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(Πολιορκητικά). Historia Einzelschriften 216. Stuttgart: Franz Steiner
Verlag, 2010. Pp. 162 **page 27**

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Archaeologists uncover evidence of large ancient shipyard near Rome **page 35**

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Latest Find at World's Largest Neolithic Settlement a Harbinger of Surprises
Yet to Come? By Dan McLerran **page 40**

Rain unearths unknown Mycenaean cemetery **page 43**

Gortyna findings unearthed **page 44**

Huge discoveries in recent excavations in ancient Pisidian city Antioch **page 45**

Visible Only From Above, Mystifying 'Nazca Lines' Discovered in Mideast,
Owen Jarus **page 46**

5,900-year-old women's skirt discovered in Armenian cave **page 49**

Perge excavations turn 65 with Turkish archaeologists **page 50**

Roman port to undergo complete GNSS surveying, Paul Challis **page 52**

Into the Stone Age With a Scalpel: A Dig With Clues on Early Urban Life, By
SUSANNE FOWLER **page 53**

Volcanic artifacts imply ice-age mariners in prehistoric Greece August 29,
2011, By Larry O'Hanlon **page 57**

ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

ΠΡΟΓΡΑΜΜΑ ΕΚΔΗΛΩΣΕΩΝ ΕΜΑΕΤ ΟΚΤΩΒΡΙΟΣ – ΔΕΚΕΜΒΡΙΟΣ 2011

Στην αίθουσα του
ΜΟΥΣΕΙΟΥ ΤΗΣ ΠΟΛΕΩΣ ΤΩΝ ΑΘΗΝΩΝ
Παπαρρηγοπούλου 5-7, Πλατεία Κλαυθμώνος
Ώρα έναρξης 18.30

Η αίθουσα παραχωρείται ευγενώς από το ΔΣ του Ιδρύματος Βούρου - Ευταξία

Η είσοδος είναι ελεύθερη για το κοινό

Δευτέρα, 17 Οκτωβρίου 2011

Καθ. Μ. Κορρές

«Στέγαση χώρων οριακών διαστάσεων κατά την αρχαιότητα»

Δευτέρα, 07 Νοεμβρίου 2011

Εκδήλωση της *Εταιρείας των Φίλων του Εθνικού Αρχαιολογικού Μουσείου*

με ομιλητή τον Θ.Π. Τάσιο και θέμα *«Σταυρογονιμοποίηση επιστήμης και Τεχνολογίας τον καιρό του Αρχιμήδους»*

Αμφιθέατρο Αρχαιολογικού Μουσείου, είσοδος από Τοσίτσα 1, ώρα 19.00

Δευτέρα, 21 Νοεμβρίου 2011

Δ. Καλλιγερόπουλος

«Ο μηχανισμός της Ελεύθερνας και η τρισδιάστατη ψηφιακή του εξομοίωση»

Δευτέρα, 05 Δεκεμβρίου 2011

Α. Μιχαηλίδου

«Η μεταλλοτεχνία στο Ακρωτήρι Θήρας: Οι ενδείξεις των αναλύσεων»

Η παρουσία Μελών και Φίλων της ΕΜΑΕΤ είναι χαρά για όλους-μας, ανεβάξει δε και τη στάθμη των παραγωγικών συζητήσεων που επακολουθούν κάθε ομιλίας.

Θ.Π. Τάσιος, Πρόεδρος ΕΜΑΕΤ

**BRITISH ACADEMY ALBERT RECKITT
ARCHAEOLOGICAL LECTURE - THE IDEA
OF ORDER: CIRCULAR ARCHITECTURE IN
PREHISTORIC EUROPE PROFESSOR
RICHARD BRADLEY FBA UNIVERSITY OF
READING, WEDNESDAY, 9 NOVEMBER 2011**

6.00pm - 7.15pm, followed by a drinks reception The British Academy, 10-11 Carlton House Terrace, London, SW1Y 5AH

This lecture is not about a period or a place; it is about an idea.

Why did so many people in prehistoric Europe build circular monuments?

Why did they choose to live in circular houses, when other communities rejected them?

Why was it that those who preferred to inhabit a world of rectangular dwellings so often buried their dead in round barrows and worshipped their gods in circular temples?

The Idea of Order considers the significance of circular dwellings as well as circular mounds from the origins of agriculture to the Early Medieval period and from Central Europe and the Mediterranean at one extreme to Britain and Ireland at the other. It investigates why this architectural form remained important for such a long period of time and contrasts its distribution with that of rectilinear architecture in ancient Europe. It also considers the circumstances in which roundhouses and circular monuments finally went out of use.

About the Speaker:

Richard Bradley has been Professor in Archaeology at Reading University since 1987. His recent publications include a new analysis of ancient art in Europe, a book on the prehistory of Britain and Ireland, a study of ritual and domestic life in Neolithic to Iron Age Europe and three volumes analysing traditions of Bronze Age monumental architecture in Scotland.

Registration is not required for this event. Attendance is free and seats will be allocated upon arrival.

A poster for your notice board can be downloaded here:

Albert Reckitt Archaeological Lecture

The Reckitt Archaeological Trust, which was established by the late Mr Albert L Reckitt for the furtherance of archaeological research, was transferred in 1950 to the British Academy. It was decided amongst other things to establish a lecture series in memory of the founder, and the lecture was first delivered in 1951.

The British Academy, 10 Carlton House Terrace, London SW1Y 5AH Tel:
020 7969 5200, Fax: 020 7969 5300, Web: www.britac.ac.uk

CALL FOR PAPERS – CURRENT QUESTIONS IN AUTHENTICITY, BERKELEY FRIDAY, FEBRUARY 3, 2012

The Society for Cultural Heritage, Arts, and the Law (SCHAL) and the Tourism Studies Working Group (TSWG), two graduate-student groups at UC Berkeley, are organizing a one-day symposium—‘Current Questions in Authenticity’—to be held in Berkeley tentatively on Friday, February 3, 2012.

We are soliciting contributions from graduate students, faculty, and practitioners who are working on issues related to authenticity. We intend for the symposium to bring together scholars and professionals from varied disciplines and to incite thoughtful discussion probing the meanings and practices of ‘authenticity’. More than ever, technological advance and the seemingly unimpeded march of globalization are challenging traditional concepts of authenticity and the values and meanings we attach to authentic objects and experiences. The increasing availability of information on a global scale has made issues ranging from plagiarism to authentic tourist experiences particularly acute and timely.

Possible areas of focus include, but are not limited to:

- Authenticity of cultural and natural heritage
- Authenticity of the tourist experience
- Legal implications of authenticity
- Authenticity in literature, folklore, and storytelling
- Plagiarism
- Fakes, forgeries, and counterfeits
- Provenance of art and archaeological artifacts
- Geographic indicators of authenticity
- Connoisseurship
- Forensic investigation of works of art
- Conservation and restoration of works of art
- Authenticity in the visual and performing arts
- The roles of governments, museums, and other like institutions

Please submit a title and an abstract of no more than 200 words in the form of a Word document to authenticity.symposium@gmail.com by Monday, October 10, 2011. Incorporating audio or visual elements is welcomed.

With your submission please include your full name, position, academic department (if applicable), e-mail address, and phone number.

In the weeks preceding the February conference, SCHAL and TSWG invite you to attend and participate in a series of reading discussions and film screenings related to issues in authenticity. Dates and locations of these events, in addition to further information on the symposium, will be publicized in the near future at:

<http://townsendlab.berkeley.edu/society-cultural-heritage-arts-and-law-schal>

Thank you for your attention, and we look forward to hearing from you.

Benjamin Porter
bwporter@berkeley.edu

CALL FOR PAPERS ICONEA 2011, THE LUTE FROM BRONZE AGE TO IRON AGE IN THE OLD WORLD, DECEMBER 1, 2 AND 3, 2011

To be held at Senate House
Institute of Musical Research, School of Advanced Study, University of London
With the participation of PLM Patrimoines et Langages Musicaux, Université de Paris-Sorbonne

Call for papers

Papers requested in the following fields:

- 1) Iconography. All aspects of the iconography: Terracottas; seals and seal impressions; sealings; ivory carvings; bas/haut-reliefs; bronzes, etc.
- 2) Philology. Towards a multilingual etymological corpus of lute terminology: Sumerian; Akkadian; Aramaic; Hurrian, Hittite; Elamite; Hebrew; Greek; Latin, Arabic, etc.
- 3) Organology. Extant instruments from Ancient Egypt and elsewhere; reconstructions and conclusions.
- 4) Theory. The contribution of the lute to the development of music theory.
- 5) The lute repertoire.
- 6) All other research topics on the lute welcome.

Registration forms, abstracts and enquiries to: rdumbrill@iconea.org

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CALL FOR PAPERS :FIRST
ANNOUNCEMENT, FRENCH BRONZES:
HISTORY, MATERIALS AND
TECHNIQUES OF BRONZE SCULPTURE
IN FRANCE (16TH – 18TH C.), MUSÉE DU
LOUVRE AND CENTRE DE RECHERCHE
ET DE RESTAURATION DES MUSÉES DE
FRANCE (C2RMF), PARIS, FRANCE,
JUNE 9-12, 2012

SCOPE

A three-day international symposium will be held at the Musée du Louvre and at the Centre de Recherche et de Restauration des Musées de France. We are aiming to bring together a diverse group of specialists -- e.g., historians (of technology, art, trade, ideas), conservation scientists, curators, and conservator-restorers -- to engage in an interdisciplinary exchange on the development and cross fertilization of ideas and technology related to the making of bronzes in France -- and by French artists abroad -- from the Renaissance to the 19th century.

