyphic text with the name of the goddess Mut, the lady of Usher lake, which makes finding the sacred lake at San El Hagar temple, like the one that was found at Karnak's temples on Luxor's east bank, even more important.

Mohamed Abdel Maqsood, general supervisor of the minister's office, describes the discovery as "very important" because it will add to the history of a great archaeological place in Lower Egypt. San El-Hagar, he explains, displays monuments from the Ramesside period that were once transferred in antiquity from king Ramses II's capital Per-Ramses, now Kantir. It also has monuments that can be dated to the Graeco-Roman and Ptolemaic eras.

Abdel Maqsood asserted that following the completion of the discovery of all the blocks the French mission will reconstruct these blocks according to the paintings and decorations engraved on them in order to discover what kind of edifice these blocks form. This reconstruction work, Abdel Maqsood pointed out, reminded him of the

dismantling and reconstruction of the chapel of king Senusert I and queen Hatshepsut's red chapel in the Karnak temples.

He stated that the Ministry of State for Antiquities (MSA) is now developing the site to make it more tourist friendly.

The first phase has already begun, with a budget of LE50 million, which includes reducing and controlling the level of subterranean water leaking from the urban settlement and agricultural lands neighbouring the site.

A visitor center will also be installed at the site as well as a museological warehouse.

Ibrahim Soliman, director of San El-Hagra site, said the site is located on the northern side of Zagazig and includes a collection of temples, the largest one dedicated to the ancient Egyptian god Amun. It was the capital city during the XXI and XXII dynasties.

In 1939 french Egyptologist Pierre Montet discovered a collection of royal tombs and a treasure known as the Tanis treasure, now on display at the Egyptian Museum in Tahrir. It includes gold jewellery inlaid with precious stones and funeral masks.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/9/40/15101/Heritage/Ancient-Egypt/New-Pharaonic-artefacts-discovered-in-North-Egypt.aspx>

ARROW ORIGINS TRACED TO AFRICA, **BY DAN VERGANO**

Back in 1991, archaeologists unearthed the frozen body of a man who died some 5,300 years ago in the Alps. Nicknamed Otzi, for his resting place in the Ötztal Alps, the "Iceman" was outfitted with a copper ax, flint knife and bearskin hat, a surprise to archaeologists because they all were so well-crafted. His bow and 12 arrows, two of them nicely feathered and tipped with flint points, were likely less surprising, because they nicely fit with the then-current story of the bow and arrow's origins.

"The invention of the bow and arrow used to be closely linked to the late Upper Paleolithic (Stone Age) in Europe," less than 30,000 years ago, says anthropologist Marlize Lombard of South Africa's University of Johannesburg, in a study in the current *Journal of Archaeological Science*.

Last year, however, Lombard and her colleagues reported in the journal *Antiquity*, that arrows were around at least 64,000 years ago, and were first discovered not in Europe, but in South Africa. A single quartz arrowhead, bloodstained, had turned up at the Sibudu Cave site, dating to that time. In the new *Journal of Archaeological Science* study, Lombard reports more arrowheads and more evidence pushing back the age of the bow and arrow.

Why does it matter? Well, modern-looking humans turn up in fossils from as long as 195,000 years ago in Africa, but only spread worldwide starting about 60,000 years ago. Anthropologists have debated for decades about the innovations or changes, everything from language to genes to tools, that turned modern man loose on the world.

Arrows are one possibility for what helped people spread all over the world, either through hunting or fighting, as Lombard cautiously notes. "Although the existence of bow and arrow technology (more than 60,000 years ago) may have far-reaching consequences for hypotheses about human behavioural evolution and adaptation, it is by no means easy to establish," she says at the beginning of her study. In the study, she looks through the microscope at 16 quartz blades found in dirt layers as much as 65,000 years old at the South African site.

All but two of the ancient blades have blood traces on them and nine were deliberately hafted, or chipped, to fit onto a tool, she finds. More than half of the blades look like they were attached to arrows and eight carry traces of blood stains, Lombard concludes. "It is therefore my reading that at least nine tools in this sample were probably used as transversely hafted arrowheads."

The others may have been blades used to butcher animals, she suggests, or fitted onto barbs or darts.

"I think the finding adds to growing evidence for the great antiquity of complex projectile weaponry in Africa," says paleoanthropologist John Shea of Stony Brook (N.Y.) University. "The real startling upshot of this finding is that it challenges longstanding

archaeological beliefs that important changes in projectile technology only occurred very recently, less than 30,000 years ago, after humans dispersed into Europe."

In North America, Shea adds, "it also challenges the longstanding hypothesis that the bow and arrow were only invented a few thousand years ago and largely in conjunction with the origins of agriculture."

Even after prehistoric people invented arrows, they likely kept on using spears as well, Lombard suggests. Hunters in Africa still use spears to run down wildebeest and zebra, while using arrows only during part of the year to hunt for giraffe, eland, hartebeest and springbok. So, she concludes, archaeologists shouldn't be surprised when they find both heavier spear points and arrowheads mixed together at future archaeological digs.

"Complex projectile technology may have given our species a crucial ecological advantage in competition with other hominin (human) species as they dispersed from Africa," Shea says, by e-mail. That's one explanation for the disappearance of the Neanderthals, who have left only spear points behind at sites in Europe. Outgunned by modern humans and their arrows, the (literal) "killer app" of its day, the Neanderthals weren't able to compete for game and faded from the archaeological record (if not completely from our genes) about 30,000 years ago.

