Επιστημονικό Σωματείο,
Έτος Ίδρυσης 1982, έδρα:
Κάνιγγος 27, 106 82 Αθήνα
(Ένωση Ελλήνων Χημικών)

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

Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Σεπτέμβριος 2014 -

Beware the barrenness of busy life! ***(Socrates)***

Newsletter of the Hellenic Society of Archaeometry

- September 2014 -

Nr. 162

ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ – TABLE OF CONTENTS

ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

WORKSHOP ON THE ECONOMIC UTILITY OF OLIVE, SEPT 27-28, MCDONALD INSTITUTE FOR ARCHAEOLOGICAL RESEARCH, DOWNING ST, UNIVERSITY OF CAMBRIDGE

Dear all,

A workshop on the Economic Utility of Olive will be held on Sept 27 and 28 at the McDonald Institute for Archaeological Research, Downing St, University of Cambridge.

The workshop has the goals of addressing the technical and representativeness challenges of combining archaeobotanical, and other data specifically for olive; and movement towards an economic model for olive production and consumption in Lazio/Campania. Papers have been accepted which cover:

1. The different environmental evidence types: wood, seeds as food, seeds as ritual offerings, pollen, uses of olive oil, olive pressings as fuel, and as fertilizer and animal food; and their varying levels of representativeness in the archaeological record; and

2. The complementary archaeological, ethnographic and historical evidence: amphorae, frescoes, history, and epigraphy – especially with regard to Campania/Lazio.

All are welcome and attendance is free (with a small charge for tea/coffee and lunch). There is however, limited seating and so an RSVP would be appreciated.

There is still some limited space for a few more papers. Full details may be downloaded from

http://www.robynveal.com/conferences.html or my academia.edu 'conferences' page, or contact me by return email.

Regards, Robyn Veal (and Charlene Murphy)

Dr Robyn Veal
www.robynveal.com

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Anniversary Research Fellow
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Research Fellow, Tutor, Hughes Hall

Honorary Research Affiliate, University of Sydney

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COMING OF AGE? STABLE ISOTOPES IN ARCHAEOLOGY, STABLE ISOTOPE WORKSHOP, NOVEMBER 6-8, 2014 KIEL, GERMANY

We are pleased to announce that the Archaeological Stable Isotope Laboratory (ASIL) at Christian Albrechts University in Kiel will be holding a workshop entitled *Coming of Age? Stable Isotopes in Archaeology* which will take place November 6-8, 2014. As the use of stable isotopes in archaeology continues to grow at a rapid pace, the discipline is grappling with some necessary growing pains relating to applications and best practices. This workshop will bring together researchers who employ stable isotopic approaches in archaeological and ecological contexts in order to discuss methodological issues and challenges currently facing the field. This workshop will focus on several key topics that are of particular import for isotopic investigations of ancient animal and human populations. In order to evaluate current isotopic research in archaeology, we have incorporated scholars with backgrounds in ecology, statistics, biology, and modelling.

The organizers welcome abstracts (300 words max) from individuals interested in taking part in the following sessions:

The role of proof of concept in stable isotope research
Keynote Lecture: ***Archaeological Stable Isotope Laboratory (ASIL) Researchers***

Paleodietary reconstruction with particular attention to mixing models
Keynote Lecture: ***Dr. Bryan Fry (Griffith University)***

The construction of isoscapes
Keynote Lecture: ***Dr. Gabe Bowen (University of Utah)***

Statistical treatment of isotopic data with particular attention to appropriate sample sizes for understanding archaeological case studies
Keynote Lecture: ***Dr. Michael Wunder (University of Colorado, Denver)***

Isotopic Puzzles: participants are asked to bring their most mystifying and intriguing datasets and we will discuss possible solutions as a group

We are committed to encouraging students to attend this workshop and several student travel grants are available to cover costs of travel and lodging. Please contact the organizers if you are interested in applying for a grant for attending the workshop.