For full notice see Arch-metals file area - Forth coming meetings or <http://frenchbronze.net/>

INTERNATIONAL SYMPOSIUM ON “HISTORY, TECHNOLOGY AND CONSERVATION OF ANCIENT METALS, GLASSES AND ENAMELS”, ATHENS, 16- 19 NOVEMBER 2011

Preliminary Program

Wednesday 16-11-2011		
17:00- 18:30	Registration and Reception meeting at the Cotsen Hall	
18:30- 18:40	Opening of the Symposium	G. Kordas (Chairman)
18:40- 18:50	Welcome address	N. Kanellopoulos President of N.C.S. R. “Demokritos”
18:50- 19:20	<i>Aspects on the role of metals, glasses and enamels in the Greek prehistory and antiquity</i>	Petros Themelis
19:20- 20:50	<i>Self-healing coating as a way extend life of metallic materials</i>	M. Zheludkevich
Thursday 17-11-2011		
<u>History and Technology of Metals</u>		
09:00- 09:10	Introduction in the Metals Session	Y. Bassiakos
09:10- 09:40	<i>The rapid development in making iron clamps for the erection of the archaic and classical temples</i>	G. Varoufakis (invited)
09:40- 10:00	Manufacturing experiments with Minoan double axes and chisels	M. Lowe Fri
10:00- 10:20	Analytical Investigation of the Lead Finds from the Mycenaean Settlement and Cemetery of Lazarides on the Island of Aegina (Greece)	P. Polychronakou- Sgouritsa, C. Tselios, Y. Bassiakos
10:20- 10:40	Object life circles and the study of ancient metals: theories, methods and limitations	A. Brunno, M. Kostoglou

10:40-11:10	Coffee break	
11:10-11:40	Votive metal zoomorphic small objects from the pan-Rhodian sanctuary of Zeus Atavyrios	P. Triantafyllidis (invited)
11:40-12:00	Archaeometallurgy in the Levant: Past, present and some thoughts about the future.	S. Shalev
12:00-12:20	Greek Geometric waxwork –A new research on Bronze tripod cauldrons	M. Kiderlen , H. Born
12:20-12:40	Characteristic metallurgical relations and qualities of the iron clamps of the Epikourios Apollo	G. Dasargiry
12:40-13:00	Early Byzantine metal workshops in a settlement near Saint Catherine’s Monastery (Mount Sinai, Egypt)	D. Mourelatos , A. Hein
13:00-13:20	The Metallurgical Investigation of Copper-Alloys Metalwork of the Benaki Museum Dated in the 4 th -7 th Centuries A.D.	D. Kotzamani, A. Phoca, G. Karydi, M. Zaxaria, V. Kantarelou G. Karatasios, S. C. Boyatzis, V. Perdikatsis
13:20-14:30	Lunch break	
14:30-16:00	<u>Poster Session</u>	
	1. The Aegean type Sword found at Hattusas, Silver as rare metal and the written Sources, Contribute to the dating of Trojan War?	K. Giannakos
	2. Study, Analysis and Conservation of the Roman water lead pipe in “Aeolus” excavation, Plaka, Athens.	P.Pitsiri, D. Sourlas, S. C. Boyatzis, S. Golfomitsou, T. Karabotsos
	3. A contribution to the galvanic coupling cleaning of tarnished silver.	V. K. Gouda, A.M. Awad
	4. Analytical and Technological Examination of Two Bronze Vessels of the Archaic Period from Boeotia, Greece.	D. Oikonomou, V. Aravantinos, E. Zimmi, Y. Bassiakos

	5. What are we really analyzing? The peculiar story of Middle Bronze Age II battle-axes from the Southern Levant.	S.I Shalev, E. N. Caspi, S. Shilstein, A. M. Paradowska, W. d Kockelman, Y. Levy.
	6. Evaluation of three cleaning methods applied on Cl-rich patinas of two bronzes.	O. Papadopoulou, J. Novakovic, P. Vassiliou, E. Filippaki, Y. Bassiakos, A. Giatsidou, M. Mariaki
	7. The discovery of cobalt colourant raw materials as inclusions within Anglo-Saxon glass beads.	A. S. Meek, S. Marzinzik
	8. Some considerations regarding the Glass Vessels from the East-Carpathian Dacian settlements (2nd century B.C. – 2nd century A.D.).	C. Chiriac, S.P. Botan
	9. Islamic Glass of X – XV cc in Eastern Europe.	S. Valiulina
	10. Technological change or consistency: strontium isotope analysis of Egyptian faience from the Middle Kingdom to the New Kingdom.	E. A. Hammerle, J. Evans
	11. A radioactive shamanic apron: analysis and conservation	A. S. Meek, R. Swift, N. Rode and A. Komlosy
	12. The influence of dewatering and carbonating on the strength of lime and cement mortars.	A. El-Turki

	13. A glass-making technology study used in Amathouda (Cyprus), 5 th - 6 th century A.D. by Micro X-ray Fluorescence Spectroscopy (μ -XRF), Inductively Coupled Plasma Emission Spectroscopy (ICP-AES), Flame Atomic Emission Spectroscopy (FAES)]	J. A. Stratis, G. L. Tzebrailidou, A. C. Charalambous, E. N. Charalambous, N. C. Tsirliganis
	14. Metallographic evidences of bronze casting working conditions at Moscow-Volga region during Early Iron Age	I. Saprykina
	15. Eco-friendly protection methods for ancient metallic artifacts	S. Grassini, E. Angellini, M. Ingo Gabriel., M. Parvis, P. Vassiliou
	16. Corrosion processes on ancient coins as indicators of authenticity	E. Angelini, T. De Caro, F. Faraldi, S. Grassini, M. Ingo Gabriel, C. Riccucci, P. Vassiliou
	<u>Studies on Conservation and Authentication of Metals</u>	
16:00-16:30	<i>From excavation to exhibition –The conservation project at Aiani Museum</i>	M. Lykiardopoulou-Petrou (invited)
16:30-17:00	<i>Electrochemistry and surface analysis to prevent deterioration of Heritage artifacts</i>	M. F. Montemor (invited)
17:00-17:20	Iron weapons and armour from Macedonian graves	P. Faklaris
17:20-17:40	Cleaning of sulphidated silver and gilt silver threads in silk textiles using laser in the visual and UV range	B. Taarnskov, P. Pouli
17:40-18:00	The Derveni board game revisited	E. Kotoula, D. Ignatiadou, G. Earl
18:00-18:20	Coffee break	
18:20-18:40	Corrosion of archaeological bronze in non-hostile burial environment	A. Siatou, A. Lekatou, D. Sioulas
18:40-19:00	Lead clamps for repairing clay pots from the acropolis of Vergina	V. Stamatopoulou
20:30	Gala Dinner	

	Friday 18-11-2011	
	<u>Hyalos-Vitrum-Glass</u>	
9:00-9:30	<i>Glass Votive Offerings in the Great Rhodian Sanctuaries</i>	P. Triantafyllidis (invited)
9:30-9:50	Glass of Amenhotep II from Tomb KV55 in the Valley of the Kings	C. M. Jackson, P. T. Nicholson
9:50-10:10	Lefkandi's vitreous beads at the beginning of a new tradition of vitreous materials in the Aegean	G. Nightingale
10:10-10:30	Investigation of ancient glass beads by means of macroscopical and microscopical observations	K. Beltsios, A. Oikonomou, N. Zacharias, P. Triantafyllidis
10:30-11:00	<u>Coffee break</u>	
11:00-11:30	<i>Glass working in Roman and Early Christian Thessaloniki: Older and more recent finds</i>	A. C. Antonaras (invited)
11:30-11:50	Early Byzantine Glass from Eleutherna Pyrgi (Sector II)	N. Coutsinas
11:50-12:10	Roman glass as the ritual object and its iconography	J. Dolezalova
12:10-12:30	Raman spectrometry investigation and identification for natural and ancient glasses	Th. Katsaros , Th.Ganetsos
12:30-12:50	Evaluation of archaeological glass samples from the archaeological site of Vergina via a combination of analytical techniques (μ -XRF, ICP-AES, AAS)and subsequent statistical analysis	C. G. Makarona S. A. Drougou, N. C. Tsirliganis, J. A. Stratis
12:50-14:30	<u>Lunch Break</u>	
14:30-14:50	Archaeological Glass Weathering and Resulting Implications to Analytical Glass Studies	M. Kaparou, N. Zacharias, J. Murphy
14:50-15:10	Preliminary Study of Mycenaean Glass Finds from S.W. Peloponnese Sites	G. Mastrotheodoros, K. G. Beltsios, N. Zacharias, X. Arapogianni
15:10-15:30	A preliminary study of Roman Glass Fragments from Thessaloniki agora	N. P. Kalogiouri I. Nazlis, D. Ignatiadou, J. A. Stratis
15:30-15:50	$\delta^{18}\text{O}$ and chemical measurements of Greek Roman glass	A. Longinelli, E. Dotsika, A.

		Silvestri, B. Raco, D. Poutoukis, D. Ignatiadou, E. Iliadis
15:50- 16:10	The use of optical absorption spectroscopy for the study of ancient glass	A. Ceglia, W. Meulebroeck, K. Baert, K. Nys, H. Thienpont, H. Terry
16:10- 16:30	Coffee Break	
16:30- 16:50	Chemistry, Structural and Technological Examination of a Greek Glass Archaeological Collection Spanning from the Mycenaean to Roman Period probed by SEM/EDS, IR and Raman Spectroscopy	D. Möncke, D. Palles, N. Zacharias, M. Kaparou, M.Papageorgiou, E. I. Kamitsos, L. Wondraczek, A. Oikonomou
16:50- 17:10	Glass gaming pieces from the Viking-age early urban centre Gnezdovo	N. Eniosova, T. Pushkina, E. Stolyarova
17:10- 17:30	A Provenance Study of Cypriot Byzantine Glazed Pottery and Ceramic Tripod Stilts.	Charalambous A.C., Charalambous E.N., Kantiranis N.A, Stratis J.A.
17:30- 18:40	Closing of the scientific part of the Symposium	G. Kordas (Chairman)

	Saturday 19 November 2011	
11:00- 13:00	Guided visit at the New Acropolis Museum	
13:00-14:0	Lunch Break	
14:00- 19:30	Guided excursion to the archaeometallurgical area of Laurion (departure from the New Acropolis Museum)	

Please visit the site: <http://www.ims.demokritos.gr/gme2011/>

THE STONE CYCLE AND THE CONSERVATION OF HISTORIC BUILDINGS, THEMATIC ISSUE AUGUST 2013, CALL FOR PAPERS

Including:

- stone types used in historic buildings
- different uses of various stone types in historic buildings
- durability and conservation of stone in historic buildings
- stone performance in use
- effects of flooding on the foundations of historic buildings.