And the age of the bow and arrow may go further back, Shea says. "My own personal hunch is that the bow and arrow dates to at least 100,000 years ago based on stone tools found at sites in Ethiopia, Kenya and neighboring countries."

No wonder Otzi had such nice arrows. Archery was an ancient technology in his day. Unfortunately for the Iceman.

After a puncture wound was discovered in Otzi's left shoulder a decade ago, researchers at Italy's South Tyrol Museum of Archaeology, X-rayed the wound and found what had killed the Iceman— a flint arrowhead that severed a major artery and likely paralyzed his arm. "The Iceman probably bled to death within a matter of minutes," the museum notes, because of the arrowhead.

Please visit the site:

http://www.usatoday.com/tech/science/columnist/vergano/2011-06-19-bow-arrows-origin_n.htm

YENIKAPI METRO DIG REVEALS FIFTH-CENTURY SHIPWRECK

One of the shipwrecks found during the excavations carried out as part of the Marmaray project.

Archeological digs at Yenikapı, the site of excavations for an important transfer hub in İstanbul's metro system, the Marmaray project, have revealed yet another marvel: an intact shipwreck believed to be from the fifth century, complete with its load.

Researchers, who have been working on the site since 2004, are in the process of uncovering the well-preserved remains of the ship. One archeologist said this is probably the first time in the world that a shipwreck had been found with its full load and timber frame completely intact.

“The width of the wreck is about five meters. This is one gunwale. There is probably another one which has not yet been uncovered. Some of the amphoras on top [of the cargo] are broken but those in the lower layers appear to be intact. This is the largest cargo ship yet to be uncovered. There is no other example in the world of a shipwreck where the timber of the ship as well as its load are in such good condition. If the wreck had been at sea, it would not have been this well preserved,” said archeologist Mehmet Ali Polat, quoted by the Radikal daily on Wednesday.

The wreck is among some 35 sunken ships at the old Byzantine harbor which had silted over, probably in the 10th century. The discovery of other Byzantine merchant ships has led this to be described as the greatest nautical archaeological site of all time. A collection of the discoveries has already been put together in an exhibition at the İstanbul Archaeological Museum, together with artifacts retrieved during other metro excavations around the city, including a hugely important find on the Asian side of the city at Üsküdar.

Archeologist Sırrı Çömlekçi was quoted in Radikal as saying that the remains from this Byzantine ship will provide a lot of information about the past.

“It will be possible to see the whole ship when we complete our work,” he said.

Zeynep Kızıltan, the head of the Marmaray-Metro Salvage Excavations, said that once the dig is complete, they look forward to sharing with the public all of the findings and their significance. She added in Radikal's report that the latest discovery seems to be quite unique. The dig is expected to continue through the end of summer.

Please visit the site:

<http://www.todayszaman.com/news-248287-yenikapi-metro-dig-reveals-fifth-century-shipwreck.html>

THE BEER ARCHAEOLOGIST - BY ANALYZING ANCIENT POTTERY, PATRICK MCGOVERN IS RESURRECTING THE LIBATIONS THAT FUELED CIVILIZATION, BY ABIGAIL TUCKER

It's just after dawn at the Dogfish Head brewpub in Rehoboth Beach, Delaware, where the ambition for the morning is to resurrect an Egyptian ale whose recipe dates back several hundred centuries.

But will the za'atar—a potent Middle Eastern spice mixture redolent of oregano—clobber the soft, floral flavor of the chamomile? And what about the dried doum-palm fruit, which has been giving off a worrisome fungusy scent ever since it was dropped in a brandy snifter of hot water and sampled as a tea?

“I want Dr. Pat to try this,” says Sam Calagione, Dogfish Head's founder, frowning into his glass.

At last, Patrick McGovern, a 66-year-old archaeologist, wanders into the little pub, an oddity among the hip young brewers in their sweat shirts and flannel. Proper to the point of primness, the University of Pennsylvania adjunct professor sports a crisp polo shirt, pressed khakis and well-tended loafers; his wire spectacles peek out from a blizzard of white hair and beard. But Calagione, grinning broadly, greets the dignified visitor like a treasured drinking buddy. Which, in a sense, he is.

The truest alcohol enthusiasts will try almost anything to conjure the libations of old. They'll slaughter goats to fashion fresh wineskins, so the vintage takes on an authentically gamey taste. They'll brew beer in dung-tempered pottery or boil it by dropping in hot rocks. The Anchor Steam Brewery, in San Francisco, once cribbed ingredients from a 4,000-year-old hymn to Ninkasi, the Sumerian beer goddess.

“Dr. Pat,” as he's known at Dogfish Head, is the world's foremost expert on ancient fermented beverages, and he cracks long-forgotten recipes with chemistry, scouring ancient kegs and bottles for residue samples to scrutinize in the lab. He has identified the world's oldest known barley beer (from Iran's Zagros Mountains, dating to 3400 B.C.), the oldest grape wine (also from the Zagros, circa 5400 B.C.) and the earliest known booze of any kind, a Neolithic grog from China's Yellow River Valley brewed some 9,000 years ago.

Widely published in academic journals and books, McGovern's research has shed light on agriculture, medicine and trade routes during the pre-biblical era. But—and here's where Calagione's grin comes in—it's also inspired a couple of Dogfish Head's offerings, including Midas Touch, a beer based on decrepit refreshments recovered from

King Midas' 700 B.C. tomb, which has received more medals than any other Dogfish creation.

"It's called experimental archaeology," McGovern explains.