Venue: Christian-Albrechts-Platz 2, Audimax, 24118 Kiel, Germany

Chair: Prof. Dr. C. Makarewicz

Organizing Committee: Dr. A. Ventresca Miller and Dr. I. von Holstein

Call for papers deadline: October 1, 2014

Please send questions and abstracts to: aventrescamiller@gshdl.uni-kiel.de and isabella@palaeo.eu

60TH ANNIVERSARY OF THE 1954 HAGUE CONVENTION FOR THE PROTECTION OF CULTURAL PROPERTY IN THE EVENT OF ARMED CONFLICT, SEPT 19, WASHINGTON

The U.S. Committee of the Blue Shield and the Office of the Under Secretary for History, Art, and Culture Smithsonian Institution

Invite you to attend a meeting recognizing the 60th Anniversary of the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict

Friday, September 19, 2014, 1:00-5:30 p.m.
Ring Auditorium, Hirshhorn Museum and Sculpture Garden, Smithsonian Institution, 700 Independence Ave SW, Washington, DC 20560

1:00-1:15 Welcome: USCBS President Nancy Wilkie,
1:15-1:45 Keynote Speaker, Harry Ettlinger:

A member of the U.S. Army's Monuments, Fine Arts and Archives section of the Civil Affairs Division during WW II. Ettlinger was recently portrayed in the Hollywood film, "The Monuments Men."

1:45-2:05 Update on 21st century Monuments Men program: Brigadier General Hugh Van Roosen, Institute for Military Support to Governance, John F. Kennedy Special Warfare Center and School, Fort Bragg, NC.

2:05-2:25 The 1954 Hague Convention at Sixty: Professor Patty Gerstenblith, DePaul University College of Law

2:25-2:40 BREAK

2:40-3:00 Combatant Command Cultural Heritage Action Group (CCHAG) Updates: Dr. Laurie Rush, Ft. Drum, NY

3:00-3:50 International Updates: Dr. Salam Al Kuntar, University of Pennsylvania, (Syria); Dr. Susan Wolfingberger, American Association for the Advancement of Science, (Syria); Dr. Katharyn Hanson, (AAAS), (Iraq); Ms. Corine Wegener, Smithsonian, (Mali, Egypt); and Dr. Brian Daniels, University of Pennsylvania, ("Building Community and Capacity for the Study of Cultural Heritage in Conflict," NSF Project).

3:50-4:10 USCBS Cultural Heritage Protection Award Presentations

4:10–4:30 USCBS President Nancy Wilkie, and Smithsonian Institution's Under Secretary for History, Art, and Culture, Dr. Richard Kurin: MOU Signing

4:30–5:30 Please join us for a reception in the courtyard of the Hirshhorn Museum

Attendance is FREE, but seating is limited so please register no later than Friday, September 5th, 2014 by emailing rsvp.si.uscbs.meeting@gmail.com. Same day walk-ins are allowed if seating is available.

ICONEA 2014 CONFERENCE, ARITHMETICAL SUBJECTIVISM OR UNCONSCIOUS KNOWLEDGE? SONIC SYSTEMS OF THE ANCIENT NEAR EAST AND BEYOND, 10-12 DECEMBER 2014, FACULTY OF ORIENTAL STUDIES, UNIVERSITY OF OXFORD, CALL FOR PAPERS

Are the sources for music theory, in the Ancient Near East, principally, and in the Ancient and Primitive Worlds, generally, the consequence of either the emergence of numeracy and its conventional metrology or do we find its roots in the unconscious knowledge, or both?

There is no restriction on the length of contributions which however, should not exceed one hour. (Power point projection and sound system available)

Please send papers/abstracts to rdumbrill@iconea.org and visit www.iconea.org for further details.

The registration fee is 70 GB Pounds. For concessions, please contact rdumbrill@iconea.org

Payments in advance to:

1) UK payments to account NATWEST BANK: (Richard Dumbrill account 18136958, sort code 600514)

2) International Payments to (Richard Dumbrill, IBAN GB68NWBK60051418136958)

19TH ANNUAL INTERNATIONAL CONFERENCE "CULTURAL HERITAGE AND NEW TECHNOLOGIES", 3-5 NOVEMBER, VIENNA

The 19th annual international conference "Cultural Heritage and New Technologies" will take place in Vienna, 3-5 November. The theme is "Urban Archaeology and Processing". For many links, including to registration, go to http://www.chnt.at/.