Papers will form a thematic issue of the Journal to be published in August 2013

Abstracts of suitable papers should be sent no later than 16 December 2011 to:

Helen Floyd-Walker, QJEGH Staff Editor, Geological Society Publishing House, Unit 7
Brassmill Enterprise Centre, Brassmill Lane, Bath, BA1 3JN

Email: helen.floyd-walker@geolsoc.org.uk

Tel: +44 (0)1225 445 046 Fax: +44 (0)1225 442 836

Authors will be contacted in late-January 2012 to confirm the suitability of their abstracts. For those deemed suitable, full papers should then be prepared in accordance with the normal QJEGH guidelines: www.geolsoc.org.uk/qjugh_authorinfo

And submitted for review (<http://qjugh.allentrack.net/>) no later than 30 June 2012.

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9TH ISUDWORLD CONGRESS, JUNE 22 - 27, 2012 IN OLYMPIA, GREECE

ISUD is a society of scholars, mostly philosophers, from many parts of the world, devoted to promoting international dialogue and the discussion of fundamental questions of universal concern, which affect all humanity, such as world peace, human rights, dialogical interrelations of diverse cultures, and preservation of the world ecology.

Enduring questions of interest include:

Is there a universal knowledge? If so, how may it be conceived?

Are there universal values?

How may one understand the variation and conflict of cultures and religions and politics?

How may one understand cultural diversity and universality?

What is the relationship between the individual basic liberties and the collective rights of culture groups?

What is intercultural communication?

Can dialogue among different worldviews lead to basic agreement?

What are ethical principles of dialogue?

What does ethics have to do with international affairs?

How best to work toward a culture of peace?

What role does philosophical thinking have to play in moving toward a more rational and more humane future?

E-mail: lbargel@ppp.uoa.gr

39TH INTERNATIONAL SYMPOSIUM ON ARCHAEOLOGY: “50 YEARS OF ISA”, LEUVEN, BELGIUM, 28 MAY – 1 JUNE 2012

Scope of the conference

The aim of the Symposium is to promote the development and use of scientific techniques in order to extract archaeological and historical information from the cultural heritage and the paleoenvironment. It involves all Natural Sciences and all types of objects and materials related with human activity.

On the town of Leuven...

[Leuven](#) is very proud of both its past and its heritage. There is so much to see and to do in and around Leuven that one visit is simply not enough. From the 11th-12th century onwards, Leuven began to develop as an important trading centre. It is now a well-equipped, modern town with a thriving economy and with a good balance of old and new with a rich tradition. Amid all the leisure and student activities, it seems surprising that Leuven finds any time to work. When brewing became a nation-wide industry in the 19th century, Leuven became world famous for its beers, and today it is still proud to be known as the beer capital of Belgium, and possibly even the world...

On the University of Leuven...

Situated at the heart of Western Europe, the [K.U.Leuven](#) has been a centre of learning for almost six centuries. Founded in 1425 by Pope Martin V, K.U.Leuven bears the honour of being the oldest Catholic university in the world still in existence and the oldest university in the Low Countries.

On archaeometry at the K.U.Leuven...

In the recent past, at the K.U.Leuven, there have been many examples of co-operation between archaeological projects and different disciplines from the natural and applied sciences. In 2003 this co-operation was formalized in the **Centre for Archaeological Sciences**. It acts as a focal point for advanced interdisciplinary research made available to all archaeologists from Leuven, Belgium and the international community in general. The organization of the **International Symposium on Archaeometry in 2012** is an extra incentive for the further development of archaeometrical research at the university and in Belgium...

On the symposium...

The symposium will be organised in the (medieval) centre of Leuven, in one of the main auditoria with sufficient capacity and fully equipped with all necessary IT and audio-visual material. Also the necessary room for poster sessions and coffee breaks is nearby.

The date of the symposium is **28 May to 1 June 2012**. The official language of the symposium will be English.

The fee for the organisation of the symposium in Leuven is **280 Euro** (students 125 Euro). This includes the conference fee and book of abstracts, a welcoming reception and a “50 years ISA” reception, all lunches and all coffee breaks.

Travel to Leuven...

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On the accommodation...

Possibilities for hotel and other accommodation in Leuven (see also www.leuven.be) are plenty, ranging in price category from 20 Euro per night (youth hostel) to 180 Euro per night (5-star accommodation).

Liability and Insurance

The organizers of the ISA 2012 meeting do not accept any responsibility for personal injuries, material losses, or damages occurring during or in association with this symposium. It will be the responsibility of the participants to obtain adequate medical, travel or personal insurance for their participation in this event.

We hope to welcome you all in Leuven in 2012...

Please visit the site: <http://ees.kuleuven.be/isa2012/index.html>

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

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

Fellowship Title and ID code

Marie Curie Early Stage Research Fellowship (ESR08) at [G.M EuroCy Innovations LTD](#) (Nicosia, Cyprus), in cooperation with the [KIOS Research Center for Intelligent Systems and Networks](#) and the Department of Electrical and Computer Engineering, University of Cyprus.

Title of Research Project

“Application and development of computational intelligence methodologies in analyzing archaeological data”

Fellowship Description

The main scope of the research project is to investigate, design, implement and use intelligent algorithms to facilitate archaeological research and archaeometry, in analyzing, classifying and making sense out of large quantities of structured and semi-structured data. The Fellow (doctoral student) is expected to undertake research in the broad area of computational intelligence (pattern recognition, neural networks, statistical and adaptive learning, optimization etc.) and collaborate with the academic and industrial partners in the NARNIA network and beyond, to exploit the research outcomes.

Academic Requirements

Eligible applicants for this Fellowship (equivalent to a PhD position) must be in possession of a Master or a BSc degree, in the field of Electrical Engineering or Computer Engineering or Computer Science or Information Technology Science or Physics, or any other equivalent subject. Background in archaeology and/or archaeometry is not mandatory, however, it will be considered as an advantage.

It is required that the degree has been acquired not more than 4 years earlier 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 Cyprus for more than 12 months in the 3 years immediately prior to the starting date.

Duration of fellowship

3 years – starting from late October 2011.

Submitting an application

Deadline for Fellowship application: **07 October 2011**

1. Applicants should contact Mr. George Milis (details provided below) via email, attaching their CV and a cover letter including a brief description of the reason they apply for the specific fellowship.

2. In parallel to the Fellowship application, the candidates must apply for admission in the PhD program in the Electrical and Computer Engineering Department of the University of Cyprus. The deadline for the PhD application is the 31 October 2011. (please, check also the information at <http://www.ucy.ac.cy/goto/ece/en-US/GeneralInfo1.aspx>)

Financial regime

The fellowship covers tuition fees and monthly salary in line with the FP7-PEOPLE-2010-ITN (http://ec.europa.eu/research/fp7/understanding/marie-curieinbrief/home_en.html). The annual salary amounts to **€29.625 gross**.

Contact person

Mr. George Milis (George.milis@eurocyinnovations.com), G.M EuroCy Innovations LTD

More information on NARNIA

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

More information on G.M EUROCY INNOVATIONS LTD and the University of Cyprus

<http://www.eurocyinnovations.com>

<http://www.ucy.ac.cy> (<http://www.kios.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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to: John G. Younger
E: jyounger@ku.edu

John G. Younger, Chair
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ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

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The Mediterranean Archaeological Trust, set up in 1959 for the promotion of the study of archaeology, invites applications for grants, made on a competitive basis, for expenses in 2012-13, in the preparation for final publication of material from archaeological **excavation or fieldwork** in the Mediterranean world, **excluding** subventions to publishers or publication of material not from a specific excavation, or in symposia. Within the terms of the Trust, priority may be given to publication of Bronze Age sites. Grants for any amount, however small, will be considered, provided they expedite publication. The grants do not normally exceed £ 2000.

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(Mediterranean Archaeological Trust)
Classics Centre
66 St. Giles
Oxford OX1 3LU
G.B.
[or **also** by fax to +44 (0)1865 610237; **NOT** by email]

Please apply in good time. The references (which are **essential**) should be sent directly by the referees and must meet the deadline of **31 January**, or accompany the application in a sealed envelope. Successful applicants will be informed in April 2012.

Applicants / Referees are encouraged to take the following guidelines into account:

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 3. record any existing publication.
 5. give a detailed breakdown of necessary costs; economical programmes will be favoured – e.g., not expensive ‘inking-ins’ or unjustified photography and analyses.
 6. mention any sources of grants received for the project, past and current.
 7. give a brief account of the applicant’s credentials.
 8. give a realistic programme for publication.
 9. ensure that referees respond with comment on the importance of the project and qualifications of the applicant.
-

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Thank you for your support of *Radiocarbon*,

Mark

Mark McClure

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ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

**DAVID WHITEHEAD (ED.),
APOLLODORUS MECHANICUS, SIEGE-
MATTERS (ΠΟΛΙΟΠΚΗΤΙΚΑ). HISTORIA
EINZELSCHRIFTEN 216. STUTTGART:
FRANZ STEINER VERLAG, 2010. PP. 162**

ISBN 9783515097109. €46.00.

Reviewed by John David Lewis, Duke University (john.d.lewis@duke.edu)

Apollodorus of Damascus, architect and master-builder associated with the emperors Trajan and Hadrian, is the purported author of this text, a manual for building siege devices. David Whitehead has done us all a service by producing both the first English translation and the first comprehensive commentary in any language. Greek text and English translation are on facing pages (pp. 36-67); suspect passages are given in reduced font, and page numbers are taken from Carl Wescher's German edition.¹ The commentary (pp. 69-136) is philological and not primarily historical, a point that is already grieving at least one historian, but which provides the foundation needed for future historical work.² There is a two-page endnote on Trajan's Column, six pages of illustrations, a short bibliography (32 items), and sixteen pages of indices of passages cited and of Greek and English terms (pp. 137-162).

Whitehead had a fruitful relationship with Henry Blyth, a retired schoolmaster trained in engineering, with whom Whitehead co-produced his earlier text and commentary on Athenaeus Mechanicus.³ Although not a co-editor in the Apollodorus volume, Whitehead is clearly indebted to Blyth, not only through the book's dedication and because Blyth had published the only article on the work that Whitehead could find while reading at Oxford in 1999.⁴ Whitehead credits Blyth with the "brilliant initial realization that, as transmitted, 'Apollodorus' is heavily interpolated with later material." This article should be read along with the book because it offers explanations, missing in the book, for why such material is identified as such. Blyth held strongly that all ancient military writings of a technical nature "had to be tested against the laws of physics and engineering" in order to distinguish "the practical and the impracticable, the real world and the world of fantasy." (p. 10) Such testing, however, has no part in the book at hand.