To devise this latest Egyptian drink, the archaeologist and the brewer toured acres of spice stalls at the Khan el-Khalili, Cairo's oldest and largest market, handpicking ingredients amid the squawks of soon-to-be decapitated chickens and under the surveillance of cameras for "Brew Masters," a Discovery Channel reality show about Calagione's business.

The ancients were liable to spike their drinks with all sorts of unpredictable stuff—olive oil, bog myrtle, cheese, meadow sweet, mugwort, carrot, not to mention hallucinogens like hemp and poppy. But Calagione and McGovern based their Egyptian selections on the archaeologist's work with the tomb of the Pharaoh Scorpion I, where a curious combination of savory, thyme and coriander showed up in the residues of libations interred with the monarch in 3150 B.C. (They decided the za'atar spice medley, which frequently includes all those herbs, plus oregano and several others, was a current-day substitute.) Other guidelines came from the even more ancient Wadi Kubaniya, an 18,000-year-old site in Upper Egypt where starch-dusted stones, probably used for grinding sorghum or bulrush, were found with the remains of doum-palm fruit and chamomile. It's difficult to confirm, but "it's very likely they were making beer there," McGovern says.

The brewers also went so far as to harvest a local yeast, which might be descended from ancient varieties (many commercial beers are made with manufactured cultures). They left sugar-filled petri dishes out overnight at a remote Egyptian date farm, to capture wild airborne yeast cells, then mailed the samples to a Belgian lab, where the organisms were isolated and grown in large quantities.

Back at Dogfish Head, the tea of ingredients now inexplicably smacks of pineapple. McGovern advises the brewers to use less za'atar; they comply. The spices are dumped into a stainless steel kettle to stew with barley sugars and hops. McGovern acknowledges that the heat source should technically be wood or dried dung, not gas, but he notes approvingly that the kettle's base is insulated with bricks, a suitably ancient technique.

As the beer boils during lunch break, McGovern sidles up to the brewery's well-appointed bar and pours a tall, frosty Midas Touch for himself, spurning the Cokes nursed by the other brewers. He's fond of citing the role of beer in ancient workplaces. "For the pyramids, each worker got a daily ration of four to five liters," he says loudly, perhaps for Calagione's benefit. "It was a source of nutrition, refreshment and reward for all the hard work. It was beer for pay. You would have had a rebellion on your hands if they'd run out. The pyramids might not have been built if there hadn't been enough beer."

Soon the little brew room is filled with fragrant roiling steam, with hints of toast and molasses—an aroma that can only be described as intoxicating. The wort, or unfermented beer, emerges a pretty palomino color; the brewers add flasks of the yellowish, murky-looking Egyptian yeast and fermentation begins.

They plan on making just seven kegs of the experimental beverage, to be unveiled in New York City two weeks later. The brewers are concerned because the beer will need that much time to age and nobody will be able to taste it in advance.

McGovern, though, is thinking on another time scale entirely. “This probably hasn’t been smelled for 18,000 years,” he sighs, inhaling the delicious air.

The shelves of McGovern’s office in the University of Pennsylvania Museum are packed with sober-sounding volumes—Structural Inorganic Chemistry, Cattle-Keeper of the Eastern Sahara—along with bits of bacchanalia. There are replicas of ancient bronze drinking vessels, stoppered flasks of Chinese rice wine and an old empty Midas Touch bottle with a bit of amber goo in the bottom that might intrigue archaeologists thousands of years hence. There’s also a wreath that his wife, Doris, a retired university administrator, wove from wild Pennsylvania grape vines and the corks of favorite bottles. But while McGovern will occasionally toast a promising excavation with a splash of white wine sipped from a lab beaker, the only suggestion of personal vice is a stack of chocolate Jell-O pudding cups.

The scientific director of the university’s Biomolecular Archaeology Laboratory for Cuisine, Fermented Beverages, and Health, McGovern had had an eventful fall. Along with touring Egypt with Calagione, he traveled to Austria for a conference on Iranian wine and also to France, where he attended a wine conference in Burgundy, toured a trio of Champagne houses, drank Chablis in Chablis and stopped by a critical excavation near the southern coast.

Yet even strolling the halls with McGovern can be an education.

Another professor stops him to discuss, at length, the folly of extracting woolly mammoth fats from permafrost. Then we run into Alexei Vranich, an expert on pre-Columbian Peru, who complains that the last time he drank chicha (a traditional Peruvian beer made with corn that has been chewed and spit out), the accompanying meal of roast guinea pigs was egregiously undercooked. “You want guinea pigs crunchy, like bacon,” Vranich says. He and McGovern talk chicha for a while. “Thank you so much for your research,” Vranich says as he departs. “I keep telling people that beer is more important than armies when it comes to understanding people.”

We are making our way down to the human ecology lab, where McGovern’s technicians are borrowing some equipment. McGovern has innumerable collaborators, partly because his work is so engaging, and partly because he is able to repay kindnesses with bottles of Midas Touch, whose Iron Age-era recipe of muscat grapes, saffron, barley and honey is said to be reminiscent of Sauternes, the glorious French dessert wine.

In the lab, a flask of coffee-colored liquid bubbles on a hot plate.

It contains tiny fragments from an ancient Etruscan amphora found at the French dig McGovern had just visited. The ceramic powder, which had been painstakingly extracted from the amphora’s base with a diamond drill, is boiling in a chloroform and methanol solvent meant to pull out ancient organic compounds that might have soaked into the pottery. McGovern is hoping to determine whether the amphora once contained wine, which would point to how the beverage arrived in France in the first place—a rather ticklish topic.

“We think of France as sort of synonymous with wine,” McGovern says.