PROGRAM 2014

MONDAY, November 03 2014

Keynote

Marc GRELLERT | Jochen SCHMID, Germany: Oriental Adventures – The excavations at Tell Halaf – Syria

Sessions

Complex Archaeology meets Complex Technology
Chairs: Wolfgang BÖRNER, Austria / Benjamin DUCKE, Germany / Benno RIDDERHOF, The Netherlands

Josef GSPURNING | Susanne LAMM | Patrick MARKO | Wolfgang SULZER | Susanne TIEFENGRABER, Austria: Geospatial Technologies for Investigating Roman Settlement Structures in the Noric-Pannonian Borderland – Selected Aspects of a New Research Project G. Di GIACOMO | G. SCARDOZZI, Italy: A GIScloud system for the knowledge and data sharing and management: Urban Archaeology and Smart City solutions for Culture and Turism in Lecce (Apulia, Italy) F. GABELLONE | et alii, Italy: Methodological Approaches and ICT Solutions for Smart Cities Joseph SCHULDENREIN, USA: Geoarchaeological Methods in Urban Archaeology: A Case Study from Manhattan Island Rowin VAN LANEN, The Netherlands: Surveying past movement: how large-scale landscape archaeological research can aid to the reconstruction, analyses and prediction of Roman and early-medieval infrastructure in the Netherlands Jaap Evert ABRAHAMSE | Menne KOSIAN, The Netherlands: The Atlas of Urbanization in the Netherlands. – A millennium of spatial developments S. G. MALATESTA | V. CIRILLI, Italy: The HyperColumna Project Irmela HERZOG, Germany: Analysing settlement processes in the Bergisches Land, Germany Marco TOCCHI, Italy: Old town centers documentation for their conservation and security Laure SALIGNY | Xavier RODIER, France: Study of the urban dynamics by a new computer application Daniel PLETINCKX | Carlotta CAPURRO | Dries NOLLET, Belgium: Reconstruction of the interior of the Saint Salvator abbey of Ename around 1290 Giulia DIONISIO | Anna Margherita JASINK, Italy: Usable but not suitable: traditional versus new technological display. The Aegean Collection in the National Archaeological Museum of Florence Jörg RÄTHER, Germany: archaeoDox – Information management from the dig into the archive Frank FÖRSTER | Reinhold

GOSS, Germany: CaveOne©: A database system and its application to prehistoric rock art recording and analysis in the ‚Cave of Beasts' (Egypt) Carlo Battini, Italy: Augmented Reality applied to the archaeological excavations

Rubble, Ruins and Reading, specific approaches in analysis – Trying to let the remains telling the story
Chairs: Stefano COLUMBU / Giorgio VERDIANI, Italy

Mirco PUCCI, Italy: Photogrammetry of the Microcosms: investigating the landscape of single stones to create bases of knowledge Stefano COLUMBU | Giorgio VERDIANI, Italy: The church of St. Saturnino in Cagliari, Sardinia, reading the levels of history through the use of digital survey and the petrophysical study of materials Maria Teresa BARTOLI, Italy: The unusual shape of Palazzo Vecchio in Florence Stefano COLUMBU | Antonio CAZZANI | Alessandro RUGGIERI, Italy: Relations between static-structural aspects, construction phases and building materials of San Saturnino Basilica (Cagliari, Italy) Alessandro MERLO | Andrea ALIPERTA, Italy: The fortified settlement of Bivignano. Computer graphic tools in analysis and its representation Alberto VIRDIS | Rossana MARTORELLI | Lorenzo TANZINI | Fabio PINNA | Stefano COLUMBU | Marco MARCHI | Fabio SITZIA| Marcella PALOMBA, Italy:Romanesque and territory. The construction materials of Sardinian medieval churches: new approaches to the valorization, conservation and restoration Stefano COLUMBU | Marco MARCHI | Marcella PALOMBA | Fabio SITZIA, Italy:Alteration of stone materials on Sardinian medieval monuments: physical, chemical and petrographic analysis for their restoration and preservation Piotr KUROCZYŃSKI | Oliver HAUCK, Germany: Cultural Heritage Markup Language – How to record and preserve 3D assets of digital reconstruction Christopher COURAULT | Rafael ORTIZ CORDERO, Spain: "Enlarge virtual reality" as a new tool for research, conservation and transmission support: The case of the northern sector of the Roman City Wall of Cordoba Luca CIPRIANI | Filippo FANTINI; Italy: Ravenna's Archaeological Heritage: technique integration for accurate documentation through 3D digital models Robert SZEMZÖ, Slovakia: Documentation of historical approaches used for creation of medieval polychrome sculptures by means of three-dimensional reconstruction Hansjörg THALER, Italy: Towards a Semantic Archaeology

The State of 3D Modeling of Cultural Heritage in the Age of Augmented Reality, Xbox Kinect, UAVs, and the Oculus Rift
Chairs: Gabriele GUIDI, Italy / Bernard FRISCHER, USA