The Introduction (pp. 15-34) deals with the text sources, the identity of the author, and the internal arrangement of the work. The text derives from an edition by Rudolf Schneider, who reused Wechsler's page and line numbers, maintained by Whitehead throughout.⁵ The author's identity and dates remain elusive; Whitehead surveys Procopius, the SHA, and Dio, while holding that his putative identity remains that of PIRA2 A.922, the Syrian-Greek architect and engineer.⁶ In considering the many later interpolations in the text, Whitehead thinks that the present version was enlarged from

the original text, given shape prior to the tenth century, perhaps by a Byzantine military writer known as Syrianus Magister.

The questions of whom Apollodorus is addressing and the identity of the historical events connected to that unnamed despota are also vexatious ones. Whitehead takes the problem apart succinctly in the introduction, concluding that the present treatise was addressed to Trajan rather than Hadrian, and that the military campaign at issue was the first invasion of Dacia (AD 101-102), a conclusion that follows Blyth. The treatise notes that the author is not informed of the specifics of Dacia—especially its topography—and this best fits the first rather than second invasion. The tone of the salutation also suggests Trajan rather than Hadrian, with whom Apollodorus had strained relations and by whom he may have been murdered. This hypothesis is admittedly sketchy and does not always fit with other sources, but certainty is not possible here.

The internal arrangement of the work begins with an epistolary preface, leading to a rough “list of contents” that is followed by the main text, undivided in the manuscripts but now road-mapped with subheads provided by scribes, some competently and others not, and often in disagreement with each other. The text is marked with Wechsler section numbers; line numbers must be counted. Whitehead divides the text as follows, showing the Wechsler line numbers (pp. 25-26):

Preface 137.1-138-17

List of Contents 138.18-139.8

Ch. 1: Protecting the attackers 139.9-143.5 Ch. 2: Excavation 143.6-147.6 Ch. 3: Brick walls 148.2-152.5 Ch. 4: (Firing) stone walls 152.6-153.7 Ch. 5: Rams 153.8-161.8 Ch.6: A device for reconnaissance 161.9-164.4 Ch. 7: Towers 164.6-174.7 Ch. 8: Ladders 175.2-188.9 Ch. 9: An assault raft for crossing rivers 189.1-193.5

The question of illustrations has several levels. Apollodorus mentions the hypodeigmata . . . diagraphsas (137.3-4) and schēmata ... diegrapsa (137.7-8), which, Whitehead notes, refer to serious technical drawings and not models. What we have today are medieval drawings, with uncertain relationships both to the original manuscripts as well as to the many allusions to drawings in the text. Whitehead generally translates the common schēmata as “figures,” katagrapsai as “depictions,” and opseis as “views.” Following other language markers, including the nature of the text as “an exposition in continuous Greek prose,” Whitehead concludes that the text is not a series of comments made to the illustrations, but rather a text into which illustrations were inserted. (p. 27) The illustrations are not intended to be definitive or precise, but are rather “what I believe his designs would have looked like.” (p. 14)

The commentary provides a base-line for reading the text; it is clearly not intended to offer a comprehensive historical interpretation of this rather dry, technical, un-literary text. That this has become a pleasure to read is itself a testimony to the expert care taken in producing it here. Two samples of text, translation and commentary may be the best way to convey the flavor of the work. Near the start, Apollodorus sets out the obligatory plea to the emperor, along with a statement of his own limitations as an author (text lines 138.13-17):

Ἐάν δέ τι ἐν τοῖς ἐπὶ ἐκάστου συστήματος ἐπιλογισμοῖς ἀσαφῶς εἶπω, σύγγωθι, δέσποτα. Καὶ γὰρ τὰ ὀνόματα τῆς ἐπιστήμης ἀσυνήθη ἔσται τοῖς κοινοῖς λόγοις, καὶ

ποικίλην θεωρίαν ἔχει τὸ ἔργον, καὶ αὐτὸς ἐγὼ εἰπεῖν τάχα ἀσθενέστερος · τάχα δὲ ἡ
μεγαλο - φῦα σου διορθοῦται, καὶ συγγινώσκει ἡ εὐμένεια.

If there is anything unclear in what I say in the descriptions applying to each apparatus, excuse me, master; the vocabulary of the science will be unfamiliar to everyday speech, the task involves complex theory, and I myself am perhaps rather weak with words. Perhaps, though, your natural genius puts this to rights, and your graciousness forgives it. (section 138)

Whitehead provides six commentary items on these lines (p. 73). For instance, regarding line 13, *en tois . . . epilogismois*, Whitehead notes that Liddell, Scott and Jones list this as the only instance of *sustēma* meaning “machine, apparatus,” and that *mēchanēma* or *ergon* would have sufficed. For line 14, *ta onomata tēs epistēmēs* as “the vocabulary of the science” has a precedent in [Xen.] Ath. 1.19, Athenian rowers and their slaves learn *onomata . . . ta en tē nautikē*.

In line 16, Whitehead notes that the insertion of “perhaps” (*tacha*), repeated in the next sentence, indicates that Apollodorus, rather than seeing his works as weak, “is quite pleased—and reasonably so—with his efforts.” Such comments serve a purpose different than that undertaken by Blyth, who was more concerned with differentiating the authentic from the spurious sections of the text, and with the practical aspects of the devices. Blyth in many ways offered fuller explanations for his editorial decisions.

Another passage can illustrate the technical terms and measures at play, from text lines 140.9-13:

Ἡ δὲ χελώνη ἐμβόλου σχῆμα ἔχουσα, ὑπὸ ὀπλιτῶν φερομένη, ἀνάγεται τετρα - γώνοις
ξύλοις ποδιαίοις, λεία οὔσα τὸ σχῆμα, ἢ ἐκ τῆς ἔδρας τροχοῖς <ἦλους> σιδηροῦς ἔχουσα
ἵνα, ὅταν τίθηται, ἐμπηγνύηται τῇ γῇ καὶ μὴ ὑπὸ τῆς συμβολῆς ἐπισύρηται.

The tortoise, having the shape of a wedge, carried by armed men, is brought up on one-foot (-thick) (29.57 cm.) square timbers – being smooth as to its surface – or ?[on] wheels (emanating) out of the base, and it has iron [nails]? So that, when set in place, it would be pegged to the ground and would not be dragged along by the collision.

This is from the section on the wedge tortoise, which is illustrated on p. 139, and which Whitehead connects to a depiction on Trajan’s column.⁷ Five comments are set forth. Whitehead criticizes his own translation by noting that *hoplitōn* does not mean “armed” men, but rather “armoured.” Whitehead draws on Schneider in placing “*leia ousa de schēma*” in reduced font as “textually suspect,” perhaps because *schēma* is used in a different sense than earlier in the same sentence, “surface,” versus “shape.”

As to the tortoise itself, Whitehead adopts a functional view of the device, noting that it must move uphill and withstand the impact of rolling objects. This leaves open whether wheels were used in such devices, whether those wheels were left in place after it was moved in, and whether (and how) the device was anchored to the ground. Blyth maintained that there were no wheels in any of the devices in the treatise, and used this criterion as a way to identify suspect text.

One hopes that Whitehead, in identifying passage 140.11-12 (concerned with wheels) as original, is not being logically circular by using his own conclusion about wheels to guide his evaluation of the text. In any event, reconstruction of the tortoise must remain

conjectural, given the uncertainties in the use of nails versus wheels, for instance, or whether the device would have been wheeled to the site and then pegged to the ground or rather dragged in.

Cast 308 of Trajan's Column, discussed in the endnote on the column, shows three of what may be such devices, clearly mounted on wheels.

Whitehead here rejects claims that these devices were either deployed by the Dacians (perhaps as scythed chariots, or as aids to the building of walls), or used by the Romans as mobile ramming devices.

He rather sees them as used by the Romans to deflect rolling objects, a conclusion that fits with Blyth, who called them "triangular deflectors" rather than "tortoises." This fits with both the chapter name, "Protecting the attackers," and the subheading of the first section of the chapter, "The problem: avoiding objects propelled from elevated positions." (p. 77)

The passages on ladders (sections 175-188, pp. 56-65) have substantial material which is indicated as later additions, and Whitehead is surely correct to note that ladders "in their simplest form(s) will generally have been beneath the notice of military engineers intent on grander designs" (p. 120). But their production and use is far from simple, starting with the types of wood needed, and including the means by which sections twelve feet long and probably pre-assembled before the campaign could be fitted together, and used both for scaling and for bridging across open space. The two illustrations of possible ways to connect the ladder sections (p. 144, one referring to Lendle) illuminate the nature of the problem, but offer no practical resolution to which alternative is preferable.

The commentary, to sum up, is a guide to the text, not a comprehensive historical or technical examination of the devices it depicts. Such investigations are left to others, as they should be. Whitehead has done all classicists, military historians, and students of ancient engineering a service in providing our first detailed look at an important, and heretofore neglected, treatise—and in stressing Blyth's point that it is critical to evaluate the practical use of such designs.

Notes:

1. C. Wescher, *Poliorcétique des Grecs: traits théoriques, récits historiques* (Paris, 1867), 137-193.
2. E. Wheeler, Review in *Journal of Military History* 75.2 (April, 2011): 619-621.
3. D. Whitehead and H. Blyth, eds. and trs., *Athenaeus Mechanicus, On Machines* (*Historia – Einzelschriften* 182: Stuttgart, 2004).
4. H. Blyth, "Apollodorus of Damascus and the *Poliorcetica*," *GRBS* 33 (1992): 127-158.
5. R. Schneider, *Griechische Poliorketiker mit den handschriftlichen Bildern herausgeben und übersetzt, I: Apollodorus, Belagerungskunst* (Berlin, 1908).
6. E. Groag, et al., *Prosopographia imperii Romani saec. II* (Berlin, 1933-).
7. Referencing O. Lendle, *Texte und Untersuchungen zum technischen Bereich der antiken Poliorketik* (*Palingenesia* 19: Weisbaden, 1983): 133-136, and 184-187 for the possible depiction on the column.