“The French spent so much time developing all these different varietals, and those plants were taken all over the world and became the basis of the Australian industry, the Californian industry and so forth. France is a key to the whole worldwide culture of wine, but how did wine get to France? That’s the question.”

Francophiles might not like the answer. Today wine is so integral to French culture that French archaeologists include the cost of cases in their excavation budgets. McGovern, however, suspects that wine was being produced in Etruria—present-day central Italy—well before the first French vineyards were planted on the Mediterranean coast. Until Etruscan merchants began exporting wine to what is now France around 600 B.C., the Gauls were likely guzzling what their epicurean descendants would consider a barbaric blend of honey or wheat, filtered through reeds or mustaches.

McGovern’s Etruscan amphora was excavated from a house in Lattes, France, which was built around 525 B.C. and destroyed in 475 B.C. If the French were still drinking Etruscan vintages at that point, it would suggest they had not established their own wineries yet. The trick is proving that the amphora contained wine.

McGovern can’t simply look for the presence of alcohol, which survives barely a few months, let alone millennia, before evaporating or turning to vinegar. Instead, he pursues what are known as fingerprint compounds. For instance, traces of beeswax hydrocarbons indicate honeyed drinks; calcium oxalate, a bitter, whitish byproduct of brewed barley also known as beer stone, means barley beer.

Tree resin is a strong but not surefire indicator of wine, because vintners of old often added resin as a preservative, lending the beverage a pleasing lemony flavor. (McGovern would like to test the Lattes samples for resin from a cypress-like tree; its presence would suggest the Etruscans were in contact with Phoenician colonies in Northern Africa, where that species grows.) The only foolproof way to identify ancient wine from this region is the presence of tartaric acid, a compound in grapes.

Once the boiling brown pottery mixture cooks down to a powder, says Gretchen Hall, a researcher collaborating with McGovern, they’ll run the sample through an infrared spectrometer. That will produce a distinctive visual pattern based on how its multiple chemical constituents absorb and reflect light. They’ll compare the results against the profile for tartaric acid. If there’s a match or a near-match, they may do other preliminary checks, like the Feigl spot test, in which the sample is mixed with sulfuric acid and a phenol derivative: if the resulting compound glows green under ultraviolet light, it most likely contains tartaric acid. So far, the French samples look promising.

McGovern already sent some material to Armen Mirzoyan, a scientist at the federal Alcohol and Tobacco Tax and Trade Bureau, whose primary job is verifying the contents of alcoholic beverages—that, say, the gold flakes in the Italian-made Goldschlager schnapps are really gold. (They are.) His Beltsville, Maryland, lab is crowded with oddities such as a confiscated bottle of a distilled South Asian rice drink full of preserved cobras and vodka packaged in a container that looks like a set of Russian nesting dolls. He treats McGovern’s samples with reverence, handling the dusty box like a prized Bordeaux. “It’s almost eerie,” he whispers, fingering the bagged sherds inside. “Some of these are 5,000, 6,000 years old.”

Months later, McGovern e-mails me with good news: Mirzoian has detected tartaric acid in the Lattes samples from France, making it all but certain they contained imported Etruscan wine. Also, the project's archaeologists have unearthed a limestone treading vat from 400 B.C.—what would seem to be the earliest French wine press, just about 100 years younger than the Etruscan amphora. Between the two sets of artifacts, McGovern hopes to pinpoint the advent of French wine.

“We still need to know more about the other additives,” he says, “but so far we have excellent evidence.”

McGovern's Irish ancestors opened the first bar in Mitchell, South Dakota, in the late 1800s. His Norwegian predecessors were teetotalers. McGovern credits his relationship with alcohol to this mixed lineage—his interest is avid, not obsessive. In his student days at Cornell University and elsewhere, when McGovern dabbled in everything from neurochemistry to ancient literature, he knew little about alcohol. It was the late 1960s and early 1970s; other mind-altering substances were in vogue; the California wine revolution had barely begun and Americans were still knocking back all manner of swill.

One summer, during which McGovern was “partly in grad school,” he says with the vagueness frequently reserved for the '70s, he and Doris toured the Middle East and Europe, living on a few dollars a day. En route to Jerusalem, they found themselves wandering Germany's Mosel wine region, asking small-town mayors if local vintners needed seasonal pickers. One winemaker, whose arbors dotted the steep slate slopes above the Moselle River, took them on, letting them board in his house.

The first night there, the man of the house kept returning from his cellar with bottle after bottle, McGovern recalls, “but he wouldn't ever show us what year it was. Of course, we didn't know anything about vintage, because we had never really drunk that much wine, and we were from the United States. But he kept bringing up bottle after bottle without telling us, and by the end of the evening, when we were totally drunk—the worst I've ever been, my head going around in circles, lying on the bed feeling like I'm in a vortex—I knew that 1969 was terrible, '67 was good, '59 was superb.”

McGovern arose the next morning with a seething hangover and an enduring fascination with wine.

Earning his PhD in Near Eastern archaeology and history from the University of Pennsylvania, he ended up directing a dig in Jordan's Baq'ah Valley for more than 20 years, and became an expert on Bronze and Iron Age pendants and pottery. (He admits he was once guilty of scrubbing ancient vessels clean of all their gunk.) By the 1980s, he had developed an interest in the study of organic materials—his undergraduate degree was in chemistry—including jars containing royal purple, a once-priceless ancient dye the Phoenicians extracted from sea snail glands. The tools of molecular archaeology were swiftly developing, and a smidgen of sample could yield surprising insights about foods, medicines and even perfumes. Perhaps ancient containers were less important than the residues inside them, McGovern and other scholars began to think.

