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# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Σεπτέμβριος 2010 -**

«Η αληθινή κατοικία του Απόλλωνα βρίσκεται ανάμεσα στους Υπερβόρειους, σε μία χώρα αιώνιας ζωής. Η Λητώ, η μητέρα του Απόλλωνα, γεννήθηκε σε ένα νησί στον αρκτικό ωκεανό, πολύ πιο πέρα από το βόρειο άνεμο. Ο θεός που κάθεται στο κέντρο, στον ομφαλό της γης, είναι ο Κύριος των μύθων και ο Δημιουργός των θρησκειών της ανθρωπότητας.» ΠΛΑΤΩΝ

# Newsletter of the Hellenic Society of Archaeometry

**- September 2010 -**

**Nr. 114**

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## **ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS**

# **POLLUTING THE ENVIRONMENT IN ANTIQUITY: AN INTER-DISCIPLINARY MEETING, DEPARTMENT OF ARCHAEOLOGY, UNIVERSITY OF GLASGOW, SEPTEMBER 7-8, 2010**

Most processes in antiquity created pollution of one kind or another; the processes arose from industries dealing for example with metal extraction to workshops where tanning was undertaken, dye production took place or where the processing of agricultural products occurred. The scale of pollution must have ranged greatly, from the large scale (for which issues of public health must have arisen) to the spillage in a small workshop or domestic context. Under the right circumstances, the evidence for this pollution comes directly from excavation, but it is the case that identification from the archaeological record alone of the process that has given rise to the pollution/waste is often fraught with difficulty or ambiguity.

This meeting builds upon the progress made in recent years in applying techniques of chemical and other analyses to soils from archaeological sites with a view to identifying the potential function of space, often domestic. Its purpose is to create a dialogue between geo-scientists involved in detecting chemical or other signatures of processes that have given rise to ancient pollution in the soil (or, conversely, enrichment of the soil through, for example, manuring) and archaeologists who have excavated sites or found locations where there is evidence of a craft or agricultural processing activity.

Speakers (and their indicative titles) include:

- Vivi Lena Andersen and Annine Moltsen (Copenhagen): Dyeing in post-medieval Copenhagen
- Ian Bull (Bristol University): Organic geochemical signatures of faecal pollution in Antiquity
- Brendan Derham (Glasgow University): Locating archaeological pollution; the role of non-destructive analysis and geochemical survey
- Roger Doonan (Sheffield University)
- Maria Doula (National Agricultural Research Foundation Soil Science Institute of Athens): Effect of Olive Oil Mills Wastes (OOMW) disposal on soil physical and chemical properties
- Dave Evans (Humber Archaeology Partnership): Evidence for tanning and other medieval industries in Scotland
- Hamish Forbes (Nottingham University): Trash/treasure: waste streams, recycling and disposal in a traditional Greek community
- Michael Given (Glasgow University): Pollution and identity: copper slag and ploughsoil in central Cyprus

- Kirsty Golding and Donald Davidson (Stirling): The physical and chemical legacy of urban waste deposition in and around historic Scottish burghs
- John Grattan (Aberystwyth University): Imperial Legacies: mapping and assessing the environmental impacts of the earliest industrial revolution
- Allan Hall (York University): Exploring past craft and industrial activities through macroscopic remains of plants and animals
- Richard Jones (Glasgow University): The archaeological evidence for craft activity in prehistoric Greece
- Andy Meharg (Aberdeen University): Chronology of atmospheric deposition into ombrotrophic bogs resolves debate of when British tin was exploited
- Elizabeth Moignard (Glasgow University): The evidence from iconography and from excavation for craft activity in Classical Greece
- Kristian Pedersen (Edinburgh University): Waste from fish processing
- Effie Photos-Jones (Glasgow University): Pollution and the single ...context: Holistic Context Analysis applied to archaeological assessments
- Lisa Shillito (Reading University): Polluting Neolithic Çatalhöyük? Integrating geochemical and microstratigraphic analysis of middens
- Sorina Spanou (Headland Archaeology): Pollution on the M74, Glasgow
- Clare Wilson (Stirling University): Sources and sinks of anthropogenic element loadings in soils from domestic and agricultural contexts

The meeting arises out of the current Leverhulme-funded International Network project in the Department of Archaeology at Glasgow which is examining new-generation techniques of non-destructive analysis applied to archaeological materials and soils.

If you would like to attend the meeting, please contact the organisers, Richard Jones and Brendan Derham. There is no charge for attending.

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The University of Glasgow, charity number SC004401

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**6TH INTERNATIONAL SYMPOSIUM:**  
**"RADIOCARBON AND**  
**ARCHAEOLOGY", PAFOS, CYPRUS,**  
**APRIL 10 – 15TH 2011, CALL FOR**  
**PAPERS**

Deadline for abstracts: January 17th 2011

Abstract submission to: [radioarch@targetconf.com](mailto:radioarch@targetconf.com) This e-mail address is being protected from spambots. You need JavaScript enabled to view it.

Archaeological research has incorporated high precision radiocarbon dating for the analysis of archaeological environments and has improved sampling strategies; in this way, it has contributed significantly towards establishing extended archaeological chronologies. Radiocarbon research in turn has been challenged to improve precision and accuracy not only in the measurements but also in the sample preparation in relation with various contexts and samples.

As agreed in the previous "Radiocarbon and Archaeology Symposium " in Zürich in 2008, we are pleased to announce an open call for papers for the 6th International Symposium on "Radiocarbon and Archaeology" to be held on April 10-15th, 2011 in Pafos, Cyprus. The aim is to provide a forum to promote the exchange of new ideas and challenges on the merging research fields of Radiocarbon and Archaeology. The conference is addressed to the international scientific community of Radiocarbon, Archaeology, Archaeological Sciences and related fields.

We look forward to welcoming you to Cyprus in April 2011 and to a rewarding symposium

Dr. Elisabetta Boaretto  
Symposium Chair

Further information:

For general inquiry, please contact the Secretariat at [radioarch@targetconf.com](mailto:radioarch@targetconf.com)

Please visit the site: <http://www.c14.cyi.ac.cy/> [Go there for many links and pix]

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**DIGITISING CULTURAL HERITAGE,**  
**BRITISH MUSEUM: STEVENSON**  
**LECTURE THEATRE, SATURDAY 4TH**  
**SEPTEMBER 2010**

FREE EVENT: everyone welcome

Digital technology is transforming cultural heritage management. The power to store, organise and distribute vast quantities of complex data makes it possible now to do things that only 20 years ago were dreams. This study day brings together a selection of projects that embrace the potential of the digital world to broaden and enrich access to the world's shared cultural heritage.

9:55 welcome: Neil MacGregor, Director of the British Museum

10:00-10:30 British Museum Collections Online  
Julia Striblehill, British Museum

10:30-11:00 The International Dunhuang Project  
Sam van Schaik, British Library

11:00-11:30 TEA BREAK

11:30-12:00 Vindolanda Tablets Online  
Alan Bowman, University of Oxford

12:00-12:30 Integrating Digital Papyrology  
Gabriel Bodard, Kings College London

12:30-1:30 LUNCH BREAK

1:30-2:00 The Ashurbanipal Library Project  
Jon Taylor, British Museum

2:00-2:30 The Open Richly Annotated Cuneiform Corpus  
Steve Tinney, University of Pennsylvania

2:30-3:00 Persistent Digital Archives in Cuneiform Research and Cultural Heritage  
Management  
Robert K. Englund, UCLA

3:00-3:30 TEA BREAK

3:30-4:00 The Syrian Digital Library of Cuneiform  
Bertrand Lafont, CNRS, Paris

4:00-4:30 Cooperation among Research Institutes and Museums - The Digital Edge  
Jürgen Renn, Max Planck Institute for the History of Science, Berlin

See:

[http://www.britishmuseum.org/whats\\_on/events\\_calendar/september\\_2010/digitising\\_cultural\\_heritage.aspx](http://www.britishmuseum.org/whats_on/events_calendar/september_2010/digitising_cultural_heritage.aspx) for more details.

COMING SOON – BOOK NOW

Journey through the afterlife: Ancient Egyptian Book of the Dead Opens 4 November 2010

Under 16s and Members free

TICKETS +44 (0)20 7323 8181

[www.britishmuseum.org](http://www.britishmuseum.org)

From Jonathan Taylor <[JJTaylor@thebritishmuseum.ac.uk](mailto:JJTaylor@thebritishmuseum.ac.uk)>

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

**LOOKING FOR A SPECIALIST IN**  
**PROTOHISTORIC METALLURGY IN**  
**THE SW OF FRANCE**

Dear colleagues,

I'm looking for a archaeometallurgist who can work with us (OAMed) on short term contract (CDD) on a protohistoric site near Toulouse - the post would involve some on site work and the preparation of a report in the post excavation phase. We're currently preparing the tender/ proposal for the site, so excavation isn't imminent!

Previously, for different site in the SW of France I worked with Marrion Berranger, who frankly was very good, however I believe she now works in the north of France for a regional service so probably doesn't have time - So if anyone on the list is interested (with appropriate specialisms/ experience) or knows of anyone who might be please pass on my details and this message.

Further details will be provided with pleasure on request :)

Merci / cheers again,

[Luke.howarth@oamed.fr](mailto:Luke.howarth@oamed.fr)

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## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

# **AWOL - THE ANCIENT WORLD ONLINE,** **NEW OPEN ACCESS JOURNAL:** **ANTIQUA**

ISSN 2038-9604

ANTIQUA is a new, peer-reviewed, Open Access journal intended to archaeologists and scientists having particular interests in the application of scientific techniques and methodologies to all areas of archaeology. Our journal publishes Original Research papers as well as Rapid Communications, Case Histories, Editorials, and Letters. The journal seeks to provide an international, rapid forum for archaeologists to share their own knowledge.

Applications are invited for a new Editor-in-Chief of "Antiqua" journal

Antiqua is a new, peer-reviewed, Open Access journal intended to archaeologists and scientists having particular interests in the application of scientific techniques and methodologies to all areas of archaeology. Our journal publishes Original Research papers as well as Rapid Communications, Case Histories, Editorials, and Letters. The journal seeks to provide an international, rapid forum for archaeologists to share their own knowledge.