Please visit the site: <http://bmcr.brynmawr.edu/2011/2011-09-17.html>

ARCHAEOLOGY 53/5

Original Articles

NO STONE UNBURNED: A COMPOSITIONAL ANALYSIS OF OBSIDIAN MICRODEBITAGE BY LASER ABLATION TOF-ICP-MS (pages 873–889) I. SCHARLOTTA, W. GILSTRAP and H. NEFF Article first published online: 3 APR 2011 | DOI:
10.1111/j.1475-4754.2010.00575.x

REPRODUCIBILITY OF ELEMENTAL ANALYSES OF BASALTIC STONE ARTEFACTS BY QUADRUPLE ICP-MS USING DIFFERENT SAMPLE SIZES AND DIGESTION METHODS, WITH IMPLICATIONS FOR ARCHAEOLOGICAL RESEARCH (pages 890–899) JINLONG MA, R. BOLHAR, M. I. WEISLER, YUEXING FENG and JIANXIN ZHAO Article first published online: 15 JUN 2011 | DOI:
10.1111/j.1475-4754.2010.00585.x

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10.1111/j.1475-4754.2010.00583.x

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10.1111/j.1475-4754.2010.00573.x

NON-DESTRUCTIVE CHEMICAL ANALYSIS OF OLD SOUTH ARABIAN COINS, FOURTH CENTURY BCE TO THIRD CENTURY CE (pages 930–949) A. KIRFEL, W. KOCKELMANN and P. YULE Article first published online: 4 APR 2011 | DOI:
10.1111/j.1475-4754.2011.00588.x

ARTIFICIAL OR NATURAL ORIGIN OF HEMATITE-BASED RED PIGMENTS IN ARCHAEOLOGICAL CONTEXTS: THE CASE OF RIPARO DALMERI (TRENTO, ITALY) (pages 950–962) S. GIALANELLA, R. BELLI, G. DALMERI, I. LONARDELLI, M. MATTARELLI, M. MONTAGNA and L. TONIUTTI Article first published online: 4 APR 2011 | DOI:
10.1111/j.1475-4754.2011.00594.x

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10.1111/j.1475-4754.2011.00589.x

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10.1111/j.1475-4754.2010.00584.x

TESTING ANALOGICAL TAPHONOMIC SIGNATURES IN BONE BREAKING: A COMPARISON BETWEEN HAMMERSTONE-BROKEN EQUID AND BOVID BONES (pages 996–1011) S. DE JUANA and M. DOMÍNGUEZ-RODRIGO, Article first published online: 17 MAR 2011 | DOI:
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RADIOCARBON DATES FROM THE OXFORD AMS SYSTEM: ARCHAEOLOGY DATELIST 34 (pages 1067–1084) T. F. G. HIGHAM, C. BRONK RAMSEY, F. BROCK, D. BAKER and P. DITCHFIELD Article first published online: 21 FEB 2011 | DOI:
10.1111/j.1475-4754.2010.00574.x

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EΙΔΗΣΕΙΣ - NEWS RELEASE

NEANDERTHAL MAN LIVED ON SEAFOOD FAR EARLIER THAN PREVIOUSLY THOUGHT

Much as modern day man enjoys tucking into a plateful of seafood paella when visiting the Costa del Sol, Neanderthals living on the Iberian coast 150,000 years ago supplemented their diet with molluscs and marine animals. Archaeological examination of a cave in Torremolinos unearthed early tools used to crack open shellfish collected off rocks along the Iberian coast and found fossilised remains of the early meals.

The discovery is the earliest of its kind in northern Europe and shows that early man were fish eaters in Europe some 100,000 years earlier than previously thought. The findings suggest that early coastal cavemen supplemented their hunter/gatherer diet of nuts, fruits and meat from animals such as antelopes and rabbits with seafood.

A team of archaeologists from Seville University and scientists from the National Council for Scientific Investigation (CSIC) published their research this week after a lengthy investigation involving the scientific dating of fossilised remains from the cave. The Cueva Bajondillo on Andalusia's southern coast near Malaga contained remains of burned mussel shells and barnacles indicating that Middle Paleolithic hominids had collected and cooked the shellfish for consumption. The discovery suggests that Neanderthals in Europe and Archaic Homo sapiens in Africa were following parallel behavioural trajectories but with different evolutionary outcomes, the paper claims.

"It provides evidence for the exploitation of coastal resources by Neanderthals at a much earlier time than any of those previously reported," said Miguel Cortés Sanchez who led the Seville University team.

"The use of shellfish resources by Neanderthals in southern Spain started some 150,000 years ago," the paper concluded. "It was almost contemporaneous to Pinnacle Point (in South Africa) when shellfishing is first documented in archaic modern humans."

Cortés-Sánchez M, Morales-Muñiz A, Simón-Vallejo MD, Lozano-Francisco MC, Vera-Peláez JL, et al. 2011 Earliest Known Use of Marine Resources by Neanderthals. PLoS ONE 6(9): e24026. doi:10.1371/journal.pone.0024026

See at :

<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0024026#authcontrib>

Please visit the site:

<http://www.telegraph.co.uk/news/worldnews/europe/spain/8765346/Neanderthal-man-lived-on-seafood-far-earlier-than-previously-thought.html>

ARCHAEOLOGISTS UNCOVER EVIDENCE OF LARGE ANCIENT SHIPYARD NEAR ROME

University of Southampton and British School at Rome (BSR) archaeologists, leading an international excavation of Portus – the ancient port of Rome, believe they have discovered a large Roman shipyard.

The team, working with the Italian Archaeological Superintendancy of Rome, has uncovered the remains of a massive building close to the distinctive hexagonal basin or ‘harbour’, at the centre of the port complex.

University of Southampton Professor and Portus Project Director, Simon Keay comments, “At first we thought this large rectangular building was used as a warehouse, but our latest excavation has uncovered evidence that there may have been another, earlier use, connected to the building and maintenance of ships.

“Few Roman Imperial shipyards have been discovered and, if our identification is correct, this would be the largest of its kind in Italy or the Mediterranean.”

It has long been known that Portus was a crucial trade gateway linking Rome to the Mediterranean throughout the Imperial period and the Portus Project¹ team has been investigating the port’s significance over a number of years. Until now, no major shipyard building for Rome has been identified, apart from the possibility of one on the Tiber near Monte Testaccio, and a smaller one recently claimed for the neighbouring river port at Ostia.

A recent new grant of £640,000 from the Arts and Humanities Research Council (AHRC) has made this latest phase of excavation possible.

These AHRC funds, together with financial support from the Archaeological Superintendancy of Rome, the University of Southampton and the British School at Rome have allowed extensive excavation to be undertaken at the site this year.

The huge building the team has discovered dates from the 2nd century AD and would have stood c. 145 metres long and 60 metres wide – an area larger than a football pitch. In places, its roof was up to 15 metres high, or more than three times the height of a double-decker bus. Large brick-faced concrete piers or pillars, some three metres wide and still visible in part, supported at least eight parallel bays with wooden roofs.

“This was a vast structure which could easily have housed wood, canvas and other supplies and certainly would have been large enough to build or shelter ships in. The scale, position and unique nature of the building lead us to believe it played a key role in shipbuilding activities,” comments Southampton’s Professor Keay, who also leads the archaeological activity of the BSR.

Investigations by his team in 2009 concentrated on the remains of an ‘Imperial palace’ and amphitheatre-shaped building, which lie adjacent to this building. He argues that

together these formed a key complex where an imperial official was charged with coordinating the movement of ships and cargoes within the port. Furthermore he believes that the shipyard was an integral part of this.

Additional supporting evidence comes in the form of inscriptions discovered at Portus referring to the existence of a guild of shipbuilders or *corpus fabrum navalium portensium* in the port. Also, a mosaic, which is now in the Vatican Museum, but once adorned the floor of a villa on the ancient Via Labicana (a road leading south east of Rome), depicts the façade of a building similar to the one at Portus, clearly showing a ship in each bay.

“The discovery of this building has major implications for our understanding of the significance of the hexagonal basin or harbour at Portus and its role within the overall scheme of the port complex,” says Professor Keay.

He continues, “We need to stress there is no evidence yet of ramps which may have been needed to launch newly constructed ships into the waters of the hexagonal basin. These may lie beneath the early 20th century embankment, which now forms this side of the basin. Discovering these would prove our hypothesis beyond reasonable doubt, although they may no longer exist,” says Professor Keay.

Geophysicists from the Archaeological Prospection Services of Southampton and from the British School at Rome have been making geophysical surveys of the area around the building to gain additional information about its still partially buried structure. Members of Southampton’s Archaeological Computing Research Group, led by Dr Graeme Earl, have also created a computer graphic simulation, to provide both valuable visual data on its layout and construction and an impression of how it appeared and may have been used.

Professor Keay’s team is also working with Angelo Pellegrino from the Archaeological Superintendency of Rome to extend earlier excavations by the Portus Project, and the restoration of standing structures, relating to ‘the Imperial palace’, to better understand key issues about its layout and development.

The international team is planning further investigations at Portus to find out more about this fascinating, significant site, which holds an enormous amount of information about the activities and trade of Rome.

Background information about the building

The building uncovered by the team has undergone many changes since its construction in the time of the Emperor Trajan (AD 98-117).

Excavation within one of the bays has revealed that its use changed over the centuries – once 90 years into its life with the construction of a series of inner partition walls, and then again in the late 5th century AD when changes were made to allow the storage of grain. In the early to mid-6th century AD, parts of the building were systematically demolished, probably as a defensive measure during wars between the Byzantines and Ostrogoths (AD 535-553).

Ends

Notes for editors

The Portus Project is a collaboration between the University of Southampton, the British School at Rome and the University of Cambridge, which aims to answer major research questions about Portus, the port of Imperial Rome. It is led by the University of Southampton's Professor Simon Key. For more information:

www.portusproject.org

For more information about the Archaeological Computing Research Group:

www.soton.ac.uk/archaeology/acrg/

Please visit the site: http://www.soton.ac.uk/mediacentre/news/2011/sep/11_88.shtml

OXFORD SCANNER REVEALS SECRETS **OF DOCUMENTS, ANCIENT AND** **MODERN**

A scanner which combines the convenience of a desktop scanner with the functionality of a powerful laboratory imaging device has been developed at the University of Oxford's Classics Department, and is now being commercialised by a new company Oxford Multi Spectral Limited which was today spun out by the University's technology transfer company Isis Innovation.

The scanner was developed for imaging ancient papyri and the technology has been used to successfully scan, restore and archive over a quarter of a million historically significant manuscripts.

Oxford Multi Spectral Limited (OMS) will focus on the applications in restoring manuscripts and art, as well as the huge potential market for detecting forged security and border control documents, bank notes and forensic evidence.