A chemical study in the late 1970s revealed that a 100 B.C. Roman ship wrecked at sea had likely carried wine, but that was about the extent of ancient beverage science until

1988, when a colleague of McGovern's who'd been studying Iran's Godin Tepe site showed him a narrow-necked pottery jar from 3100 B.C. with red stains.

"She thought maybe they were a wine deposit," McGovern remembers. "We were kind of skeptical about that." He was even more dubious "that we'd be able to pick up fingerprint compounds that were preserved enough from 5,000 years ago."

But he figured they should try. He decided tartaric acid was the right marker to look for, "and we started figuring out different tests we could do. Infrared spectrometry. Liquid chromatography. The Feigl spot test....They all showed us that tartaric acid was present," McGovern says.

He published quietly, in an in-house volume, hardly suspecting that he had discovered a new angle on the ancient world. But the 1990 article came to the attention of Robert Mondavi, the California wine tycoon who had stirred some controversy by promoting wine as part of a healthy lifestyle, calling it "the temperate, civilized, sacred, romantic mealtime beverage recommended in the Bible." With McGovern's help, Mondavi organized a lavishly catered academic conference the next year in Napa Valley. Historians, geneticists, linguists, oenologists, archaeologists and viticulture experts from several countries conferred over elaborate dinners, the conversations buoyed by copious drafts of wine. "We were interested in winemaking from all different perspectives," McGovern says. "We wanted to understand the whole process—to figure out how they domesticated the grape, and where did that happen, how do you tend grapes and the horticulture that goes into it." A new discipline was born, which scholars jokingly refer to as drinkology, or dipsology, the study of thirst.

Back at Penn, McGovern soon began rifling through the museum's storage-room catacombs for promising bits of pottery. Forgotten kitchen jars from a Neolithic Iranian village called Hajji Firuz revealed strange yellow stains. McGovern subjected them to his tartaric acid tests; they were positive. He'd happened upon the world's oldest-known grape wine.

Many of McGovern's most startling finds stem from other archaeologists' spadework; he brings a fresh perspective to forgotten digs, and his "excavations" are sometimes no more taxing than walking up or down a flight of stairs in his own museum to retrieve a sherd or two. Residues extracted from the drinking set of King Midas—who ruled over Phrygia, an ancient district of Turkey—had languished in storage for 40 years before McGovern found them and went to work. The artifacts contained more than four pounds of organic materials, a treasure—to a biomolecular archaeologist—far more precious than the king's fabled gold. But he's also adamant about travel and has done research on every continent except Australia (though he has lately been intrigued by Aborigine concoctions) and Antarctica (where there are no sources of fermentable sugar, anyway). McGovern is intrigued by traditional African honey beverages in Ethiopia and Uganda, which might illuminate humanity's first efforts to imbibe, and Peruvian spirits brewed from such diverse sources as quinoa, peanuts and pepper-tree berries. He has downed drinks of all descriptions, including Chinese baijiu, a distilled alcohol that tastes like bananas (but contains no banana) and is approximately 120 proof, and the freshly masticated Peruvian chicha, which he is too polite to admit he despises. ("It's better when they flavor it with wild strawberries," he says firmly.)

Partaking is important, he says, because drinking in modern societies offers insight into dead ones.

“I don’t know if fermented beverages explain everything, but they help explain a lot about how cultures have developed,” he says. “You could say that kind of single-mindedness can lead you to over-interpret, but it also helps you make sense of a universal phenomenon.”

McGovern, in fact, believes that booze helped make us human. Yes, plenty of other creatures get drunk. Bingeing on fermented fruits, inebriated elephants go on trampling sprees and wasted birds plummet from their perches. Unlike distillation, which human beings actually invented (in China, around the first century A.D., McGovern suspects), fermentation is a natural process that occurs serendipitously: yeast cells consume sugar and create alcohol. Ripe figs laced with yeast drop from trees and ferment; honey sitting in a tree hollow packs quite a punch if mixed with the right proportion of rainwater and yeast and allowed to stand. Almost certainly, humanity’s first nip was a stumbled-upon, short-lived elixir of this sort, which McGovern likes to call a “Stone Age Beaujolais nouveau.”

But at some point the hunter-gatherers learned to maintain the buzz, a major breakthrough. “By the time we became distinctly human 100,000 years ago, we would have known where there were certain fruits we could collect to make fermented beverages,” McGovern says. “We would have been very deliberate about going at the right time of the year to collect grains, fruits and tubers and making them into beverages at the beginning of the human race.” (Alas, archaeologists are unlikely to find evidence of these preliminary hooches, fermented from things such as figs or baobab fruit, because their creators, in Africa, would have stored them in dried gourds and other containers that did not stand the test of time.)

With a supply of mind-blowing beverages on hand, human civilization was off and running. In what might be called the “beer before bread” hypothesis, the desire for drink may have prompted the domestication of key crops, which led to permanent human settlements. Scientists, for instance, have measured atomic variations within the skeletal remains of New World humans; the technique, known as isotope analysis, allows researchers to determine the diets of the long-deceased. When early Americans first tamed maize around 6000 B.C., they were probably drinking the corn in the form of wine rather than eating it, analysis has shown.