Arthur CLAY, Switzerland: Questioning the Real and Curating the Invisible Perla GIANNI-FALVO, Italy : Augmented Reality in museums: Design and evaluation with cognitive technologies Adele MAGNELLI, Italy: Use of Oculus Rift for an immersive "time-shift" experience in the Medieval Ages Pablo RODRÍGUEZ-NAVARRO | Teresa GIL PIQUERAS, Spain: 3D-MUSEUM:Prehistoric movable Art. From the Palaeolithic to the Metal Age Takehiko NAGAKURA / Woong-ki SUNG, USA: Multirama: Augmenting Architecture in Exhibitions Gabriele GUIDI, Italy | Bernard FRISCHER, USA: Photomodeling vs. traditional 3D data capture of cultural heritage artifacts

TUESDAY, November 04 2014

Archaeological Field Survey, Prospection, Interpretation and Analysis

Chair: Willem BEEX, The Netherlands

Willem BEEX, The Netherlands: Introduction for the Session Marco TOCCHI, Italy: Transformations and evolution, the old town centers in the historical maps Joris COOLEN, Austria: Scatters, cropmarks and anomalies: integrating field survey data in the Kreuttal area, Lower Austria Omran GARAZHIAN, Iran: Archeological field survey, sounding and engagement to human being in Tapeh Damghani, Sabzevar, Northeastern Iran Francesco Uliano SCELZA, Italy: The GIS of the territory of Poseidonia-Paestum Marilena COZZOLINO | Federica FASANO, Italy: The Latin Colony of Aesernia: integrated researches related to urban geo-archaeology realized through a combined use of historical sources, archaeological survey, 3D photogrammetric reconstructions and non invasive geophysical prospections Kasper HANUS | Emilia SMAGUR, Poland /Australia: Filling the gap. Investigation of moated sites in NW Cambodia Marilena COZZOLINO | Elisa DI GIOVANNI, Italy: Geophysical Prospection applied to the historical Centers

POSTER Presentation

Processing old/old fashioned excavations-a useful struggle for information?
Chairs: Ingeborg GAISBAUER / Christoph OELLERER, Austria

David BIBBY, Germany: Ludwig Leiner's Last Laugh Arvi HAAK, Estland: In the middle of a small town: reanalysis of excavations next to the market place of Viljandi, South Estonia Christoph BLESL | Ingeborg GAISBAUER | Doris SCHÖN, Austria: Reset and Start – The reanalysis and new presentation of an old excavation in Vienna's historical and topographical core Visa IMMONEN, Finland: Extracting information through reconstruction: Two case studies of old urban excavations in Turku, Finland Liisa SEPPÄNEN, Finland: Is the output worth of input? Estimating the value of past excavations for new information Benno RIDDERHOF / J. BAZELMANS, The Netherlands: Dorestad: The Final word. (And they said it could not be done) Stephen STEAD | Jonathan WHITSON-CLOUD | Dominic OLDMAN, UK: Exploring inferences, time and space in the annotation of museum catalogues: The Sloane virtual exhibition experience

Round Tables (Tuesday afternoon)

New Perspective in authenticity, restoration and characterization of cultural heritage by using new Archaeometric Techniques
Chairs| Recep KARADAĞ / Ali Akın AKYOL / Mahmut AYDIN, Turkey

Ali Akın AKYOL, Turkey: Laboratorıal based Archaeometrıcal Studıes in Turkey Mahmut AYDIN, Turkey: New perspective in determination authenticity of Cultural Heritage by using New Archaeometric Techniques Viviana NICOLETTI | Nadire Mine YAR, Italy / Turkey: Why non-destructive methods used on artifacts? Key Study: Ink of Qur'an ŞE 80 Recep KARADAG, Turkey: Non-destructive Micro-analytical Methods for the Conservation of Textiles from Cultural Heritage

Advanced Archaeological Trainings (Tuesday afternoon)

Geodata processing with free software: gvSIG CE and the GRASS GIS plug-in

Organiser: Benjamin DUCKE, Germany

Cultural Heritage Geospatial Infrastructures – a fundament for collaboration and exchange
Organiser: Markus JOBST, Austria

Survey2gis: a flexible, open source solution for transferring survey data into GIS
Organiser: David BIBBY, Germany

Digital recording of features, monuments and excavations
Organiser: Stefan HOHMANN, Germany / Willem BEEX, The Netherlands / Giorgio VERDIANI, Italy in collaboration with Kubit

Poster 2.0 – Reinventing poster design
Organiser: Bert BROUWENSTIJN / Benno RIDDERHOF, The Netherlands