Managing director of Forensic Document Services, the biggest forensic document company in the Asia Pacific, Paul Westwood, explained the Oxford scanner could be used to analyse a huge variety of samples, including crime scene samples such as counterfeit and altered documents as well as documents bearing erased or faded entries and signatures: "The portable nature of the scanner means that it will be a great resource when document examiners are required to undertake examinations out of the laboratory environment, such as at Court Registries or the offices of opposing lawyers.

"We anticipate that using the Oxford scanner will be like moving from using a dark room to using a modern digital camera. We can use it to detect what is currently invisible and make it visible.

"The compact design and powerful imaging and analysis will be of great benefit to document examiners worldwide."

OMS CEO, Mike Broderick said: "OMS delivers multispectral imaging capabilities superior to large laboratory systems in a very cost-effective apparatus.

"Current multispectral imaging kits use cameras, but they are large, expensive and need specialist operators. Our scanner uses well-proven flat-bed scanner technology and powerful image processing to scan visible and 'invisible' features which absorb and reflect light at different wavelengths such as inks, pigments, polymers or papers."

Dr Alexander Kovalchuk, the physicist who invented the scanner explained: "An ordinary colour image has three layers: red, green and blue; a multispectral image has many more layers, some of which are invisible to the human eye, but all of these layers contain potentially useful information. Our scanner is capable of registering an unlimited number of layers."

Dr Dirk Obbink, University Lecturer in Papyrology and head of the research group which developed the scanner said: “The technical leaps we made mean many ancient documents which were previously unreadable can now be scanned and read.

“We can take digital images at different wavelengths of the light band and layer them on top of each other, using software to analyse them.

We can set the equipment to interrogate a feature we are interested in: the surface structure, fibres, stains, watermarks, fingerprints, or alterations. We can detect an artist or writer’s signature under multiple layers of paint or the pencil sketch under a watercolour.”

OMS has secured an investment of £250,000 from a Chinese investor Changsha Yaodong Investment Consulting Co and its UK based partner RTC Innovations to commercialise, manufacture and market the scanners globally. It received £47,600 from the University Challenge Seed Fund last year for prototyping work.

Isis Innovation managing director Tom Hockaday said: “OMS will be the first spin-out from the University of Oxford’s Classics department and indeed from the University's Humanities Division. We are delighted to see the impact of this technology across other disciplines.”

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Please visit the site:

<http://www.isis-innovation.com/news/news/OxfordScannerRevealsSecrets.html>

LATEST FIND AT WORLD'S LARGEST NEOLITHIC SETTLEMENT A HARBINGER OF SURPRISES YET TO COME? BY DAN MCLERRAN

Çatalhöyük archaeological site continues to yield more evidence of Neolithic life in ancient Anatolia.

Latest Find at World's Largest Neolithic Settlement a Harbinger of Surprises Yet to Come?

Archaeologists have recently uncovered a fascinating new find at the world's largest and most famous Neolithic settlement, a site that, even after more than two decades of intensive study, still has much more to reveal to scientists and the world about a community that thrived in Anatolia (current-day Turkey) about 9,500 years ago. As reported recently in the New York Times and at the Global Heritage Fund's Heritage on the Wire, archaeologists came across a surprisingly well-preserved wall painting while excavating at Çatalhöyük, a site dated to 7500 - 5700 B.C..

Although the find, a series of well-defined red lines organized into a complex, highly structured pattern, has astounded scientists with its freshness and intricate detail, it may possibly represent only the tip of the iceberg for finds yet to come. Only 4% of the estimated extent of Çatalhöyük has been excavated thus far. And even before this latest find, the site had already featured murals, wall paintings, figurines, and much more, now removed from the site and on display at the Museum of Anatolian Civilizations in Ankara, Turkey.

Çatalhöyük is located in the Konya Plain, southeast of the city of Konya (ancient Iconium) in Turkey. The site was first excavated by James Mellaart in 1958, who later led another set of excavations between 1961 and 1965. It soon became apparent that he had uncovered the remains of a center of advanced culture during the Neolithic period in Anatolia. In September, 1993, excavations began under Ian Hodder, then at the University of Cambridge, who has continued to lead efforts since then as the world's foremost authority on the site and the people who lived there.

What the Archaeology Has Revealed

Archaeological investigations and studies have painted a picture of Neolithic life at this site that goes without precedent. The excavations have shown that Çatalhöyük, thus far, was composed primarily of domestic mud-brick structures, with some featuring ornate murals. The settlement is estimated to have contained an average population of between 5,000 to 8,000 people inhabiting a honeycomb maze of structures or houses with no streets or paths in between. They apparently accessed their dwellings through ceiling entrances, reached by ladders and stairs.

Interestingly, archaeologists have found little trash or refuse within the buildings, finding trash areas outside the ruins that included, along with food remains, large amounts of wood ash. They uncovered as many as eighteen settlement layers.

Evidence suggested that the people buried their dead in close proximity to their living spaces, with human remains often found wrapped in reed mats or in baskets in pits beneath their floors, hearths, under platforms in their main rooms, and under beds. Suggestive of ritualistic behavior, a few graves had been disturbed in antiquity, with heads removed and found in other places in the settlement area, some skulls plastered and painted with ochre similar to what had been found at other Neolithic sites such as Jericho and other sites in Syria.

Mural paintings and figurines were found throughout the excavated areas, as well as clay figurines of women, such as the "Seated Woman of Çatalhöyük". Rooms with higher concentrations of figurines, graves and murals suggest that they may have been shrines, meaning that the people may have practiced a religion. Curiously, heads of animals, particularly that of cattle, were found mounted on walls. Bull horns were commonly found within the house structures. One structure featured what some have interpreted to be a wall painting of the village or settlement with what may be mountain peaks in the background, possibly the oldest landscape painting ever found.

There was no evidence at Çatalhöyük to suggest any social class structure, given that no houses with features that could be attributed to a ruling or wealthier class have been uncovered thus far. Moreover, studies of the remains show no social distinctions based on gender, with men and women possibly sharing equal status such as that found in Paleolithic cultures.

Doing Archaeology the Right Way

What is now distinguishing the investigations at Çatalhöyük from many others is the careful consideration given to preserving what has been uncovered while continuing to excavate new ground. Permanent roof shelters constructed over the excavation areas stand out as dominating features of the site to any casual observer. The Global Heritage Fund (GHF), for example, a non-profit organization headquartered in Palo Alto, California, is ensuring that what has already been uncovered will not waste away in the trails left behind the excavating archaeologists. They have generated the funds and mobilized and trained a team of experts and local community members in conservation and site management techniques to create a program and structure for sustainability. "Excavation and conservation can proceed in a more controlled and protected environment," reports the GHF. "Likewise, the great deal of community engagement and involvement that the project has inspired has made local people not only proud of the cultural heritage in their vicinity, but skilled conservators of it as well the preparation of an updated Site Management Plan and the collaboration so far between project members and the Ministry of Culture and Tourism suggests that Çatalhöyük will continue to be protected and preserved even after archaeological research has ended at the site."

The Government of Turkey and involved conservationists and archaeologists hope that Çatalhöyük will, in time, become a designated World Heritage Site, a designation that will release additional resources for the preservation of its historic cultural remains. If

efforts are successful, the site's designation would mean that it is the only Neolithic World Heritage site in the Middle East.

With 95% of the site yet unexcavated, designation may help ensure that there are more surprises to come.

Please visit the site:

<http://popular-archaeology.com/issue/september-2011/article/latest-find-at-world-s-largest-neolithic-settlement-a-harbinger-of-surprises-yet-to-come>

RAIN UNEARTHS UNKNOWN MYCENAEAN CEMETERY

Five box-shaped Mycenaean era tombs were unearthed in Soha, near Vaskina village, some ten kilometers northwest of Leonidio, by recent heavy rainfall. The most impressive of the funerary gifts found in the graves were several clay symptic vases.

According to archaeologists, the finds dating back to the 14th century BC.

A recovery excavation was conducted by the 38th Ephorate of Prehistoric and Classical Antiquities.

Please visit the site: <http://www.athensnews.gr/portal/1/47400>

GORTYNA FINDINGS UNEARTHED

An archaeological excavation currently in process at the Great Theatre of ancient Gortyna on Crete has unearthed important findings.

Among the findings are a life-size male statue of the Roman era and 50 intact lamps of the same period as well as marble-engraved scenes of battles, sexual acts, the Roman eagle and lions dated between the 1st and 2nd century BC.

According to archaeologists, the portions of the monument that have been unearthed so far confirm that the ancient theatre is in very good condition, underlining that apart from the main theatre, which was built on a natural cavity, the finds indicate also indicate a later addition of seats on the eastern side, possibly to increase capacity.

The excavations in the Gortyna Theatre are expected to be completed at the end of 2011.

Please visit the site: <http://www.athensnews.gr/portal/32/47289>

HUGE DISCOVERIES IN RECENT EXCAVATIONS IN ANCIENT PISIDIAN CITY ANTIOCH

The ruins of a Byzantine mansion belonging to a pontiff and a Roman villa have been unearthed in a recent excavation being carried out in the ancient Pisidian city of Antioch in Yalvaç, Isparta.

Archaeologists underline that the wall paintings discovered in both structures were of high quality, only comparable to the quality of the paintings found in Rome and Pompeii. The excavation is being conducted by Süleyman Demirel University's Department of Archeology in Pisidian Antioch, an ancient city in Yalvaç, and is almost complete. Assistant Professor Mehmet Özhanlı from the university's Department of Archeology, who is supervising the dig, said in a statement to the Anatolian news agency that they had discovered the mansion of a Byzantine pontiff and a villa from the Roman period in a hill known as Vicus Aedilicus.

Stressing that they believe the structure discovered was a pontiff's mansion as there was a church in the complex, Özhanlı also said that based on their findings Pisidian Antioch, a metropolitan Byzantine city that dates back to the Hellenistic period, excelled in frescos and mosaics. Noting that they also concluded that the marble covers on the floor were removed and then melted in lime furnaces, Özhanlı said, "Despite this deformation, the wall paintings were of high quality, comparable to the Pompeii style."

The professor further underlined that the villa from the Roman era they discovered was an important breakthrough that contributed to improved documentation of that period of the city. Özhanlı further said: "The paintings on the walls of the Roman villa were of immense quality; in that sense, they are no different from the wall paintings in Rome or Pompeii. Many colors, including blue, orange, red and yellow, were used in the wall paintings. This tells us that Pisidian Antioch excelled in wall paintings."