The contribution of the new Editor-in-Chief will be crucial to the development of a unique journal style and image which will influence the way new ideas and progress in scientific research in your field is made available to the wider community. He/she will also be responsible for creating an Editorial Board of no fewer than 15-20 experts in the field. Together the new Editor-in-Chief and the Editorial Board will review and select manuscripts for online publication on our site.

We are confident that the quality and high ethical standards of our journals can offer a unique service to the international community. Together we can promote scientific advancement and excellence for the benefit of all.

If you are interested in our project, please send us a copy of your curriculum vitae, including your study record and a brief list of your main publications, for our internal evaluation. Our Board will be meeting in next few weeks to select a new Editor-in-Chief. Send your application and CV to:

Nadia Moscato, Managing Editor, [nadia.moscato@pagepress.org](mailto:nadia.moscato@pagepress.org)

Please visit the site: <http://ancientworldonline.blogspot.com/2010/08/new-open-access-journal->

[antiqua.html?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A+Awol-TheAncientWorldOnline+\(AWOL+-+The+Ancient+World+Online\)](#)

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***INTERNET SITES***  
**CONSERVATION AND**  
**DOCUMENTATION OF CULTURAL**  
**HERITAGE**

Factum Arte consists of a team of artists, technicians and conservators dedicated to digital mediation and to the production of facsimiles as part of a coherent approach to repatriation and non-contact restoration. Bespoke equipment, software and technologies have been designed by Factum Arte to obtain optimum recording results.

Factum Arte's non-contact methodologies have had a huge impact on the world of conservation and thus have altered not only how facsimiles are considered by the museums and experienced by public, but have also helped to establish guidelines for conservation and documentation procedures. Over the past few years Factum Arte has worked with The Musée du Louvre, The British Museum, The Pergamon, Museo del Prado and Biblioteca Nacional in Madrid, the Fondazione Giorgio Cini, the Supreme Council of Antiquities as well as many other museums and institutions in Europe, Middle East, North Africa and USA.

The work produced is the result of in-depth study informed by the assumption that originality is not a fixed state but rather a process, which changes and deepens with time. The importance of a work of art is revealed by its ability to reflect the changing ideas and values that condition its appearance and the way we see it. – Adam Lowe

\*\*\*\*\*

\*Work in the tomb of Tutankhamun

[http://www.factum-arte.com/eng/conservacion/tutankhamun/tutankhamun\\_en.asp](http://www.factum-arte.com/eng/conservacion/tutankhamun/tutankhamun_en.asp)

\*Facsimile of a section of Burial chamber from the tomb of Seti I

[http://www.factum-arte.com/eng/conservacion/seti/seti\\_en.asp](http://www.factum-arte.com/eng/conservacion/seti/seti_en.asp)

\*Facsimile of Thutmose III's tomb

[http://www.factum-arte.com/eng/conservacion/tutmosis/default\\_en.asp](http://www.factum-arte.com/eng/conservacion/tutmosis/default_en.asp)

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Please visit the site: <http://www.factum-arte.com/eng/conservation.asp>

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# **WEBPAGE OF THE EFC'S WORKING PARTY ON "CORROSION OF ARCHAEOLOGICAL AND HERITAGE ARTEFACTS"**

Dear colleagues,

I send you the email address of the Working Party 21 of the European Federation of Corrosion, dedicated to corrosion of archaeological materials  
<http://www.efcweb.org/Working+Parties/WP+21.html>

You can find on it PhD and post-doc position in the field but also some references of WP members.

Do not hesitate to disseminate it, but also to send me information that could be relevant in the field

Warm regards to all

\*\*\*\*\*

Philippe Dillmann  
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## ART CONSERVATION RESEARCH

Please visit the site: <http://conservationresearch.blogspot.com/>

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## ***ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS***

# **MINOAN ARCHITECTURE: MATERIALS AND TECHNIQUES, JOSEPH W. SHAW**

Studi di archeologia cretese. Padova: Bottega d'Erasmus, 2009. Pp. 337.  
ISBN 9788861250727.

Reviewed by Quentin Letesson, Université Catholique de Louvain  
([quentin.letesson@uclouvain.be](mailto:quentin.letesson@uclouvain.be))

The volume under review is an updated and revised version of Joseph Shaw's seminal work first published thirty-six years ago.<sup>1</sup> As the author demonstrates, numerous field projects and scholarly investigations have considerably broadened our knowledge of Aegean society in general and ancient architectural techniques in particular since that time. Although the overall structure of the initial book remains, this revised edition takes into account new investigations such as the quarrying of stone, the construction above ground level and LMIII architecture. It also successfully crosses the technical threshold, venturing into a more anthropological approach to development, change, and diffusion, and focuses on the agents involved in these processes (see below chap.5).

Shaw presents this work, largely concerned with architectonics, as a “logical supplement” to books dealing with Minoan architecture in terms of room and building shape and their particular relationships, function, or significance.<sup>2</sup> Broadly speaking, the main concerns of this revised volume are building materials and techniques, especially where so-called polite architecture is concerned.

The book opens with a brief introduction to the state of research in Minoan and Aegean Bronze Age architecture in recent decades. The first and longest chapter deals with stone and is subdivided in five parts.

The first lists the main types of stone used in Minoan architecture (limestone, gypsum, sandstone, schist, conglomerate, as well as less common or widely used ones) and specifies their intrinsic qualities, their various provenances, and particular uses. The second part of the first chapter addresses quarrying and the transportation of stone. The location, exploitation and peculiarities of all the limestone, sandstone or gypsum quarries found to date are detailed in relation to Minoan settlements. Several methods for the transportation of stone are also proposed but remain hypothetical due to the lack of any remains or clear iconographic testimonies related to these practices.

The third part is concerned with various aspects of the carpenter's and mason's toolbox. As asserted by the author, there are considerable lacunae in the archaeological record with regard to this topic, especially because of the extensive use of perishable materials. Nevertheless, some of the main tools (e.g. axes, adzes, saws, chisels, and hammers) are described and their use in construction techniques amply exemplified with case-studies and a rich repertoire of illustrations. The fourth part is a long subchapter dedicated to masonry, addressing in turn foundations, rubble walls and especially ashlar walls and their peculiarities. As usual, this part of the book abounds with clearly illustrated examples—often presented chronologically—that strengthen the technical considerations

and give a clear image of the richness and accomplished nature of Minoan masonry. The last part of the first chapter, Special Uses of Cut Stone, gives a detailed account of the specificities of column bases and stone drainage channels (see also Appendices B and C for more detailed information about column bases).

Wood and timber comprise the topic of the second chapter. The author first mentions the main types of wood used in Minoan architecture, briefly discussing their variety and provenance. The presence of wood is often inferred indirectly from carbonized remains, negative traces of timbers in rubble structures, and carbon- or dirt-filled cuttings or gaps in ashlar masonry. The use of wood in architectural construction is then discussed within a chronological framework. The author deals in turn with reinforcement of rubble walls, wooden framing of mud brick walls, propping up using vertical timbers, carefully joined and flexible wooden framework partitioning off interior spaces, and finally columns, ceiling beams and planks. The second part of this chapter is dedicated to wooden clamps and dowels.

Both are relatively infrequent (by comparison to Classical Greek buildings, for example) and their existence is inferred exclusively from mortise cuttings. Being rather uncommon and almost idiosyncratic to a specific site, wooden clamps and round dowels are only very briefly mentioned. On the other hand, square or oblong mortises occur throughout Crete on many sites, sometimes as early as MMIB. Therefore, the author discusses square dowels in greater length especially in relation to different types of piers, parapets, stone pillar built of cut blocks, and window sills, as well as the upper part of wall construction.

The third chapter first deals with sun-dried mud brick, respectively detailing their composition and technique, the archaeological evidence for them and the sizes of bricks (see also Appendix D). Terracotta objects are the main concern of the second part of the chapter. Pipes, channels, and catch-basins, as well as flooring tiles are described and their peculiarities listed, especially in palatial contexts.

Appendix E is worth mentioning here. It includes a detailed catalog of all the terracotta pipes, channels and catch-basins mentioned in the book with their precise location within their building, their chronology, and dimensions.

Lime and Clay Plasters, the fourth chapter, first deals with the composition and early use of such material, especially during the Early Minoan period. It then focuses on later uses of lime plaster during the First and Second Palace periods, and in particular its preparation and the technique for its application. The following sizeable part of this chapter is concerned with floors. The author briefly mentions local earth frequently used in specific regions to lay floors and the plaster whose chief function was to cover them. He then discusses the materials of three specific flooring techniques:

the so-called tarazza, “a hard durable mixture of lime and small round beach pebbles of uniform size”, elaborate slab pavements, and the unusual plaster “strip designs” made of flat bands of plaster carefully laid out in patterns. The next two short subchapters concern ceilings, upper floors, roofs and parapets. Remains of such elements are scarce, therefore the author contents himself with some remarks on vegetal materials used in roofing and some instructive parallels with the architecture of Akrotiri on Thera. This chapter ends with two pages dedicated to calcestruzzo, an unusual kind of very hard mixed material especially found on the site of Phaistos, particularly in relation with the palace. Some potential parallels elsewhere on the island are also briefly mentioned. Appendix F



presents the chemical constituents for a sample of plasters from various Cretan sites dating from Early Minoan times to the Hellenistic Period.

The fifth chapter is an extremely valuable addition to the initial edition. Its first part takes a diachronic perspective on building practices. From the Neolithic through the Minoan periods, the author outlines the major developments in architectural techniques and contextualizes them in their socio-economic and technical background.

This chapter allows him to integrate all the data presented in the previous chapters in a coherent and convincing explanatory framework.