Intrasis Workshop
Organiser: Karin LUND, Intrasis, Sweden

WEDNESDAY, November 05 2014

"Analysing the Dead" – Archaeological anthropological and forensic recording and analysis of human/animal remains.
Chairs: David BIBBY, Germany / Ann DEGRAEVE, Belgium / Karen WILTSCHKE-SCHROTTA, Austria/ Raphaël PANHUYSEN, The Netherlands

Amanda MURPHY, UK: Lost, But Not Alone: Burial records as a means of determining absolute taphonomic loss by age in cemetery populations Emilie PEREZ, France: Ages of children and burial rites: Evolution of child graves organization in medieval cemeteries Raphael PANHUYSEN, The Netherlands: United in a grave, analysing multiple burials in Merovingian Maastricht Gilbert SOETERS, The Netherlands: "They shoot horses, don't they?"
Claudia RADU | Norbert SZEREDAI | Demjen ANDREA | Oana PONTA, Romania:Applying a biocultural approach in the analysis of the Late Medieval/Early Modern population from Gheorgheni (Romania) Jay CARVER, UK: The charter house 25, a window to the Black Death Benno RIDDERHOF, The Netherlands: Custer and the Battle of Little Bighorn, American iconography versus archaeology John P. ZEITLER, Germany: Crisscross orientation in a late medieval and early modern cemetery in Nürnberg: facts and interpretations Claudia Maria MELISCH | Peter RAUXLOH | Natasha POWERS | Ines GARLISCH, Germany / UK: Medieval space and population Valeria AMORETTI | Francesco CARRERA, Italy: New methodologies and perspectives in analyzing taphonomy: the deviant burial of San Cerbone in Baratti (Tuscany, Italy) Filipa NETO | Ana Lema SEABRA, Portugal: What to do with data: Portuguese information system for anthropological and funerary data Cristina BARROSO | Filipa NETO | Ana Lema SEABRA, Portugal: Piecing together terminology in bioarcheology: defining concepts Timo SEREGÉLY, Germany: Human and animal remains from three eras – new documentation methods of a vertical cave of the Northern Franconian low mountain range and its inventory Ilse TIMPERMAN, UK: Early Niche Graves in the Turfan Basin (c. 300 BCE–300 CE): A Critical Approach to Data Mining Petra RAJIĆ

ŠIKANJIĆ | Daria LOŽNJAK DIZDAR, Croatia: Creating the database of Urnfield burials from northern Croatia

UAV4urban_archaeology: Recording archaeological sites and monuments with UAVs
Chairs: Marco BLOCK-BERLITZ / Benjamin DUCKE, Germany / Peter DORNINGER / Christian BRIESE, Austria

Christof SCHUBERT, Germany: Multicopters – an everyday documentation tool for archaeologists?
Marco BLOCK-BERLITZ | Benjamin DUCKE, Germany: My drone is cheaper than yours: the possibilites of UAVs and image-based 3D reconstruction using consumer grade hardware Christian SEITZ, Germany: From ArchEye to ArchEyeAutomatic Christian BRIESE | Martin PFENNIGBAUER | Michael DONEUS | Andreas ULLRICH, Austria: Radiometric Information from UAS-Borne Close Range Lidar Toni SCHIEMANK | Marco BLOCK-BERLITZ, Germany: The autonomous, flying archaeologists of the future Peter DORNINGER | Dominik KRAWCZYK | Clemens NOTHEGGER, Austria: Scan-Copter – UAV-Based High-Resolution LiDAR

NEWBIES
Chairs: Michael DONEUS / Benjamin STANGL, Austria

Ronny WEßLING, Austria: Large- scale high-resolution landscape modelling of coastal areas with Kite Aerial Photography Angela MANCUSO | Andrea PASQUALI, Italy: Different ways lead to different results? Experiences on modern photogrammetric surveying of Cultural Heritage subjects Jonas BRUSCHKE | Markus WACKER, Germany: A new digital documentation tool for the 3D-reconstruction process Nermine Mahmoud SHOUKRY, Egypt: Documentation and Preservation of historical Cairo Cultural Heritage and its relation to urban tourism through the use of New Technologies Lucia ARGENTO, Italy: GIS systems for research and analysis of environment and archaeological settlements Lukasz MISZK, Poland: Forming 3D Database for Classical Sites on The Example of Nea Paphos (Cyprus) Dominique VAN DOKKUM | Benno RIDDERHOF, The Netherlands: Italian city-states a data warehouse for the true story of sex, murder and mayhem in 15th century Italy Karolina ROSIŃSKA-BALIK, Poland: From Sketch to Virtual Reality. The Case Study of Ancient Brewery from Tell el-Farkha, Egypt