Assistant Professor Özhanlı further noted that the excavations revealed that only a small part of the ceramics used in the construction of the Roman villa were imported. He added that the excavation will end on Sept. 15 of this year.

Please visit the site: <http://www.todayszaman.com/news-256620-huge-discoveries-in-recent-excavations-in-ancient-pisidian-city-antioch.html>

VISIBLE ONLY FROM ABOVE, **MYSTIFYING 'NAZCA LINES'** **DISCOVERED IN MIDEAST, OWEN** **JARUS**

They stretch from Syria to Saudi Arabia, can be seen from the air but not the ground, and are virtually unknown to the public.

They are the Middle East's own version of the Nazca Lines — ancient "geoglyphs," or drawings, that span deserts in southern Peru — and now, thanks to new satellite-mapping technologies, and an aerial photography program in Jordan, researchers are discovering more of them than ever before. They number well into the thousands.

Referred to by archaeologists as "wheels," these stone structures have a wide variety of designs, with a common one being a circle with spokes radiating inside. Researchers believe that they date back to antiquity, at least 2,000 years ago. They are often found on lava fields and range from 82 feet to 230 feet (25 meters to 70 meters) across.

"In Jordan alone we've got stone-built structures that are far more numerous than (the) Nazca Lines, far more extensive in the area that they cover, and far older," said David Kennedy, a professor of classics and ancient history at the University of Western Australia.

Kennedy's new research, which will be published in a forthcoming issue of the Journal of Archaeological Science, reveals that these wheels form part of a variety of stone landscapes. These include kites (stone structures used for funnelling and killing animals); pendants (lines of stone cairns that run from burials); and walls, mysterious structures that meander across the landscape for up to several hundred feet and have no apparent practical use.

His team's studies are part of a long-term aerial reconnaissance project that is looking at archaeological sites across Jordan. As of now, Kennedy and his colleagues are puzzled as to what the structures may have been used for or what meaning they held. [History's Most Overlooked Mysteries]

Fascinating structures

Kennedy's main area of expertise is in Roman archaeology, but he became fascinated by these structures when, as a student, he read accounts of Royal Air Force pilots flying over them in the 1920s on airmail routes across Jordan. "You can't not be fascinated by these things," Kennedy said.

Indeed, in 1927 RAF Flight Lt. Percy Maitland published an account of the ruins in the journal *Antiquity*. He reported encountering them over "lava country" and said that they, along with the other stone structures, are known to the Bedouin as the "works of the old men."

Kennedy and his team have been studying the structures using aerial photography and Google Earth, as the wheels are hard to pick up from the ground, Kennedy said.

"Sometimes when you're actually there on the site you can make out something of a pattern but not very easily," he said. "Whereas if you go up just a hundred feet or so it, for me, comes sharply into focus what the shape is."

The designs must have been clearer when they were originally built.

"People have probably walked over them, walked past them, for centuries, millennia, without having any clear idea what the shape was."

What were they used for?

So far, none of the wheels appears to have been excavated, something that makes dating them, and finding out their purpose, more difficult.

Archaeologists studying them in the pre-Google Earth era speculated that they could be the remains of houses or cemeteries. Kennedy said that neither of these explanations seems to work out well.

"There seems to be some overarching cultural continuum in this area in which people felt there was a need to build structures that were circular."

Some of the wheels are found in isolation while others are clustered together. At one location, near the Azraq Oasis, hundreds of them can be found clustered into a dozen groups. "Some of these collections around Azraq are really quite remarkable," Kennedy said.

In Saudi Arabia, Kennedy's team has found wheel styles that are quite different: Some are rectangular and are not wheels at all; others are circular but contain two spokes forming a bar often aligned in the same direction that the sun rises and sets in the Middle East.

The ones in Jordan and Syria, on the other hand, have numerous spokes and do not seem to be aligned with any astronomical phenomena. "On looking at large numbers of these, over a number of years, I wasn't struck by any pattern in the way in which the spokes were laid out," Kennedy said.

Cairns are often found associated with the wheels. Sometimes they circle the perimeter of the wheel, other times they are in among the spokes. In Saudi Arabia some of the cairns look, from the air, like they are associated with ancient burials.

Dating the wheels is difficult, since they appear to be prehistoric, but could date to as recently as 2,000 years ago. The researchers have noted that the wheels are often found on top of kites, which date as far back as 9,000 years, but never vice versa. "That suggests that wheels are more recent than the kites," Kennedy said.

Amelia Sparavigna, a physics professor at Politecnico di Torino in Italy, told Live Science in an email that she agrees these structures can be referred to as geoglyphs in the

same way as the Nazca Lines are. "If we define a 'geoglyph' as a wide sign on the ground of artificial origin, the stone circles are geoglyphs," Sparavignawrote in her email.

"If we consider, more generally, the stone circles as worship places of ancestors, or places for rituals connected with astronomical events or with seasons, they could have the same function of [the] geoglyphs of South America, the Nazca Lines for instance. The design is different, but the function could be the same," she wrote in her email.

Kennedy said that for now the meaning of the wheels remains a mystery.
"The question is what was the purpose?"

Please visit the site: <http://www.livescience.com/16046-nazca-lines-wheels-google-earth.html> [Go there for pix]

5,900-YEAR-OLD WOMEN’S SKIRT DISCOVERED IN ARMENIAN CAVE

Excavations at Areni 1 Cave in Armenia’s Vayots Dzor region unearthed a more-than-5,900-year-old women’s straw-woven skirt, Armenian Archaeology and Ethnography Institute Director Pavel Avetisyan told Armenian News-News.am.

Avetisyan informed that this artifact was discovered in 2010 and, even though they had informed about this precious item at the time, interest toward it grew further only recently.

“The women’s clothing dates back to 39th century BC. So far we have discovered the skirt’s parts, which were superbly preserved. It is an amazing material with rhythmic color hues, and other remnants of the straw-woven material were also discovered. Such thing is recorded in Armenia for the first time,” Avetisyan noted.

According to Archaeology and Ethnography Institute’s director, the artifact is currently under their care, but it will soon be sent to the restorer who, until the arrival of French specialists, will work on its restoration. Pavel Avetisyan added that, after the final conservation process, the skirt will be exhibited at the History Museum of Armenia.

Areni 1 is the same cave where the world’s oldest leather shoe (more than 5,500 years old), wine-press, as well as flaggy items and part of a mummified goat’s body were discovered.

Please visit the site: <http://news.am/eng/news/73915.html>

PERGE EXCAVATIONS TURN 65 WITH TURKISH ARCHAEOLOGISTS

Excavations at Perge, an ancient city in Antalya province, have entered their 65th year. The excavation leader believes the ancient city was an artisan workshop

Archaeological work at the ancient city of Perge in southern Turkey passed the 65-year mark recently and is successfully restoring many columns along the city's streets, according the leader of the excavations.

“The Perge excavations are the longest-running in Turkey, and we are honored to be working on the site,” said Haluk Abbasoğlu, who has been leading the excavations since 1985.

Perge, also known as Perga, is located in southern Turkey's Antalya province and is included on UNESCO's world heritage list. This season excavations started on Aug. 2 and will finish Sept. 15, Abbasoğlu said, speaking to the Anatolia news agency.

“Over 65 years, we have unearthed 20 to 25 percent of the ancient city. The unearthed remains were some of the most important parts of the city,” said Abbasoğlu, adding that among those ruins there are two Turkish baths, city gates, an agora, streets, three fountains and some parts of houses.

Abbasoğlu said the team unearthed and restored 25 columns along the ancient city's main streets this year with money earned by selling tourist information guides.

He said since the launch of the “Erect one column” campaign six years ago, they have unearthed 96 columns in total.

Abbasoğlu said in order to erect the columns, the team used original marble from the Roman period. “We brought the marble from the Marmara Islands. The marble columns have been processed in Afyonkarahisar and later we installed them in Perge.”

One of the largest sculpture ateliers

One column costs 1,300 Turkish Liras, said Abbasoğlu, adding that the Demetrios Apollonios columns contain 85 percent of original column material and will be erected in 2012.

Excavations were started by scholar Arif Müfid Mansel and continued by scholar Jale İnan, Abbasoğlu said.

The team discovered a script, a fountain, a god figure, a sculpture and an Eros sculpture, said Abbasoğlu.

“We have unearthed more than 200 sculptures in Perge. The sculptures exhibited in the Antalya Museum are all from Perge,” he said.

“We assume that Perge was one of the largest sculpture ateliers in ancient times. One scholar friend is preparing a dissertation on Perge and its significance as a production center for ancient tombs,” Abbasoğlu said. “We have discovered some tombs that came from the Marmara Islands and were processed in Perge.”

Perge hosted the final process works of sculptures during ancient times, Abbasoğlu said. “We thought that the tombs’ cages came from Athens and their upper parts were processed in Perge.”

Please visit the site: <http://www.hurriyetdailynews.com/n.php?n=perge-excavations-turn-65-with-turkish-archaeologists-2011-09-09>

ROMAN PORT TO UNDERGO COMPLETE GNSS SURVEYING, PAUL CHALLIS

The remains of a harbour city that was one of the most important ports in Ancient Rome is to undergo a major surveying project that will allow for complete verification of its established control points and a new GNSS-based coordinate system.

Ostia Antica, which is sited at the mouth of the Tiber River and is a major Roman archaeological site, was prioritised for the survey by the Superintendent of the Archaeological Heritage of Rome due to its historic importance.

The city was founded in 620 BC as a military base and, as Rome's importance throughout the Mediterranean grew, became the main emporium of Rome, housing a number of important civic buildings.

The results of the survey will aid with the management and planning of archaeological projects at the site in the future. Surveyors have said that the additional information will help with the preservation of the location's well-preserved ancient buildings, frescos and mosaics.

Precision surveying equipment will be used to check and enhance the control points that currently exist in the site, and will expand the network of points further into the site.

The project will also be used as something of an educational tool for the future generations of Italian surveyors. The survey will be included in a technical and scientific study examining the use and capabilities of modern surveying equipment and techniques in the preservation or areas of archaeological and cultural importance.

Once complete, the study will be presented to a forthcoming congress of a number of Italy's universities and its archaeological institutes.

Please visit the site: <http://archaeologynewsnetwork.blogspot.com/2011/09/roman-port-to-undergo-complete-gnss.html>

INTO THE STONE AGE WITH A SCALPEL: A DIG WITH CLUES ON EARLY URBAN LIFE, BY SUSANNE FOWLER

A pair of space-age shelters rising from the beet and barley fields of the flat Konya Plain are the first clue to the Catalhoyuk Research Project, where archaeologists are excavating a 9,000-year-old Neolithic village.