Within this framework, special attention is given to the origins, development and features of the so-called “Neopalatial” style. As in previous chapters, the author develops his argument with a wide range of examples from major sites on Crete. The second part of the chapter is relatively short and concerns builders. Concentrating on their organization and sphere of action, the author professes to limit himself to “reasoned speculation” due to the lack of contemporary records. He nonetheless offers a stimulating discussion about types of artisans (attached, independent) and their level of expertise and potential itinerant character. Therefore, Shaw opens challenging issues about the mobility of technologies through time and space, both locally in relation to the proliferation of the “Neopalatial” style (already discussed by Jan Driessen<sup>3</sup>) and overseas, in the third part of this chapter: Diffusion: Minoan Architectural Style Abroad. Here, the author searches for architectural evidence of Minoanization (esthetic or structural) within three broad categories defined by their increasing geographical and chronological distance from the “Cretan Palatial Style”. He successively deals with the contemporary Aegean island group (especially the sites of Akrotiri, Phylakopi, Ayia Irini and Trianda), the Mainland evidence shortly after LMI (the site of Kythera) and most extensively with the Mainland evidence from LHIIIB, focusing on various Mycenaean buildings and settlements. While Shaw admits that Minoan architectural style permeated Bronze Age Aegean built forms in various ways, he constantly and rightfully juxtaposes its influence with the existence of local traditions which often form the structural core of non-Minoan buildings.

Six appendixes follow. Apart from the first and very short one, Metal used in buildings, they have already been mentioned in this review.

The book then ends with a list of abbreviations, a bibliography, a guide to site plans, the usual list of illustrations and their credits, the figures in themselves and a very useful index.

As opposed to the first edition, figures are relegated to the end of the volume. Most of them come directly from the original version of the book along with the noticeable addition of new drawings and pictures. Some might dislike having to go back and forth between the text and the end of the book to consult them, but for the sake of comparison between related figures (tool marks, for instance), it is nevertheless convenient that they are all grouped together. Most of the plans and drawings are of very good quality. The same is largely true for the photographs, however a few are a bit too small, slightly blurry because of their age, or even missing a scale of any sort.

Notwithstanding these considerations, one should keep in mind that the quality of the pictures never compromises the reader’s ability to understand the work. On the contrary, they nicely complement the text and their profusion is noteworthy.

The lack of consideration of the so-called vernacular architecture,<sup>4</sup> especially for the palatial periods, is unfortunate but surely has to be imputed to the relative scarcity of

such archeological remains rather than to an attempt to ignore it. Nevertheless, recent excavations with high standards of archaeological work have revealed quite interesting non-palatial Minoan buildings such as the farmhouse at Chalinomouri<sup>5</sup> or the modest LMIII houses at Mochlos.<sup>6</sup> It seems reasonable to admit, with Jeffrey Soles, that buildings that we would tend to label as ‘vernacular’ probably formed the major part of the Minoan built environment.<sup>7</sup> In my opinion, there is not much to gain from trying to define a boundary of some sort between ‘polite’ and ‘vernacular’ architecture.<sup>8</sup> It is understandable that the proliferation of high quality buildings in the Neopalatial period tempts one to insist on the emergence and profusion of this peculiar and impressive architectural style. Nonetheless, I think we should consider the Minoan built environment as a whole, with the ‘polite’ and the ‘vernacular’ as parts of a continuum,<sup>9</sup> both entitled to a thorough examination of their architectural features and architectonic properties (as simple and elementary as they might be). As Carl Knappett pointed out, if we take such an approach we will be more attuned to the “considerable interpenetration of the aesthetic and the everyday” and in a better position “to develop a unified interpretive framework that allows for the assessment of the pragmatic and the significant qualities of both ‘artworks’ and ‘artefacts’”.<sup>10</sup>

To conclude, *Minoan Architecture: Materials and Techniques* was and, with this updated and revised edition, is bound to remain the most useful and incontrovertible handbook for those interested in techniques and materials in Minoan architecture, whether on the field or in the library. It is not the kind of book one would read from one end to the other and then condemn to a dusty fate on a shelf, retaining only some of its main points. It is a book that will be consulted regularly and continue to be an indispensable reference for detailed, precise, comprehensive and up-to-date information on technical issues related to Minoan architecture.

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2. For example J. Walter Graham’s *The Palaces of Crete* originally published in 1962 and in a revised edition in 1987 as well as a recent book by J. McEnroe, *Architecture of Minoan Crete: Constructing Identity in the Aegean Bronze Age*, both being principally referenced by the author.
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4. McEnroe, John, “The significance of local styles in Minoan vernacular architecture”, in Darcque, P. and R. Treuil (eds), *L’habitat égéen préhistorique (BCH suppl. XIX)*, Athens-Paris 1990, 195-202.
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7. Soles, Jeffrey S., *op. cit.*, 2003, 127.
8. For an extremely valuable approach of the concept of vernacular architecture and its implications in architectural studies, see Preston Blier, Suzanne, “Vernacular Architecture”, in Tilley, C., Keane, W., Küchler, S., Rowlands, M. and P. Spyer (eds),

Handbook of Material Culture, London, 2008, 230-253; see also the essential book by Henry Glassie, Vernacular Architecture, Philadelphia and Bloomington, 2000.

9. On unhelpful typological approaches in Minoan architecture, see Preziosi, Donald and Louise Hitchcock, “Defining Function and Meaning in Minoan Architecture: New Evidence from the Villa at Makryghialos”, *AJA* 98, 1994, 336; Hamilakis, Yannis, “Factional Competition in Neopalatial Crete”, in Driessen, J., Schoep, I. and R. Laffineur (eds) *Monuments of Minos. Rethinking the Minoan Palaces (Aegaeum 23)*, Liège-Austin, 2002, 189; Letesson, Quentin, *Du phénotype au génotype: analyse de la syntaxe spatiale en architecture minoenne (MMIII B-MRIB) (Aegis 2)*, Louvain-la-Neuve, 2009, 30-33 and 363-365.

10. Knappett, Carl, “Artworks and Artefacts: the Pottery from Quartier Mu, Malia”, in Bradfer-Burdet, I., Detournay, B and R. Laffineur (eds), *L’artisan crétois (Aegaeum 26)*, Liège-Austin, 2005, 117.

Please visit the site: <http://bmcr.brynmawr.edu/2010/2010-08-48.html>

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## **GEO-ARCHAEOLOGICAL ACTIVITIES IN SOUTHERN CAPPADOCIA - TURKEY**

Proceedings of the Meeting held at Pavia, 20.11.2008 Edited by Lorenzo d'Alfonso, Maria Elena Balza, and Clelia Mora Studia Mediterranea 22, Italian University Press, 2010 ISBN 978-88-8258-114-5 72.00 €  
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Southern Cappadocia is part of the Central Anatolian plateau, Turkey, corresponding to the territory of the provinces of Niğde and (partially) Konya. It consists of an alluvial plain, the Bor-Ereğli Plain, at an altitude of about 1000 m, and the surrounding mountains, which include: the Taurus and Ulukısla Mountains to the south, the Niğde Metamorphics Massif and Ulukısla Mountains to the east, the Melendiz, Hasan, and Karacadağ volcanics to the north and north-west. The steppe and marshland of the Konya plain lie to the west. In respect to other regions of Anatolia, like the Aegean coast and Cilicia, or even neighboring regions! such as Northern Cappadocia (provinces of Kayseri and Nevşehir), and the Konya Plain, the study of the past of Southern Cappadocia has received little attention from researchers. However, as recent results demonstrate, this region played a key-role in antiquity.

More than thirty years have elapsed since the last symposium on Southern Cappadocia in Antiquity took place (in 1987 at the IFEA, Istanbul; later published by B. Le Guen-Pollet and O. Pelon in 1991). Since then much has happened in the region, and after almost two decades we thought that the time had come for a meeting of those scholars from different fields - archaeologists, geologists, historians and Art historians - who work and do research in Southern Cappadocia.

The meeting Geo-Archaeological Activities in Southern Cappadocia, Turkey, took place at the Institute for Advanced Studies (IUSS) of Pavia, on November, the 20th, 2008. The present volume brings forth the ! proceedings of the meeting.

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From Lorenzo d'Alfonso [iadibala@hotmail.com](mailto:iadibala@hotmail.com)

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## **CURRENT ANTHROPOLOGY, VOLUME** **51, NUMBER 4, (AUGUST 2010)**

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## **EΙΔΗΣΕΙΣ - NEWS RELEASE**

# **ODYSSEUS'S PALACE FOUND**

Greek archaeologists have claimed they have found the palace of Odysseus during excavations on the Ithaca island in the Ionian Sea.

On Tuesday, the archaeologist, Thanasis Papadopoulos, who has been leading the excavation team on Odysseus' home island for 16 years, said that he knew the right place of the remains since 2006.

“We found the ruins of a three-level palace with a staircase carved into the rock,” Papadopoulos said, adding that they also found a well, dating back to 13th century BC, when the Trojan War is believed to have taken place.

According to the archaeologist, the discoveries are identical to the ones described in Homer's Odyssey, presumably written about 8th century BC.

The Greek Ministry of Culture has provided more funding for the continuation of the excavations.

The mayor of Ithaca, Spiros Arsenis, has stated that Papadopoulos' discovery is easily one of the most important discoveries in modern archeology, as reported by the Russian news agency RIA Novosti.

**Please visit the site: [http://www.novinite.com/view\\_news.php?id=119469](http://www.novinite.com/view_news.php?id=119469)**

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## **ODYSSEUS'S PALACE IS BEST LEFT TO IMAGINATION, BY HARRY MOUNT**

Archaeologists from the University of Ioannina have found a three-storey building, with a well, steps carved out of rock, and fragments of pottery, all fitting Homer's description. Was this where Odysseus returned to save his wife Penelope from her wicked suitors, after 10 years fighting at Troy, and another 10 years wandering the seas off modern Greece and Turkey?

The short, unromantic answer is probably no. There are just too many imponderables. No one knows exactly when the Trojan war was fought – perhaps in the 12th or 13th century BC, perhaps much later. And no one knows exactly when Homer lived – maybe the 8th or 9th century BC. The creatures Odysseus meets on his journey are mythical – like the Cyclops, the one-eyed giant who traps him in his island cave, the sweet-voiced Sirens, and the six-headed Scylla. So why should his stopping-off points have their real incarnations?

But, but, but... there certainly was, and is, a city of Troy. So why shouldn't there have been a Trojan War? And why shouldn't all that happened after the war have a kernel of truth to it?

In fact, there are about a dozen ancient cities built on top of each other at Troy, dating from 3,000BC to the first century BC; it's a pretty good bet that Homer's city is one of them. There's even a thrilling layer of finds that suggests one city was destroyed in 1190BC, just as Homer describes: burnt objects, arrowheads, and butchered skeletons have been unearthed.