Maybe even more important than their impact on early agriculture and settlement patterns, though, is how prehistoric potions “opened our minds to other possibilities” and helped foster new symbolic ways of thinking that helped make humankind unique, McGovern says. “Fermented beverages are at the center of religions all around the world. [Alcohol] makes us who we are in a lot of ways.” He contends that the altered state of mind that comes with intoxication could have helped fuel cave drawings, shamanistic medicine, dance rituals and other advancements.

When McGovern traveled to China and discovered the oldest known alcohol—a heady blend of wild grapes, hawthorn, rice and honey that is now the basis for Dogfish Head’s Chateau Jiahu—he was touched but not entirely surprised to learn of another “first” unearthed at Jiahu, an ancient Yellow River Valley settlement: delicate flutes, made from

the bones of the red-crowned crane, that are the world's earliest-known, still playable musical instruments.

Alcohol may be at the heart of human life, but the bulk of McGovern's most significant samples come from tombs. Many bygone cultures seem to have viewed death as a last call of sorts, and mourners provisioned the dead with beverages and receptacles—agate drinking horns, straws of lapis lazuli and, in the case of a Celtic woman buried in Burgundy around the sixth century B.C., a 1,200-liter caldron—so they could continue to drink their fill in eternity. King Scorpion I's tomb was flush with once-full wine jars. Later Egyptians simply diagramed beer recipes on the walls so the pharaoh's servants in the afterlife could brew more (presumably freeing up existing beverages for the living).

Some of the departed had festive plans for the afterlife. In 1957, when University of Pennsylvania archaeologists first tunneled into the nearly airtight tomb of King Midas, encased in an earthen mound near Ankara, Turkey, they discovered the body of a 60- to 65-year-old man fabulously arrayed on a bed of purple and blue cloth beside the largest cache of Iron Age drinking paraphernalia ever found: 157 bronze buckets, vats and bowls. And as soon as the archaeologists let fresh air into the vault, the tapestries' vivid colors began fading before their eyes.

Archaeology is, at heart, a destructive science, McGovern recently told an audience at the Smithsonian's National Museum of the American Indian: "Every time you excavate, you destroy."

That may be why he likes dreaming up new beers so much.

Dogfish Head's Ta Henket (ancient Egyptian for "bread beer") was unveiled last November in New York, in the midst of a glittering King Tut exhibit at Discovery Times Square. Euphoric (or maybe just tipsy) beer nerds and a few members of the press file into an auditorium adorned with faux obelisks and bistro tables, each with a bowl of nuts in the center. The words dog, fish and head in hieroglyphics are projected on the walls.

Onstage beside McGovern, Calagione, swigging an auburn-colored ale, tells the flushed crowd about how he and the archaeologist joined forces. In 2000, at a Penn Museum dinner hosted by a British beer and whiskey guidebook writer, Michael Jackson, McGovern announced his intention to recreate King Midas' last libations from the excavated residue that had moldered in museum storage for 40 years. All interested brewers should meet in his lab at 9 the next morning, he said. Even after the night's revelry, several dozen showed up. Calagione wooed McGovern with a plum-laced medieval braggot (a type of malt and honey mead) that he had been toying with; McGovern, already a fan of the brewery's Shelter Pale Ale, soon paid a visit to the Delaware facility.

When he first met Dr. Pat, Calagione tells the audience, "the first thing I was struck by was, 'Oh my God, this guy looks nothing like a professor.'" The crowd roars with laughter. McGovern, buttoned into a cardigan sweater, is practically the hieroglyphic for professor. But he won over the brewer when, a few minutes into that first morning meeting, he filled his coffee mug with Chicory Stout. "He's one of us," Calagione says. "He's a beer guy."

Ta Henket is their fifth collaboration—along with Midas Touch and Chateau Jiahu, they’ve made Theobroma, based on an archaic Honduran chocolate drink, and chicha. (All are commercially available, though only five barrels of the chicha are made per year.) McGovern is paid for his consulting services.

Now the inaugural pitchers of Ta Henket are being poured from kegs at the back of the room. Neither Calagione nor McGovern has yet tasted the stuff. It emerges peach-colored and opaque, the foam as thick as whipped cream.

The brew, which will be available for sale this fall, later receives mixed reviews online. “Think citrus, herbs, bubblegum,” one reviewer writes. “Rosemary? Honey? Sesame? I can’t identify all the spices.”

“Nose is old vegetables and yeast,” says another.

As soon as he has sampled a mouthful, McGovern seizes a pitcher and begins pouring pints for the audience, giving off a shy glow. He enjoys the showmanship. When Midas Touch debuted in 2000, he helped recreate the ruler’s funerary feast in a gallery of the Penn Museum. The main course was a traditional lentil and barbecued lamb stew, followed by fennel tarts in pomegranate jus. Midas’ eternal beverage of choice was served with dessert, in wine glasses that showed off its bewitching color—a warm caramel with glimmers of gold.

In his laboratory, McGovern keeps an envelope containing Neolithic grape seeds, which he wheedled out of a viticulture professor in Georgia (the country, not the state) years ago. The man had six desiccated pips in good condition, ideal for DNA analysis.

“I said, ‘Maybe we could take some of those back and analyze them,’” McGovern recalls. “He said, ‘No, no, they’re too important.’” “This would be for the cause of science,” McGovern persisted.

The Georgian left the room for a moment to agonize, and returned to say that McGovern and science could have two of the ancient seeds. Parting with them, he said, was like “parting with his soul.” The scholars raised a glass of white Muscat Alexandrueli to mark the occasion.

But McGovern has still not tested the seeds, because he’s not yet confident in the available DNA extraction methods. He has just one chance at analysis, and then the 6,000-year-old samples will be reduced to dust.