The experts, armed with scalpels, gingerly scraped away micro-layers of white plaster from a wall deep in the dig last month to reveal what the project director, the British archaeologist Ian Hodder, called a “very exciting” and “particularly intriguing” painting with deep reds and reddish oranges thought to be made with red ochre and cinnabar.

“We were taking off many, many layers of plaster and we have a program where a joint team of Turkish and British conservators try to take them off one by one, so it’s extremely slow-going,” Dr. Hodder said this week by telephone.

“I got called over to where they were working because they saw some paint. The pattern initially didn’t look like very much: We often find just specks of paint or a wall of all-red paint. But this time it gradually emerged that this was a complete painting, and the best preserved painting that I’ve ever seen at Catalhoyuk, with wonderfully fresh, bright colors and very neat lines.”

Word of the discovery spread quickly through the international team on site as more of the painting was exposed.

“It is by far the most intricate and elaborate painting we have found during our excavations here since the mid-90s,” Dr. Hodder said.

“We’ve been waiting quite a long time for something so elaborate.”

But Stone Age paintings don’t come with labels explaining what they are.

“An interesting aspect of some of the paintings at Catal,” Dr. Hodder said, “is that they are very enigmatic and full of ambiguity and difficult to read.

“But the two main contenders for what this new discovery might show are that it’s simply a geometric design whose meaning is not clear,” he said. “An alternative is that it’s not just a geometric design, but that it is a representation of bricks, some sort of structure,” maybe an early blueprint of some sort.

Houses were “a very important symbol socially and a focus of life at Catal,” he said. “Maybe they were trying to draw the relationship between them and the house but it’s not easy to make sense of it. We have to do more work on it.”

Catalhöyük — where people occupied mud-brick houses from about 7400 B.C. to about 6000 B.C. — is 60 kilometers, or 37 miles, southeast of Konya in central Turkey. The area is dotted with gently rising mounds that obscure the ancient roots of urbanization and draw archaeologists from around the world.

An international team of people from 22 countries worked on the site this year, led by experts based at Stanford University in California and University College London in Britain, and backed by sponsors like Boeing, Shell and the Turkish bank Yapi Kredi.

The area was first excavated in the 1960s by another Briton, James Mellaart, now 85, who established that it had been home to an advanced culture of people transitioning from a nomadic hunter-gatherer lifestyle to a more settled farming life.

Their houses were uniformly rectangular, and entered by holes in the roof rather than front doors. Each had a hearth and an oven, plus platforms that seemed to have been used for sleeping. When a new house was needed, it was built atop the old one. The houses also served as cemeteries: The dead were buried beneath the floor.

Another find this summer was a row of 11 handprints inside a house and above a burial platform. Still another was the discovery of a young calf's head that had been painted red and installed in a house, above a platform that covered nine burials.

“One sort of pattern that we noticed is that the paintings seem to be concentrated around burial platforms,” Dr. Hodder said. “We don't really understand what that relationship is. Is it a way to communicate with the dead? Another idea would be that the paintings are there to protect people from the dead, or to protect the dead from people.”

Over more than 1,400 years, as many as 16 layers of housing were formed, each serving as many as 8,000 people. Dr. Hodder's team has dug through all 16 layers to reach a lake bed from the Pleistocene era.

“From the excavations to date,” said Shahina Farid, the project's field director from University College London, “we find that all of the houses are built up against each other. There are no streets or alleys. It was a very dense population. But a lot of activity would have taken place at the roof level. And the traversing would have been at the roof level as well. And in between groups of houses were these open areas where they chucked out their rubbish. It's those areas that are the richest for us because they actually kept their houses very clean.”

For Ms. Farid, deciphering the inscrutable is part of the appeal.

“Archaeology will always engage people because it's putting a puzzle together,” she said during an interview at the site. “And it's a puzzle we will never, ever complete.”

“There are always going to be missing pieces and it's that sense of awe — that there are things we do today that people were doing 9,000 years ago. You can't help but be awed by that.”

“We are trying to understand why they chose this spot to live. We look at what we call their art. Why were they so interested in bulls? Why were they using certain geometric

designs? What were daily activities and what were ritual activities? We try to define this,” she said.

“Are we looking at the beginnings of religion? And what is all this symbolism telling us about the beginnings of civilization?”

If it sounds a bit like detective work, it is. The team even has a fire forensics expert working with the site.

“Archaeology is a bit like C.S.I.,” Ms. Farid said, referring to the Crime Scene Investigation television series. “There are certain things we know happened. A wall is a wall. But someone else might turn up and say why do you think that’s a wall? And you look at them and you think, well, it’s mud-brick and it’s a wall. Sometime in the future someone will start questioning why we interpreted something as a wall. But for now, we can only interpret based on the data that we have at hand.”

Dr. Hodder, now with Stanford, has been researching at Catalhoyuk since 1993, with a 25-year permit granted by the Ministry of Culture and Tourism, and under the auspices of the British Institute of Archaeology at Ankara. The project’s assistant director is Serap Ozdol from Ege University in Izmir.

Officially, their goals are threefold: to excavate the site, to conserve it and its finds and to present it to the public.

The terrain should be ripe for discoveries in the years to come.

“We’ve only excavated 4 percent of Catal,” Dr. Hodder said. “What we’ve done is like digging a very small part of New York and then inferring from that what life was like.”

From a third to one-half of the people digging at the site are Turkish, he said. “I see it as an increasingly Turkish project and we hope to hand it over ultimately to a Turkish team.”

Getting the local community involved is key to preserving the work done over the decades at Catalhoyuk. Last year, 15,000 people toured the site.

While the Visitor Center is open year-round and contains replicas of finds from the dig, the main relics are on display at the Museum of Anatolian Civilization in Ankara and at the Konya Archaeological Museum.

Many visitors are schoolchildren. “They have a great day here,” Ms. Farid, the field director, said. “And as Gulay Sert, who runs our summer school project, says, if one of these children grows up to be a civil engineer, and sees that his or her road will cut through a mound and stops to think ‘That’s archaeology’ and decides to skirt around the mound, then our work is done.”

It was in fact a school trip that set Ms. Farid on her a career path to dusty Anatolia.

“It was the Egyptians!” she said, recounting her introduction to “The Treasures of Tutankhamen” at the British Museum in 1972. “Yeah, it was the excitement of discovery. But now it’s not the discovery that excites me. People always ask what’s the best thing you’ve ever dug up? And I don’t know because it’s not an item, it’s a story. It’s the story

that goes with it that excites me. That's what we have to teach people as well. A treasure is a treasure but without a story, it's half what it's worth.”

Please visit the site: http://www.nytimes.com/2011/09/08/world/europe/08iht-M08C-TURKEY-DIG.html?_r=2

VOLCANIC ARTIFACTS IMPLY ICE-AGE MARINERS IN PREHISTORIC GREECE **AUGUST 29, 2011, BY LARRY O'HANLON**

Mariners may have been traveling the Aegean Sea even before the end of the last ice age, according to new evidence from researchers, in order to extract coveted volcanic rocks for pre-Bronze Age tools and weapons.

A new technique which dates obsidian -- volcanic glass which can be fashioned into tools -- suggests that people were mining for obsidian in Mediterranean waters and shipping the once valuable rocks from the island of Melos in modern day Greece as far back as 15,000 years ago.

"Obsidian was a precious natural rock-glass found only in Melos, some in [the modern-day Greek areas of] Antiparos and Yali," explained Nicolaos Laskaris of the University of the Aegean in Greece. "From there it was spread all over the Aegean and in the continent too through contacts of trade."

If you wanted to have sharp tools and weapons in the days before bronze, you needed places like Melos. But you also needed a boat to get there. The evidence that people were crossing over to Melos even before the end of the last ice age comes from obsidian artifacts found in the Franchthi cave on the Peloponnese peninsula in southern mainland Greece -- far from the island of Melos. Previous geochemical work had already established the artifacts were from Melos, but figuring out when they were brought from the island is a trickier problem.

"They were sailors, certainly, especially in the Aegean region they followed little islands jumping like a frog reaching also Asia Minor and the Greek mainland," said Laskaris, who with his colleagues has published a paper about the discovery in the Sept. 2011 issue of *Journal of Archaeological Science*. [See at <http://www.sciencedirect.com/science/article/pii/S0305440311001798>.]

"Until now only in Franchthi cave obsidians had been found at circa 8,500 B.C. Now we prove earlier contact with coastal sites was a fact."

Laskaris and his colleagues turned to a method called obsidian hydration dating (OHD) combined with a newer technique known as secondary ion mass spectrometry of surface saturation (SIMS-SS) to determine how much water had penetrated the obsidian surfaces that were exposed to the air by prehistoric humans who were chipping the rocks to make tools and weapons.

"A freshly exposed obsidian surface contains microscopic cracks, into which water absorbs over time," explained researcher Ellery Frahm, of the University of Minnesota Twin Cities, and president-elect of the International Association for Obsidian Studies. The OHD method alone is not very reliable at dating the fractures on the rocks, because it has a couple of serious limitations, she said.

The first is the fact that it's difficult, when looking at the rock surface through a microscope, to see and measure how deep the fuzzy water diffusion zone penetrates into a rock.

"Where do you measure along this fuzzy line? Second, the diffusion front isn't really where it looks to be. A straw appears to bend in a glass of water due to the difference in refraction index of air and water, so the diffusion front in obsidian isn't really where it appears to be either for the same reason," Frahm explained.

But when SIMS-SS, the new mass spectrometry technique, is added to the picture, scientists can actually quantify the water that penetrates a rock.

"SIMS can directly measure the water in obsidian over a depth," Frahm said. "A particle beam removes ions from the obsidian in extremely thin layers, it is like individually measuring the composition of each onion peel layer." That way the change in water content can be plotted with depth, revealing exactly how it changes.

Using the new SIM-SS method, Laskaris and his colleagues were able to determine that Melos obsidian artifacts were making it to the mainland earlier than previously believed. That naturally implies that people were crossing between islands very early in some unknown types of boats.

Provided by Inside Science News Service

Please visit the site: <http://www.physorg.com/news/2011-08-volcanic-artifacts-imply-ice-age-mariners.html>