The problem, though, isn't finding ancient things that might fit any suggested dates for the Trojan War. The Mediterranean – in particular the waters along the coast – was the principal travelling route of the ancient world, a vast watery motorway connecting the cities of ancient Greece and, later, the Roman Empire. So those shores are jam-packed with ruined buildings and household goods stretching back thousands of years.

Want to find a modern counterpart for Charybdis, the whirlpool that threatens to swallow up Odysseus's boat? Well, you'll track one down somewhere in the million square miles of the Mediterranean. Want an ancient palace on Ithaca that might have been Odysseus's? Somewhere on Ithaca's 45 square miles, you'll get something pretty close to Homer's hazy, poetic description.

The result is history (and geography) based on hunches, and on oral poetry passed down over generations. That explains why, for centuries, archaeologists have been convinced that they've stumbled on the real Homeric world. In his 1873 digs at Troy, Heinrich Schliemann, was convinced he'd found Helen's jewellery, which he draped his wife in. He was so excited that he christened his children Andromache and Agamemnon. It turns out, sadly, that he'd dug far too deep, into a pre-Iliad Troy of around 2,500 BC.

You can see why Schliemann so desperately wanted it to be Priam's Troy. The Iliad and the Odyssey have that sort of elemental, passionate effect on their devoted readers. The

two epics speak so powerfully and truthfully about war, death, loss, travel, return and love, that they create a complete mental landscape. The temptation to believe that it exists in real life is irresistible.

Please visit the site: <http://www.telegraph.co.uk/culture/books/7964507/Odysseus-palace-is-best-left-to-imagination.html>

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# **THE NEW SWEDISH CYPRUS** **EXPEDITION 2010: EXCAVATIONS AT** **DROMOLAXIA VIZATZIA / HALA** **SULTAN TEKKE**

## **Abstract**

During the course of the New Swedish Cyprus Expedition (NSCE) in spring 2010 a ground- penetrating radar survey (GPR) was carried out at Dromolaxia Vizatzia/Hala Sultan Tekke in Area 6, leading to the discovery of a large Late Cypriote complex. The compound is bordered to the north by a substantial wall, against which nine rooms (so far) could be exposed. Two occupational phases have been verified but there are indications of a third. The suggested functions of the various structures of the most recent phase are as living, working, storage and administration spaces. The rich find contexts point to the production of textiles and metal objects, and the locally produced pottery is generally of high quality. There are also many imports, mainly from the Mycenaean sphere of culture. The locally produced vessels from Phase 2 include the "Creature Krater" which is a masterpiece of high artistic standard. Another piece of elevated artistry is the part of a "Warrior Vase".

## **Introduction**

After the untimely death of the author's former teacher and friend Professor emeritus Paul Åström in October 2008 the Swedish excavations were resumed at the Late Cypriote city of Dromolaxia Vizatzia/Hala Sultan Tekke under the direction of the author from Gothenburg University, Sweden. Surveys and excavations were carried out in Area 6 from 7 May to 5 June 2010. The team consisted in addition to the director of the excavations, P.M. Fischer, assistant field director R. Feldbacher, technical archaeologist H. Ta'ani, and architect M. Bataineh, of 13 archaeologists and students, most of them from Sweden, others were from Austria, Denmark, Germany and Jordan: W. Försth, L. Franz, J. Gimmerstam, C. Hagberg, Fa. Kärfve, Fr. Kärfve, P. Klingborg, S. Macherides, M. Persson, I. Sulzenbacher, O. Svensson and N. Werther. A. Fischer participated part-time.

Limited trial excavations were carried out in the northern part of Area 6 in 1972 by E. Åström and A. Hatziantoniou. The results from these soundings point to a settlement from Middle Cypriote III (?) to Late Cypriote I but also from Late Cypriote IIC to IIIA and later. Amongst the earliest wares excavated then in Area 6 are White Painted Pendant Line Style, Proto White Slip, Monochrome, Bichrome Wheel-made, White Painted V-VI, Red-on-Red and Red-on-Black. Later wares included Late Helladic IIIA2 and Plain White Wheel-made II.

## **Objectives**

Determination of the complete occupational sequence of the site, including investigation of pre-12th century levels, is the main task of the planned project. The intercultural synchronisation guided by Cypriote ceramic key wares and the study of radiocarbon dates from essential contexts from the current excavations are also amongst the main undertakings of the present project.

### **Ground-penetrating radar survey (GPR)**

Magnetic and electrical prospecting have been carried out over the years at the site. In 1980 the first ever GPR survey conducted in the Eastern Mediterranean was carried out by the present field director at Hala Sultan Tekke. In May 2010 a high-resolution GPR survey was carried out within Area 6 in order to facilitate the selection of the spot for the excavation. Over the course of three days Area 6, measuring 2356 square metres, was scanned by I. Trinks from the Swedish National Heritage Board with the assistance of P. Georgiou.

For this georadar survey a state-of-the-art digital 500 MHz antenna system was used. The overall length of the 371 measured GPR profiles amounts to 18855 m. A series of GPR depth slices, viz. horizontal data images corresponding to 10cm. depth intervals from the surface down to 200 cm depth, were generated.

Structures indicating architectural remains started to appear in the GPR images at a depth of approximately 30 cm below the surface and were visible down to at least 100 cm. The most clearly expressed anomalies were concentrated in the south-western part of Area 6. There are, however, further rectangular structures, although not as distinct, in the central and eastern parts of Area 6.

In the eastern half of the survey area a possible circular anomaly with a diameter of approximately 20 m can be seen in the data at a depth of 40 cm below surface. As a result of the GPR survey it was decided to open a 10 m ´ 10 m square, later extended (T1A-D; T3A represents a later extension) in the south-western corner of Area 6, where the radar images had indicated fairly detailed, stone-built architecture. Another (test) trench was opened in the east (T2). The structures detected by GPR and subsequently excavated consist of a compound at least 25 m long, bordered to the north by a wall running roughly east-west, against which a number of rooms were built towards the south. Using the GPR data we were able to discern fascinating details such as openings in the walls and circular stone structures within the compound, all of which were verified within narrow margins during the course of the excavations.

Other surveys, and excavation and recording techniques In order to provide accurate maps based on precise measurements a GPS survey was carried out with the kind assistance of the Department of Public Works/Sea Works, Nicosia. A number of fix-points were measured with mm accuracy and with reference to heights above mean sea level (MSL). The coordinates of the fix-points refer to the Cypriote Local Transverse Mercator (LTM) projection system, which has the same Central Meridian (33° E) as the zone 36 of the Universal Transverse Mercator System (UTM). Consequently the previously published maps of the excavated settlement and tombs (see HST1-12) have to be corrected since measurement errors could be demonstrated.

A total station (electronic distance measuring device) and database were used for the recording of all structures and small finds. The photographic documentation included several digital cameras and a video recorder. With the excellent cooperation of the personnel of the local police helicopter division numerous still pictures and videos were taken during the excavations. The excavations were continuously supported by an electro-magnetic detector and an industrial vacuum cleaner powered by a petrol-driven generator. In principle, most of the excavated debris was dry-sieved.

### **Colluvial soil**

The thickness of the colluvial soil varies between 0.05m. and 0.15m., the average being approximately 0.1m. The general impression of the structure of the colluvial soil is that the area did not suffer from post-Late Cypriote human disturbances or animal holes.

### **Stratum 1**

This stratum contains the bulk of findings from this year's excavations. The thickness of the stratum is up to 0.8 m. It comprises roof constructions, mudbrick superstructures, stone-built wall foundations and several floors indicating sub-phases. In addition to the rich find assemblage it also produced architectural elements of limestone, once parts of door/roof constructions and water/drainage systems, and ashlar masonry.

All architectural remains are orientated roughly north-south/east-west with a slight deviation of the longitudinal axis towards the west in the northern and eastern part of T1. The architectural remains are dominated by a stone wall running east-west, 0.8 m wide, and preserved to a height of approximately 0.7 m (W1).

This wall corresponds to the wall at least 25 m long running from the western fence towards the east as indicated by GPR. Nine walled spaces (Rooms R1-9) to the south are separated from each other by division walls 0.4 - 0.7 m wide.

### **Small finds (summary)**

There is a sherd which depicts the lower part of a warrior in an aggressive pose holding a spear (?), obviously from a warrior vase.

Three colours were used: red for the body and the weapon (?), black for the undergarment and white for the skirt and the shin guard. The perfectly painted leg recalls representations on Aegean frescos and the white overpaint might be influenced or have its roots in the Minoan sphere of culture. The fabric is not typical Mycenaean, and - although slightly burnished - it lacks the lustrous appearance of typical Mycenaean ware.

Amongst other the finds are many loom weights, spindle whorls, bronze rings, bronze spearheads, a number of complete ceramic vessels and an ostrakon from the rim and neck of a pithos with Cypro-Minoan signs, which were incised post-firing. The complete bronze head of a bull used as a weight should be mentioned.

Amongst the complete or nearly complete vessels is a Canaanite jar, a chalice belonging to the White Painted Wheel-made group of wares and a krater of Plain White Wheel-made ware. Other finds of importance are numerous olive stones, pieces of copper slag, a large, irregular, piece of melted lead, two bronze fishing hooks, a complete, leaf-shaped, bronze arrowhead, a pestle of basalt, a millstone of limestone, a grooved bead of faience and a fairly complete krater of Plain White Wheel-made Ware.

It is our preliminary impression that Stratum 1 was destroyed during an military assault, however, substantial ash layers are not present.

### **Stratum 2**

This stratum is so far only visible in the western portion of T3A close to the southern and western fence. Two finds should be mentioned: one is an excellently finished button of bone with geometric incisions in a flower pattern, and the other represents one of the highlights of the 2010 season, namely, a large krater which received the working name "Creature Krater" in acknowledgment of the dominating, skilfully painted motifs.

### **Stratum 3**

Stones appear on the very last day of the excavations east of W13 and may belong to an even earlier phase of occupation.