One day I ask McGovern what sort of libation he’d like in his own tomb. “Chateau Jiahu,” he says, ever the Dogfish Head loyalist. But after a moment he changes his mind. The grapes he and his wife helped pick in the summer of 1971 turned out to yield perhaps the best Mosel Riesling of the last century. “We had bottles of that wine that we let sit in the cellar for a while, and when we opened them up it was like some sort of ambrosia,” he says. “It was an elixir, something out of this world. If you were going to drink something for eternity you might drink that.”

In general, though, the couple enjoys whatever bottles they have on hand. These days McGovern barely bothers with his cellar: “My wife says I tend to age things too long.”

Staff writer Abigail Tucker last wrote about Blackbeard's treasure.
Photographer Landon Nordeman is based in New York.

Please visit the site:

<http://www.smithsonianmag.com/history-archaeology/The-Beer-Archaeologist.html?c=y&story=fullstory>

EGYPT TO RESTORE ANCIENT BOAT **FOUND NEAR PYRAMID HATEM** **KHEDR**

CAIRO, Egypt. Archaeologists have begun excavating a 4,500-year-old wooden boat found next to the Great Pyramid of Giza, one of Egypt's main tourist attractions, Egypt's top antiquities official said Thursday.

The boat is one of two buried next to the pharaoh Khufu in what appeared to be a religious custom to carry him in the afterlife.

Khufu, also known as Cheops, is credited with building the Great Pyramid of Giza.

Sakuji Yoshimura, a Waseda University professor who is leading the restoration project with Egypt's Antiquities Council, said scientists discovered that the second ship is inscribed with Khufu's name.

Khufu founded the 4th Dynasty around 2680 B.C. and ruled Egypt for 23 years.

Zahi Hawass, Minister of State for Antiquities, called the excavation "one of the most important archaeological and conservation projects in the world." He hoped its display would boost tourism in Egypt, which has fallen sharply since the country's popular revolution that deposed President Hosni Mubarak in February.

The boat was originally found in 1954 along with another ship, which was restored and is regarded as one of the most significant discoveries on the Giza plateau for its age, size and condition.

Experts say the ships are the oldest surviving vessels from antiquity.

The second boat is thought to be smaller than its sister ship, which is about 140 feet (43 meters) long.

Using a pulley system, a team of scientists lifted the first of 41 limestone slabs, each weighing about 16 tons, to uncover fragments of the ancient ship. Over the next two months, experts expect to unearth about 600 pieces from the boat's underground resting place.

Restoration is expected to take about four years, and then it will be displayed at the Solar Boat Museum near the huge pyramid, which routinely attracts millions of tourists, boosting one of Egypt's most important industries.

Both boats were made from Lebanese cedar and Egyptian acacia trees.

The experts hope to restore the second ship as successfully as the first. Hawass said the boat's condition was better than he expected.

"I was really afraid when I first saw the wood," he said. "I am very optimistic that in four years there will be another boat."

The entombed boat remained untouched until 1987, when a team from the National Geographic Society threaded a tiny camera under the site's limestone surface to see what lay beneath and found it. Other similar cavities nearby were empty.

After receiving a \$10 million grant from Waseda University, Egyptian and Japanese scientists in 2008 began preparing for the ship's excavation process, conducting environmental surveys and building a temperature and humidity controlled structure around the site.

After the excavation process is complete, scientists will devise a computerized schematic of the boat to aid in its reconstruction.

Please visit the site: <http://tinyurl.com/5u3b7y8>

A HERCULEAN EFFORT - AFTER NEARLY 20 YEARS, AND €16M SPENT ON RESTORATION, AN ARCHAEOLOGICAL SITE DEDICATED TO HERCULES IS SET TO OPEN TO THE PUBLIC, BY MARIA PICCARRETA

On 23 June, the Sanctuary of Hercules in Tivoli, Italy will open to the public for the first time following years of restoration work and significant investment.

Built at the end of the second century AD as a place of worship in honour of Hercules the Victor, the vast complex has had a tumultuous history. After a period of abandonment, from the 18th century onward it became the site of various industrial ventures including a gunpowder factory, a paper-mill and Italy's first hydroelectric power plant.

Since 1983, around €11 million has been spent on excavating and renovating the site and in 2008 a further €5 million was allocated to the Department of Archaeological Heritage, Lazio for the regeneration project which is now nearing its completion.

A museum has been constructed to house important archaeological finds from the site, and the restored 700-seat open air theatre will present a calendar of events throughout the summer. In addition to its rich Roman heritage, the new centre will also embrace its role in the history of Italian civil engineering. Proposals have been invited on how to best redevelop the paper mill and the winning submission will be announced during the opening.

Please visit the site: <http://www.theartnewspaper.com/articles/A-Herculean-effort/24027>

HADRIAN'S WALL DIG UNEARTHS ROMAN REFUGEE CAMP, BY MARTIN WAINWRIGHT

A major dig close to Hadrian's Wall has revealed traces of a suspected refugee camp which would have housed tribespeople fleeing south from a breakdown of society north of the imperial border in the third century AD.

Hadrian's Wall in Northumberland. A dig near here led to the new discovery [Credit: Oliver Benn/Getty Images] Archaeologists were initially puzzled to unearth the foundations of temporary but well-built structures on the site of an earlier fort within the sprawling perimeter of the Roman fortress of Vindolanda.

The director of excavations at the site, Dr Andrew Birley, said:

"These are very unusual buildings and it looks as though they may number into the hundreds. Events clearly took place here on a large scale to lead to this sort of construction."