### **Trial sounding (T2)**

A test trench (T2) was opened in the eastern part of Area 6 near the eastern fence, where the GPR survey indicated a structure 1-2 m wide running roughly north-south. A circular stone-built structure was found ca. 0.3 m from the surface. It has a diameter of 1 m at the top, is 0.4 m deep and becomes narrower downwards. In addition to a number of Late Cypriote sherds two finds are of special interest: one is a toggle pin of bronze and the other a complete exquisite bull's head of bronze, which lay on the limestone block in the bottom of the structure. The function of the bull's head is most likely that of a weight. The structure is interpreted as a grain silo or a container for other foodstuffs.

### **Preliminary conclusions**

A large Late Cypriote complex has been discovered in the southern part of Area 6 where no substantial structures were found during test soundings in the 1970s. The use of various surveying and recording techniques turned out to be of great assistance. The GPR survey, for instance, suggested a compound a minimum of 25m in length of which only minor parts in the south-easternmost part of Area 6 were partly exposed during the 2010 season. The subsequent excavations verified the GPR results to a high degree. The major part of the compound lies outside the present fence to the west and south. There are at least two phases of occupation represented of which only the most recent, Stratum 1, could be exposed during this season. The compound is bordered to the north by a more substantial wall against which a number of rooms/spaces were built, nine of which were partly exposed during this year. The suggested functions of the various structures are those of living, working, storage and administration spaces.

Numerous loom weights and spindle whorls of fired clay and stone point to the production of textiles, and copper slag and lead to the production of metal objects. There is an abundance of finds which include jewellery, tools and weapons of bronze, amongst which are a bull's head, finger rings, bracelets, toggle pins and fishing hooks.

Other objects are of stone and bone, the latter including a nicely decorated button. In general, the locally produced pottery is of high quality and so are the imports mainly from the Mycenaean sphere of culture. Stratum 1 was probably destroyed during an military assault, however, substantial ash layers are absent. The Creature Krater, which belongs to Stratum 2, is a masterpiece of high artistic standard. In order to expose additional portions of this most interesting compound Area 6 will be extended to the west and south.

### **Acknowledgements**

Thanks to the kind and proficient support of the director of the Department of Antiquities, Dr M. Hadjicosti, and the then acting director of the Department of Antiquities, Dr M. Solomidou-Ieronymidou, the mission could be planned and accomplished efficiently. Further support was given by the head of the Larnaca archaeological museum, Mr P. Kyriakou, archaeological officer Dr G. Georgiou from the DAC in Nicosia, Mr P. Georgiou (and his family), former employee of the DAC, and H.E. ambassador I. Lindahl of Sweden and F. Olson, the first secretary of the Swedish embassy in Nicosia.

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Further support was received from the board of the association of the Friends of the Swedish Cyprus Expedition. The Police Aviation Unit, kindly supported by Mr Andreas Ioannou, backed up our mission by providing a series of excellent air photographs for which we are much grateful. Last but not least I would like to thank my team for its loyal and devoted work.

**Please visit the site: <http://www.fischer.praktikertjanst.se/default.asp?id=3953> [Go there for pix and map]**

## ΑΠΟΚΑΛΥΨΗ: ΒΡΕΘΗΚΑΝ ΑΣΥΛΗΤΟΙ ΜΙΝΩΙΚΟΙ ΤΑΦΟΙ

Ως ένα από τα σημαντικότερα αρχαιολογικά ευρήματα των τελευταίων χρόνων χαρακτηρίζονται οι ασύλητοι Μινωικοί τάφοι που βρέθηκαν στη διάρκεια διερευνητικών εσκαφών για την ανέγερση μίας οικοδομής στη Λεωφόρο Κνωσού στο ύψος της Β ΔΟΥ. Η αποκάλυψη θεωρείται εξαιρετικά σημαντική καθώς πρόκειται για ένα σύμπλεγμα θολωτών τάφων που δεν έχουν συληθεί και αυτό είναι που κάνει την αποκάλυψη των τάφων αυτών ιδιαίτερα σημαντική. Σύμφωνα με αποκλειστικές πληροφορίες του CRETALIVE πρόκειται για θολωτούς Μινωικούς τάφους με εξαιρετικά σημαντικά ευρήματα μέσα σε αυτούς. Είναι η πρώτη φορά έπειτα από πολλά χρόνια που έρχονται στο φως ασύλητοι Μινωικοί τάφοι και όπως είναι φυσικό τα ευρήματα είναι ιδιαίτερα σημαντικά. Σύμφωνα με πληροφορίες έχουν βρεθεί σημαντικός αριθμός χρυσών αντικειμένων, περιδέραιων, κτερίσματα και διάφορα άλλα χρυσά αντικείμενα καθώς και πλήθος ανέπαφων αγγείων και άλλων πύλινων αντικειμένων. Σύμφωνα πάντα με τις ίδιες πληροφορίες οι αρχαιολόγοι είναι ιδιαίτερα αισιόδοξοι μιας και δεν έχουν ακόμα ανοίξει όλους τους τάφους ενώ αυτό που όπως επισημαίνουν έχει ιδιαίτερη σημασία είναι το γεγονός πως οι τάφοι είναι ασύλητοι. Είναι χαρακτηριστικό πως κατά τη διάρκεια των εργασιών ανάπλασης της λεωφόρου Κνωσού, είχαν βρεθεί στο ύψος της Β ΔΟΥ και άλλοι θολωτοί Μινωικοί τάφοι μόνο που βρέθηκαν συλλημένοι και μάλιστα όπως διαπίστωσαν οι αρχαιολόγοι είχαν συλληθεί την περίοδο της κατοχής και πιθανότατα από Γερμανούς μιας και είχαν βρεθεί διάφορα αντικείμενα (αξίνες, μικρά φτυάρια, μπουκάλια) όλα με τον αγκυλωτό σταυρό.

Στην ευρύτερη περιοχή της Κνωσού έχουν βρεθεί θολωτοί Μινωικοί τάφοι όμως είναι η πρώτη φορά μετά από πολλά χρόνια που οι τάφοι αυτοί είναι ανέπαφοι δίνοντας σημαντικά αρχαιολογικά ευρήματα αλλά και σημαντικά στοιχεία για την αρχαιολογική έρευνα.

Το συγκεκριμένο οικόπεδο φρουρείται σε 24ωρη βάση ενώ σύμφωνα με πληροφορίες έχει ήδη ενημερωθεί από την ΚΓ Εφορία Κλασσικών Αρχαιοτήτων και η Αστυνομική Διεύθυνση Ηρακλείου προκειμένου να υπάρχει περιπολία από το συγκεκριμένο σημείο στη διάρκεια της νύχτας.

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## **FIRST CANNIBALS ATE EACH OTHER FOR EXTRA NUTRITION**

The world's first known human cannibals ate each other to satisfy their nutritional needs, concludes a new study of the remains of cannibal feasts consumed about one million years ago.

The humans-as-food determination negates other possibilities, such as cannibalism for ritual's sake, or cannibalism due to starvation. In this oldest known case of humans eating humans, other food was available to the diners, but human flesh was just part of their meat mix.

"These practices were conducted by Homo antecessor, who inhabited Europe one million years ago," according to the research team, led by Eudald Carbonell.

Carbonell, a professor at the University of Rovira and Virgili, and his colleagues added that Homo antecessor was "the last common ancestor between the African lineage that gave rise to our species, Homo sapiens, and the lineage leading to the European Neanderthals of the Upper Pleistocene."

For the study, published in the latest issue of Current Anthropology, the anthropologists analyzed food remains, stone tools, and other finds associated with Homo antecessor at a cave site called Gran Dolina in the Sierra de Atapuerca near Burgos, Spain. An apparent refuse pile containing tools and meat bones from animals also included multiple butchered bones of Homo antecessor individuals.

"Cut marks, peeling, and percussion marks show that the corpses of these individuals were processed in keeping with the mimetic mode used with other mammal carcasses: skinning, defleshing, dismembering, evisceration, and periosteum (membrane that lines bones) and marrow extraction," according to the researchers.

They added that the butchery techniques identified at the site "show the primordial intention of obtaining meat and marrow and maximally exploiting nutrients. Once consumed, human and nonhuman remains were dumped, mixing them together with lithic tools."

The other bones belonged to animals such as ancient bears, wolves, foxes, mammoths, lynx and more.

The bones and many stone tools indicate this was a campsite. All human butchering took place inside the cave.

"Other small-sized animals were processed in the same way," the scientists wrote. "These data suggest that they (Homo antecessor) practiced gastronomic cannibalism."

To further support this belief, the researchers point out that the consumed individuals came from a variety of age groups, ranging from young children to young adults.

The living arrangement, choice of prey, hunting and butchering methods all suggest that Homo antecessor lived in cohesive groups that likely would have competed with other Homo antecessor groups.

"Necessarily, a level of behavioral complexity is present among these human groups," the anthropologists believe. "This complexity allows using the cannibalism in response to resources competition with other human groups."

Based on other findings, eating one's enemy for political and nutritional gain was also likely practiced by Neanderthals and early members of our own species, who also practiced cannibalism for other reasons, such as during rituals.

Biologist Steven Vogel at Duke University ruminated on cannibalism in his book Prime Mover: A Natural History of Muscle. Vogel calculated that we'd have to consume too many of our brethren for cannibalism to be a sustainable nutritional source in and of itself.

Instead, humans "muscled our way up the food chain," Vogel said, developing better hunting weapons and other tools to allow almost everything to be on our menus.

**Please visit the site: <http://news.discovery.com/human/first-cannibals-nutrition.html>**

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## **DISCOVERY OF ANCIENT CAVE PAINTINGS IN PETRA STUNS ART SCHOLARS**

Exquisite artworks hidden under 2,000 years of soot and grime in a Jordanian cave have been restored by experts from the Courtauld Institute in London

Spectacular 2,000-year-old Hellenistic-style wall paintings have been revealed at the world heritage site of Petra through the expertise of British conservation specialists. The paintings, in a cave complex, had been obscured by centuries of black soot, smoke and greasy substances, as well as graffiti.

Experts from the Courtauld Institute in London have now removed the black grime, uncovering paintings whose "exceptional" artistic quality and sheer beauty are said to be superior even to some of the better Roman paintings at Herculaneum that were inspired by Hellenistic art.

Virtually no Hellenistic paintings survive today, and fragments only hint at antiquity's lost masterpieces, while revealing little about their colours and composition, so the revelation of these wall paintings in Jordan is all the more significant. They were created by the Nabataeans, who traded extensively with the Greek, Roman and Egyptian empires and whose dominion once stretched from Damascus to the Red Sea, and from Sinai to the Arabian desert.

Such is the naturalistic intricacy of these paintings that the actual species of flowers, birds and insects bursting with life can be identified. They were probably painted in the first century, but may go back further. Professor David Park, an eminent wall paintings expert at the Courtauld, said that the paintings "should make jaws drop".

At the instigation of the Petra National Trust (PNT), conservation experts Stephen Rickerby and Lisa Shekede restored the paintings to life. The work took three years, and was completed only last week. "The paintings were a real mess," Rickerby said.

He described what has emerged from the blackened layers as "really exceptional and staggeringly beautiful, with an artistic and technical quality that's quite unlike anything else".

Three different vines, grape, ivy and bindweed – all associated with Dionysus, the ancient Greek god of wine – have been identified, while the birds include a demoiselle crane and a Palestine sunbird with luscious colours. The scenes are populated by putti-like figures, one winged child playing a flute while seated in a vine-scroll, others picking fruit and fighting off birds pecking at the grapes. The paintings are exceptional in their sophistication, extensive palette and luxurious materials, including gold leaf.

Petra – the Greek word for "rock" – is one of the world's most famous archaeological sites, where ancient eastern traditions combine with Hellenistic architecture, with monumental buildings sculpted out of the solid red sandstone. A Unesco world heritage

site since 1985, it was the Nabataeans' capital city, flourishing as an economic and religious centre from the third century BC for some 400 years. Its site, in the Shera mountains, was an important crossroads for Arabia, Egypt and Syria-Phoenicia.

The paintings are not at the main site, but at the less well known canyon of Siq al-Barid in Beidha – nicknamed "Little Petra" – about 5km away. As they are now the most important surviving examples of Nabataean art, they rank among Petra's most remarkable treasures and are likely to become a major tourist attraction, Rickerby said. They are located within the "biclinium" (dining area), a principal chamber and a recess, where ritual dining is thought to have taken place. The most outstanding painting covers the vault and the walls of the recess.

The site was a retreat for affluent Nabataeans. The surrounding land shows evidence of ancient vineyards and grape-pressing sites, which explains the significance of the paintings' subject-matter. The Greek historian Strabo conveyed a sense of their wealth when he wrote: "The Nabataeans are a sensible people, and are so much inclined to acquire possessions that they publicly fine anyone who has diminished his possessions."

Rickerby said: "They show a lot of external influences from the ancient world and are as good as, or better than, some of the Roman paintings you see, for example at Herculaneum... This has immense art-historical importance, reflecting a synthesis of Hellenistic–Roman cultural influences."

Park said: "Petra is a vast site at the cultural crossroads of the eastern Mediterranean, and among the rock-cut tombs and temples the survival of a fragile wall painting that decorated a dining hall is extraordinary... The quality of the painting is matched by the luxury of its materials, including gilding and translucent glazes. It is the only surviving [in situ] figurative wall painting from the Nabataean civilisation that created Petra.

"It provides an incredibly rare insight into the lifestyle of this ancient and little-known civilisation."

## THE NABATAEANS

Few Nabataean manuscripts survive, but it is through the ancient historians Strabo, Josephus and Diodorus that we know something about them and their culture. Diodorus wrote of a people with diverse characteristics who were "exceptionally fond of freedom". Strabo described them as "exceedingly well-governed", with few slaves, banquets with girl singers and "drinking bouts in magnificent style" held by the king, in which "no one drinks more than 11 cupfuls, each time using a different golden cup".

The Nabataeans were among the most successful merchants of their day, trading in spices, medicines, frankincense, precious jewels and metals. Exotic goods were brought by ship to ports in southern Arabia from India and the far east and taken overland to the Mediterranean. Accusations of a monopoly on many of their goods, brought complaints from the Egyptians, Greeks and Romans when they hiked up their prices.

They first appeared to history in 312BC in a cuneiform inscription, recording their defeat of a Syrian army. Although originally a nomadic people of ancient Arabia, they built the

spectacular city of Petra as their capital. Such was its fame in antiquity that it was mentioned in Chinese records, as well as those of ancient Greece, Egypt, Rome and Byzantium. It boasted magnificent buildings and carved facades and piped water throughout the city.

Please visit the site: <http://www.guardian.co.uk/science/2010/aug/22/hellenistic-wall-paintings-petra>

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## **ANCIENT ROMAN MAP PUZZLE MAY GET NEW PIECES ANALYSIS, BY ROSSELLA LORENZI**

Several pieces of the world's oldest and largest unsolved jigsaw puzzle, a 2,200-year-old map of Rome made of thousands of marble fragments, could be unearthed next year following construction work for a new metro line near Rome's majestic forum area.

“This is a unique occasion to excavate the Forum of Peace, where the map once stood,” Rossella Rea, director of the Colosseum, told the Italian financial daily “Il Sole 24 Ore.”

Carved into marble slabs around 210 A.D., during the rule of the emperor Septimius Severus, the map was originally hung on a wall in the Templum Pacis (Temple of Peace), which stood in the middle of an enclosure called Forum of Peace.

The wall still survives today in a building near the 6th-century Church of Santi Cosma e Damiano. Rows of holes where the map was attached using bronze clamps can still be seen.

The enormous marble map detailed every building, street and staircase in second-century Rome, until it was partially ripped from the wall, probably to make lime for cement. What was left fell down and broke apart in hundreds of unrecognizable pieces.

Piecing the jigsaw puzzle together -- 1,186 fragments which cover only 10 to 15 percent the original map surface and are now kept in the Palazzo dei Conservatori of the Capitoline Museums in Rome -- has been one of the great unsolved problems of archaeology.

Renaissance scholars identified and assembled some 250 pieces, recognizing important landmarks such as the Colosseum and the Circus Maximus.

Recently, computer scientists and archaeologists at Stanford University have been using computer technologies in an attempt to reconstruct the remaining pieces of the map.

Given the way the map fell from its position on the wall, Rea and colleagues believe that several remaining fragments still lie around the site and can be unearthed during the unique dig.

But more treasures might come to light in an area that Rea considers "the most interesting among the imperial forums."

The centerpiece of the Forum of Peace was indeed the temple. Built in 71-75 A.D. by Vespasian, the Temple of Peace celebrated the brutal pacification of the Jews and the destruction of the Temple at Jerusalem in 70 A.D.

Tons of gold, silver trumpets and gold candelabra were plundered from the Jerusalem temple and paraded through Rome's streets in triumph.

The moment was captured in a frieze carved into the Arch of Vespasian's son, Titus, which clearly shows the menorah, the seven-branched temple candelabra that was the symbol of ancient Judaism, being exposed through the streets.

Between 75 A.D. and the early 5th century, the treasure, which helped finance the building of the Colosseum, was put on public display right in the Temple of Peace.

Although it is unlikely that fragments from the treasure are unearthed, the archaeologists hope to bring to light other precious remains from the Forum of Peace.

A space for culture and meditation adorned with a gallery of sculptures which had previously occupied Nero's Golden Palace, the area featured a beautiful garden and large library, with a section entirely dedicated to medicine.

"We have recently found some of the foundation on which Nero's sculptures stood. They bear the signatures of the artist who carved them," said Rea.

"We might find some items related to the library, such as the bronze or ivory statuettes which portrayed the authors of the books and marked the various sections of the library. We also hope to recover some other fragments of the Forma Urbis map," Rea added.

**Please visit the site: <http://news.discovery.com/archaeology/ancient-roman-map-puzzle-may-get-new-pieces.html> [Go there for pix]**

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## **ROMAN CITY EMERGES FROM SOFIA** **METRO EXCAVATIONS, BY DARINKA** **ILIEVA**

The architectural heart of ancient Serdica, the Roman Empire-era predecessor of Bulgaria's capital of Sofia, is emerging amid excavations for the construction of the city metro system.

In a couple of years, the finds will become part of an underground museum where visitors will be able to walk in the footsteps of Constantine the Great (272-337 AD), the first Roman emperor to legalise Christianity and adopt it himself.

A whole Roman city quarter emerged as Sofia started building a new north-south metro line (Photo: Plamen Stoimenov, Trud)

Modern Sofia lies on several archaeological layers left by the Thracians, Romans, Byzantines, medieval Bulgarians and Ottoman Turks.

Infrastructure projects have often hit ancient city walls, public buildings and churches, which are well preserved and displayed in the downtown area.

But there still much more to dig out. The latest excavations next to the "Sveta Nedelya" square, in the very heart of the city, prove it had been inhabited and civilised for thousands of years.

The archaeologists are looking at the remains of two recently found XIV and XVI century churches and a necropolis. In one of them they came across murals, which are currently under restoration.

An Ottoman-era (XIV-XIX century) house is to be dismantled and rebuilt at a different location so that teams can explore underlying layers.

They have uncovered new stretches of Serdica's Decumanus Maximus – the traditional east-west street in Roman cities, which served predominantly administrative and defence purposes; as well as parts of the Cardo Maxima – the main north-south urban axis, which used to be home to crafts and trade.

The ancient arteries largely coincide with the modern locations of state institutions and shopping areas in Sofia.

A larger part of the Decumanus Maximus is still expected to emerge and lead to the eastern city gate, which was found years ago and is now exhibited in a subway linking the presidential and governmental headquarters.

Research shows that parts of several insulae – residential buildings where Roman lower and upper middle class lived – may be also lying beneath.



For several months now archaeologists have been working on a nobleman's mansion which they believe belonged to a local ruler.

It has a patio, arched galleries, mosaic-covered living areas and baths. Eight rooms and two VI century toilets - extremely rare from an archaeological point of view - have been found.

A 5.5 metre wide and 17 metre long section of a slate stone street leads to the mansion. Traces of arson have led researchers to believe the building was subject to a barbarian attack under Emperor Marcus Aurelius (121-180 AD).

Barbarian raids made Romans fortify Serdica, evidenced by two recently found inscriptions, archaeologist Mario Ivanov said.

Sofia is among the oldest European cities. Its earliest traces of pre-historic population date back to 7,000 years ago.

The Thracians - tribes, whose civilisation flourished on the Balkans between the late Bronze Age and the VI century AD Slavic invasion – were the first recorded settlers here.