Records for the garrison at the "white field" between Hexham and Haltwhistle in Northumberland do not suggest Roman troop reinforcements needing so much space, with the invasion force mustering all along the wall.

The huts are also designed in a form familiar from vici – civilian settlements close to Roman military bases – but never used by troops themselves.

"Roman soldiers did not build roundhouses but were billeted in large rectangular barracks," said Birley, whose earlier work at Vindolanda has unearthed plenty of the standard army buildings.

"These are unique structures to be found inside a Roman fort. They are simple and very much the sort of housing you might expect to find north of Hadrian's Wall in this period, in settlements used by small farming communities.

"It is quite possible that what we have here is the Roman army providing for these farmers – creating a temporary refuge for the most vulnerable people from north of the wall."

"Those people may have helped to feed the army and traded with the soldiers, and would have been regarded as traitors and collaborators in the eyes of the rebellious tribes to the north – in what is now Scotland."

The refugees would have had to get over the wall itself, built in AD122-128, to escape possible persecution and death.

The fracturing of society beyond the northernmost border of the Roman empire is well-recorded in the years 208-211 to which the remains have been dated.

They were the last four years of the reign of the emperor Septimius Severus, born in what is now Libya, who led an invasion of Scotland in person before falling ill and dying in York.

Maintaining a buffer zone occupied by friendly tribes after the invasion was part of imperial strategy and would have justified heavy spending on refugee care while the fighting was under way.

Birley said: "It would make sense to bring refugees behind the curtain of Hadrian's Wall to protect them for so long as fighting continued.

They would have had real value to the Romans who always protected anyone and anything valuable to them."

Please visit the site: <http://tinyurl.com/3ap4tj7>

ROMAN BATHS ARE UNCOVERED IN YORK

Archaeologists say the discovery gives them fresh insight into the layout of Roman York

The baths, which date from the second and third centuries AD, were discovered during construction of a new council headquarters building.

The edge of the complex was first discovered in the 1840s when the original railway station in the city was built on the site.

This is the first time archaeologists have been able to investigate the site since the 19th Century.

Chief archaeologist, Nick Pearson from On Site Archaeology, said the discovery was very significant.

He said: "We know very little of the layout of the civilian town of Eboracum, as Roman York was called. Confirming the location of the baths gives us another important piece of the puzzle."

He said they had been surprised by the standard of the remains as so much of the site would have been destroyed during the construction of the station during the 1840s.

The baths would have served the civilian population of Roman York as the army had its own facilities on the other side of the River Ouse.

Archaeologists hope artefacts uncovered during the excavation will be displayed in the new council headquarters when construction is completed in late 2012.

Please visit the site: <http://www.bbc.co.uk/news/uk-england-york-north-yorkshire-13866869>

HADRIAN'S BUILDINGS CATCH THE SUN - THE EMPEROR'S COUNTRY ESTATE IS ALIGNED TO MEET THE SOLSTICES, BY ERIC HAND

On the solstice, the Sun shines into the Roccabruna building (left), and illuminates the opposite wall (right). M. De Franceschini

Hadrian's villa 30 kilometres east of Rome was a place where the Roman Emperor could relax in marble baths and forget about the burdens of power. But he could never completely lose track of time, says Marina De Franceschini, an Italian archaeologist who believes that some of the villa's buildings are aligned so as to produce sunlight effects for the seasons.

For centuries, scholars have thought that the more than 30 buildings at Hadrian's palatial country estate were oriented more or less randomly. But De Franceschini says that during the summer solstice, blades of light pierce two of the villa's buildings.

In one, the Roccabruna, light from the summer solstice enters through a wedge-shaped slot above the door and illuminates a niche on the opposite side of the interior (see image). And in a temple of the Accademia building, De Franceschini has found that sunlight passes through a series of doors during both the winter and summer solstices.

"The alignments gave me a new key of interpretation," says De Franceschini, who says that the two buildings are connected by an esplanade that was a sacred avenue during the solstices. Based on ancient texts describing religious rituals and study of recovered sculptures, she thinks the light effects were linked to religious ceremonies associated with the Egyptian goddess Isis, who was adopted by the Romans.

De Franceschini, who works with the University of Trento in Italy, will publish a book¹ this summer describing the archaeoastronomical work. She credits two architects, Robert Mangurian and Mary-Ann Ray, for initially noticing the light effect in Roccabruna.

Astronomical alignment

Robert Hannah, a classicist from the University of Otago in New Zealand, says that De Franceschini's ideas are plausible. "They're certainly ripe for further investigation," he says.

Hannah, who is currently seeking to pin down alignments associated with star rises in Greek temples in Cyprus, believes that the Pantheon, a large temple in Rome with a circular window at the top of its dome, also acts as a giant calendrical sundial², with sunlight illuminating key interior surfaces at the equinoxes and on 21 April, the city's birthday.

Few classical buildings have been investigated for astronomical alignment, says Hannah, partly because it is much easier to check for alignments in prehistoric structures such as Stonehenge, which do not have potentially contradictory artefacts.

Jarita Holbrook, a cultural astronomer at the University of Arizona in Tucson, is also not surprised by the solar alignments at Hadrian's villa. They are "a common part of most cultures", she says. But, she adds, it's also easy for buildings to be coincidentally aligned with astronomical features.

De Franceschini plans to spend next week's summer solstice at Hadrian's villa, in the hope of documenting the light effects at Apollo's temple more carefully. Last year's summer solstice was rainy, she says. "I hope that this year we will get better pictures."

References

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Please visit the site:

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