For a short spell, during the Hellenistic Period (323-146 BC), Serdica belonged to the empire of Philip II and Alexander the Great.

The Romans conquered it in the first century AD. They urbanised it by building roads, streets and plumbing.

Constantine the Great often spent summers in Serdica and even referred to it as to "my Rome."

Researchers suspect that remains of his palace might be lying under the massive Sheraton Hotel, a massive Stalinist-era ex-government building, standing a few metres from today's excavations.

Parts of what is known as Constantine's Quarter of Serdica – the St. George Rotunda – a IV century brick Christian basilica - were found long ago and can be seen in the presidency patio with stretches of adjacent streets, plumbing and a hypocaust heating system.

Architects Slavey Galabov, Vasil Kitov and Krasen Andreev have designed a €10 million project to conserve and display the new finds and the city of Sofia hopes to source half of the funding from the EU Regional Development Programme.

The architectural design includes a 2-hectare pedestrian zone in the so-called Sofia Largo between the presidency and the government headquarters, an underground museum with a semi-transparent ceiling and a metro station under it.

A panoramic window will show-case the archaeological relics to passers-by in the pedestrian zone on the upper level. It will be covered by a glass dome of up to 65 metres. Two elevators will lead from it to the archaeological level.

A medium level will contain an exhibition site with a model of ancient Serdica, food and drink establishments, galleries, antique shops, an information centre, a stage for concerts and a street theatre

The subway train will pass 24 metres underground beneath the whole complex so that archaeologists can explore the area undisturbed and the finds be displayed at their original locations.

The project for the 80-metre long, two-platform metro station has been already altered four times to suit the ever emerging relics, Sofia Mayor Yordanka Fandakova said.

"We want to preserve as much as possible of our unique architectural heritage and let local citizens and visitors enjoy it," she said.

Despite the chronic lack of parking space, the city has scrapped an initial plan for a 680-vehicle underground parking lot to make room for the museum.

This means more than 90 percent of the archaeological riches will be exhibited in their original locations and in the way they were found.

**Please visit the site: <http://waz.euobserver.com/887/30625>**

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## **ROBOT TO EXPOSE HIDDEN SECRETS OF PYRAMID**

Following in the footsteps of Howard Carter and Abbot and Costello, a specialized robot will penetrate deeper into the Great Pyramid of Giza than ever before. The robot, part of a years long exploration called the Djedi Project, will explore a shaft inaccessible to a previous robot, unlocking a room that has remain sealed for 4,500 years.

The robot explorer, built by researchers at the Leeds University, England, in collaboration with French aviation company Dessault and British robotics company Scoutek, will incorporate a small fiber optic camera for looking around corners, an ultrasonic probe for testing the quality of the rock and a releasable mini-robot that can fit through spaces as small as 0.7 inches in diameter. Additionally, the robot uses special nylon and carbon fiber wheels that won't deface the pyramid's sensitive rock.

"All the robots were designed from scratch to do as little damage to the shafts as possible," Shaun Whitehead, Systems engineer and mission manager, told TechNewsDaily. "The previous robots both used tracks that scrubbed away at the floor and ceiling as they moved. We use soft brace pads to grip the walls, like an inchworm or the technique that rock climbers use for ascending 'chimneys.' The wheels don't need to grip, they need to slip as much as possible."

Whitehead designed the robot so that the team could easily swap out different components, depending on what they find down the shaft. To create the different components, Whitehead and his team used 3-D software provided by Dessault, and then "printed" out the parts on a 3-D fabricator at Leeds University.

The robot will travel down a shaft located in the tomb of the Queen. Unlike the King's tomb, where shafts lead to the outside of the Great Pyramid so his soul could escape into the afterlife, the shafts leading from the Queen's tomb borrow deeper into the pyramid.

This is the third time a robot has tried to find the end of the Queen's tomb shaft. The first expedition found that a giant stone door blocked the tunnel, and the second robot discovered another door behind that one. With it's microbot and drill, the Leeds University researchers designed this new robot specifically to breach those obstacles.

**Please visit the site:**

**[http://www.msnbc.msn.com/id/38696014/ns/technology\\_and\\_science-science/](http://www.msnbc.msn.com/id/38696014/ns/technology_and_science-science/)**

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## **TOP FOOD WAS OLIVES IN TIME OF THE ANCIENT MARINER**

A huge quantity of olive stones on an ancient shipwreck more than 2,000 years old has provided valuable insight into the diet of sailors in the ancient world, researchers in Cyprus said Thursday.

The shipwreck, dating from around 400 B.C. and laden mainly with wine amphorae from the Aegean island of Chios and other north Aegean islands, was discovered deep under the sea off Cyprus's southern coast.

Excavation on the site, which started in November 2007, has determined that the ship was a merchant vessel of the late classical period.

"An interesting piece of evidence that gives us information on the conditions under which the sailors of antiquity lived, are the large numbers of olive pips that were found during excavation, since these pips must have been part of the crew's food supply," Cyprus's antiquities department said in a news release Thursday.

The excavation is shedding light on seafaring in Cyprus in antiquity, commerce between the island and the Aegean and the sizes of the period's cargo ships, it said.

Olives and olive oil are a staple of the Mediterranean diet and their consumption over hundreds of years has been well documented.

Italian archaeologists discovered that some of the world's oldest perfumes, made in Cyprus, were olive oil based. The commodity was also used to fire copper furnaces.

Apart from the amphorae, or large clay wine jars, two lead rods with remains of wood were found.

"This especially rare find enhances the importance of the shipwreck and strengthens the possibilities of finding preserved wood from the ship's keel," the department said.

(Writing by Michele Kambas, editing by Paul Casciato)

**Please visit the site:**

**[http://uk.reuters.com/article/idUKTRE67B3SG20100812?rpc=401&feedType=RSS  
&feedName=lifestyleMolt&rpc=401](http://uk.reuters.com/article/idUKTRE67B3SG20100812?rpc=401&feedType=RSS&feedName=lifestyleMolt&rpc=401)**

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## **LUCY’S KIN , SCIENTISTS SAY, BY** **JOHN NOBLE WILFORD**

As early as 3.4 million years ago, some individuals with a taste for meat and marrow — presumably members of the species best known for the skeleton called Lucy — apparently butchered with sharp and heavy stones two large animals on the shore of a shallow lake in what is now Ethiopia.

Scientists who made the discovery could not have been more surprised. They said the cut marks on a fossilized rib and thighbone were unambiguous evidence that human ancestors were using stone tools and sometimes consuming meat at least 800,000 years earlier than previously established. The oldest confirmed stone tools are less than 2.6 million years old, perhaps only a little before the emergence of the genus Homo.

Some prominent researchers of early human evolution were skeptical, saying the reported evidence did not support such claims.

If true, though, the new find reveals unsuspected behavior and dietary habits of the Lucy species, *Australopithecus afarensis*. Though no hominid fossils were found near the butchered bones, *A. afarensis* is thought to be the only species living in this region at the time. Their large teeth with thick enamel indicated they subsisted mainly on tubers and other vegetation.

So the international team of paleoanthropologists, archaeologists and geologists concluded that they had found the first evidence that kin of the 3.2-million-year-old Lucy had used some form of stone tools and would not pass up a chance to feast on a cut of meat and nutritious bone marrow.

Pending new discoveries, the discovery team wrote in a report being published Thursday in the journal *Nature*, *A. afarensis* is the only hominid group “to which we can associate the tool use.” Whether these individuals made the tools or only selected naturally sharpened pieces of stone, the scientists added, was not yet determined. Nor is it known whether they were hunters or, more likely, scavengers of a lion’s leftovers.

In any case, the scientists concluded, the butchery evidence “offers a first insight into an early phase of stone tool use” by human ancestors, and it should “improve our understanding of how this type of behavior originated and developed into later, well-recognized stone tool production technologies.”

The leader of the research project, at Dikika, Ethiopia, was Zeresenay Alemseged, an Ethiopian paleoanthropologist at the California Academy of Sciences in San Francisco. The lead author of the *Nature* paper was Shannon P. McPherron, an archaeologist at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany.

“Now, when we imagine Lucy walking around the east African landscape looking for food, we can for the first time imagine her with a stone tool in hand and looking for meat,” Dr. McPherron said in a statement issued by the Leipzig institute.

“With stone tools in hand to quickly pull off flesh and break open bones, animal carcasses would have become a more attractive source for food,” he said. “This type of behavior sent us down a path that later would lead to two of the defining features of our species — carnivory and tool manufacture and use.”

Dr. Alemseged said in a telephone interview before he returned last week to Ethiopia, “Our future work will be to find those stone tools that have shifted the framework for such an important transition in the behavior of our ancestors.”

David R. Braun, an archaeologist at the University of Cape Town in South Africa, who was not involved in the research, said “more surprises surely await us” at Dikika. In an article accompanying the journal report, Dr. Braun noted that the conventional perception of *A. afarensis* as a relatively primitive species was already being reconsidered in some respects. He cited studies showing that “Lucy’s kin had body proportions that were more similar to those of humans than of apes.” Their short fingers, for example, “would allow the kind of fine-scale manipulation necessary for tool use,” he said. A recently discovered *afarensis* skeleton did not have an apelike thorax, the part of the body between the neck and abdomen, “usually associated with a large digestive tract and low-quality diet.”

Perhaps the new findings “should not have been so unexpected,” he said.

Still, the discoverers are already being pressed to defend their interpretation that the cut marks on the bones are evidence of stone-tool butchery. Tim D. White of the University of California, Berkeley, one of the foremost investigators of early human origins, said flatly that their “claims greatly outstrip the evidence,” and noted, “We have been working sites in this area for 40 years, and not a single stone tool has been found in deposits of this antiquity.”

Sileshi Semaw, a paleoanthropologist at Indiana University who was a discoverer of the oldest confirmed stone tools, from 2.6 million years ago, noted in an e-mail message from Ethiopia that researchers had often been misled by bone markings left by trampling animals and other natural causes. “I am not convinced of the new discovery,” he said.

Dr. Alemseged braced for such reactions with confidence.

“Few if any will doubt the authenticity of the cut marks, once they examine the evidence,” he said in an interview. “No one will question the age of the fossils. But who made the cut marks? Maybe there was another, more evolved species around at that time, but that we don’t know. And where are the tools they used? If they were just stones picked up, unmodified, they may be archaeologically invisible, hard to identify.”

The site at Dikika is in the heart of hunting grounds for fossils and artifacts related to human origins. The desiccated country is in the Lower Awash Valley, bordered on the north by Gona (the source of the oldest known stone tools) and Hadar (Lucy’s home). Four years ago, Dr. Alemseged announced the discovery at Dikika of the 3.3-million-year-old skeleton of a girl who died at the age of 3 — and was dubbed Lucy’s baby.

In January 2009, fossil hunters concentrated their search over a surface about 300 yards from where Lucy’s baby was found. Four bones bore intriguing cut marks. Scientists said

that microscopic and chemical tests proved two of the bones, a right rib from a cow-size ungulate and the femur, or thigh, of a goat-size antelope, to be evidence of butchery.

The marks must have been made by stone tools, said Curtis Marean, a member of the team from the Institute of Human Origins at Arizona State University. “The range of actions includes cutting and scraping for the removal of flesh, and percussion on the femur for breaking it to access marrow,” he said.

Geologists on the team determined the age of the sediments in which the fossils were found to be 3.2 million to more than 4 million years old, based on dating of volcanic ash. The nearest stone that could have been usable for butchering seemed to be several miles from the site, which the scientists said suggested some premeditation on the part of the hominids. They had perhaps arrived for dinner with their utensils in hand.

**Please visit the site:**

[http://www.nytimes.com/2010/08/12/science/12tools.html?\\_r=1&hpw](http://www.nytimes.com/2010/08/12/science/12tools.html?_r=1&hpw)

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# **SCIENTISTS QUESTION ACCEPTED WISDOM ON WHAT KILLED POMPEIANS WHEN MT. VESUVIUS ERUPTED**

A child lies on the ground with his tiny arms elevated in motion. Beside him, a woman with another child on her lap clenches her fists, as if guarding herself from an inevitable horror. Inside a dimly lit room, surrounded by chipping coral frescoes, lie 2,000-year-old skeletal remnants, vividly human forms encased in chalky plaster.

The Mt. Vesuvius volcano took their lives in 79 A.D., unleashing its fury and burying the ancient port city of Pompeii under layers of lava and ashes. The sight was so horrific, that Pompeians thought the gods had grown angry — and that the end of the world was near.

Since the uncovering of Pompeii in 1599, archeologists believed that these ancient Romans died by being suffocated by the ashes and gases spewing for two days from the mouth of Vesuvius. Their theory rested on the account of a contemporary witness, Pliny the Younger, who saw the eruption from across the Gulf of Naples, claiming that his uncle in Pompeii had taken his last breath under a cloud of ash.

“Our scientific research has proven differently, that death came because of the temperature, not suffocation,” said Giuseppe Mastrolorenzo, a rogue volcanologist from the Naples Observatory. “Everything that has been written in the guides, and the texts, and that has been re-told to tourists is false,” he said.

After years of analyzing nearly 100 skeletal casts, testing bone tissue and creating numerous simulations of the Vesuvius eruption, Mastrolorenzo concluded that the people of Pompeii were instantly killed by a pyroclastic cloud, a gusty surge carrying the volcano’s lethal temperatures.

His findings were recently published in the science journal, PLoS One. Mastrolorenzo and his team of scientists exposed human and animal bones to high temperatures to see how their color and micro-structure would change. Bones in the lab began looking like bones in Pompeii once reaching temperatures of between 480 and 570 degrees Fahrenheit.

They became the first scientists to question the letters of Pliny the Younger.

Pliny the Younger, 17 years old at the time of the eruption, didn’t write his accounts of the eruption that usurped the city of Pompeii and other small towns surrounding the volcano until 25 years later.

Still, his letters persuade historians to believe that after the initial eruption blew off the crater’s cap, those who weren’t killed by the rocks falling on Pompeii rooftops at 90 miles per hour were later suffocated by the ashes and gases.



“It’s easy to piece together archeological evidence that we can see with our own eyes, with the detailed account of good old Pliny the Young,” said Antonio Varone, director of the Pompeii Archeological Site.

Archeologists have found skeletons inside underground cavities formed by hardened ash. Those cavities, injected with plaster, served as molds to recreate the bodies’ positions at the moment of death. For Varone, the presence of hardened ash supports Pliny’s account.

At the Garden of the Fugitives, a dozen plaster casts lay face down with their arms and legs in running position, depicting the moment of horror at the peak of the eruption.

“The suspension of the action is a phenomenon called cadaveric spasm,” Mastrolorenzo said. “It is very rare and occurs during nuclear explosions and volcanic eruptions.”

According to the volcanologist, one of the most vivid examples of cadaveric spasm sits behind lock and key inside a storage room full of broken urns and fountains. There, the cast of a man with his fists blocking his face sits suspended in time, squatting over a latrine.

But for many like Varone and his staff at the Pompeii site, Mastrolorenzo’s research not only discounts the evidence of Pliny’s writings, but also questions what they are able to see for themselves.

“The bodies are found with their hands next to their mouth, as if trying to gasp for air,” said Mattia Buondonno, a public relations officer at the Pompeii site. “It’s because they couldn’t breathe, not because they were being burned alive.”

For Mastrolorenzo, convincing the Board of Supervisors in Pompeii isn’t the end-goal. In studying the rate at which the pyroclastic cloud flew over Pompeii in 79 A.D., Mastrolorenzo’s research also demonstrated that these high temperatures can be maintained and carried up to 12.4 miles (20 kilometers) away from the volcano.

The Italian Civil Protection, the nation’s FEMA, currently requires only those people living five miles (eight km) from Vesuvius to evacuate.

“If we consider that within just 10 kilometers [6.2 miles] we already find Naples,” Mastrolorenzo said, “then in the case of another eruption, like the one in 79 A.D., at least 3 million people would be at risk.”

**Please visit the site:**

**[http://www.minnpost.com/globalpost/2010/08/10/20378/scientists\\_question\\_accepted\\_wisdom\\_on\\_what\\_killed\\_pompeians\\_when\\_mt\\_vesuvius\\_erupted](http://www.minnpost.com/globalpost/2010/08/10/20378/scientists_question_accepted_wisdom_on_what_killed_pompeians_when_mt_vesuvius_erupted)**

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## **ANCIENT TREASURE RISES FROM BERLIN RUBBLE**

When an incendiary bomb hit in World War II, Berlin's Tell Halaf archaeological museum went up in flames and its 3,000-year-old statues were smashed to smithereens.

It has taken nine years of piecemeal work, but 60 artifacts have now risen again, phoenix-like, from 27,000 fragments of stone found in the ruins.

The ancient treasure -- monumental deities from Aramaean civilisation and relief slabs depicting hunting scenes -- will soon be back on public display.

A century after it was first discovered in the Syrian desert and nearly 70 years after its bombed and broken shards were dumped into crates and buried anew in the cellars of Berlin's Pergamon Museum, the story of its salvation is itself an unlikely tale.

"We have reconstructed more than 90 percent of the artifacts from the Tell Halaf museum," said German archaeologist and restoration manager Lutz Martin, 56. "Of the 27,000 pieces, there are only 2,000 left over" that could not be fitted back, he added.

The labour of love, undertaken by a small technical team, was financed by the banking family of Max von Oppenheim, the archaeologist who first discovered the Aramaean palace of Tell Halaf shortly before the outbreak of World War I in an area today located in northern Syria, on the border with Turkey.

He stumbled across the ruined palace as German engineers toiled nearby on the Berlin-Baghdad railway line.

After two campaigns of excavations, from 1911 to 1913 and 1927 to 1929, he brought back many of his finds to Berlin where they were housed in their own museum.

The building was bombed in November 1943 and all artifacts made of wood and gypsum burnt. Only the basalt rock statues survived the inferno, but cold water used to put out the fire fractured them nearly beyond repair.

"The whole museum reached temperatures of over 1,000 degrees (centigrade) and then it was suddenly cooled down with water and this put severe stress on the stones which just exploded," said Kirsten Druempel, an expert at Berlin's Technical University's department of mineralogy involved in the project.

Fitting the stones together again was a major technical challenge.

"At first we thought we might only be able to reconstruct one or two of the larger pieces", starting with some lions that stood at the palace gate entrance, said Martin.

"We didn't know how far we'd get because we didn't know how much of the original material was recovered from the destroyed museum," added Stefan Geismeier, the project's chief restorer.

The team considered using computers to sort out their giant puzzle, but costs were too great, results uncertain, and they needed to show sponsors quickly that they could actually put things back together again.

"At first we thought we'd just reconstruct the outer shells and fill out the inner parts with cement. But after a couple of years we'd developed such a feeling for the basalt structure that we could also refit the inner parts so that most of the artifacts are pretty much complete," said Martin.

"But unlike an ordinary puzzle where things get easier as you get towards the end, things just got more and more difficult as left over pieces became ever more shapeless and we had to imagine where they might fit," he said.

"That was our biggest difficulty," agreed Geismeyer.

Some pieces were as small as a fingernail, others weighed one and a half tonnes. One of the statues, a goddess, was broken into 1,800 pieces.

"And every artifact had to be put back together in a single operation" to ensure all the pieces fitted properly, Geismeyer added.

"Sometimes there were also difficulties because von Oppenheim himself had put things in the wrong place. He mistakenly switched part of the hind legs of a male and a female lion and only during reconstruction did we realise what parts really fitted the lions," he said.

One goddess-like figure was discovered intact by von Oppenheim, but was damaged during World War I when his archaeological digs were sacked. The figure's pleats and nose were chopped off with an axe.

But von Oppenheim had made casts of the figure when it was first unearthed and the casts, taken to Germany, helped restorers not only to rebuild the statue, but to give it a proper nose job as well.

While archaeologists were able to determine what fitted on the outside of the artifacts because of the carvings, scientists analysed the core fragments' mineral content, properties, colours and shapes to allow them to be replaced, said Druempel.

The restored works will be exhibited from January at the Pergamon Museum, before one day forming part of a new entrance to the museum's Near East department.

Asked why the museum had kept the broken debris so long in its cellars, Martin said: "You know archaeologists never throw anything away".

Please visit the site: <http://www.physorg.com/news200029044.html>

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