Video Session (3rd Video Award)
Chair: 7reasons, Austria

Stefan REUSS | Piotr KUROCZYŃSKI, Germany: Virtual reconstruction of baroque palaces in former East Prussia Andrea BRAGHIROLI, Italy: Gladiators combat Panaiotis KRUKLIDIS, Italy: Communication of Historical and Cultural Heritage Environment Marco BLOCK-BERLITZ |Reinhard JUNG | Marco PACCIARELLI, Germany/Austria/Italy: UAV-based topographic surveying at Punta di Zambrone (Italy)

Poster Session (6th Poster Award) (Monday – Wednesday)
Chairs: Peter DORNINGER / Christian BRIESE, Austria

Irmela HERZOG | Alden YÉPEZ , Germany / Ecuador: Analyzing Patterns of Movement and of settlement in the East-Andean Mountains of Ecuador Giada CERRI | Federica

CORSINI, Italy: Digital reconstruction and analysis of the Nari's monument in Florence, a Bartolomeo Ammannati's statue from the St. Annunziata church to the Bargello national museum Giovanni ANZANI | Francesco ALGOSTINO | Elenonora CECCONI | Francesco TIOLI, Italy: Digital 3D print and reverse engineering for Cultural Heritage, the experience of the LMA (Architectural Modelling Laboratory) of the Didalabs system in Florence Giorgio VERDIANI | Anna FRASCARI, Italy: The Mausoleums of the ancient Caria, guidelines for a digital approach Andrea ALIPERTA | Carlo GIRA, Italy: The Curch of Meryem Ana in Göreme, Cappadocia. New life in prototyping and augmented reality Ruth CEBRIÁN JORGE | Natalia Rubio CAMARILLO, Spain: Analysis of the distortion model of traditional architecture and its effect on Gran Canarias heritage Tomoyuki USAMI, Japan: GIS-based study of the distribution of jar-burials in the Middle Yayoi period in Northern Kyushu (Japan) Paolo FORMAGLINI | Filippo GIANSANTI, Italy: The "Banuelo" at the ancient entrance of Granada, survey and analysis in a fully digital approach Maureen L. KING | Colleen M. BECK, USA: The Archaeology of Atmospheric Nuclear Test Sites Hans-Werner BARTZ | Aline DEICKE | Anna NEOVESKY, Germany: PBF Online – Digitizing the project "Prähistorische Bronzefunde" Francesca RAFANELLI, Italy: The complex of St. Daniel in Göreme, Cappadocia Tatiana PIGNATALE | Andrea LEONARDI, Italy: Intangible Heritage, fairy tales and myths, structure for a research about the underground popular imagination and its link to architecture and archaeology Jacopo BARDI, Italy: Diagnosis of the theatrical Cultural Heritage in Florence Gerald RAAB, Austria: Air prospection in Hamadab & Meroe (Northsudan) Cristina BASSI | Valeria AMORETTI | Alex FONTANA, Italy: The importance of combined study of human/dog remains in archaeology: the uncommon case of the late roman cemetery from Via Tommaso Gar (TN) Panaiotis KRUKLIDIS, Italy: Communication of Historical and Cultural Heritage Environment Johari Hussein AMAR, Australia: Conservation of Cultural Built Heritage Antonio CAZZANI | Alessandro RUGGIERI, Italy: The Basilica of S. Antioco of Sulki (south-west of Sardinia, Italy): evolution of architecture through the reading of the elevations Georg GANGL, Austria: Observational seismology on the 1895-Lubljana earthquake: Historical reports, "unstructured" data, macroseismic classification, and practical application Morteza JAHANGARDI | Naser Hafezi MOGHADDAS |Omran GRAZHIAN, Iran:Ground Penetrating Radar Prospection at Tepe Damghani, Iran Andrea SICHI |Carolina ROSINI, Italy: S. Johannes in Jerusalem Church, in Poggibonsi. A disclosed mystery?

Vladimir IONESOV | Vera KURINA, Russia: The things and people: to new creative communication of urban landscape Mariam Ibrahim ALMULLA, Qatar: A Narrative of Collecting and Interpreting Cultural Materials Ivo TOPALILOV | Nina TOLEVA | Georgi KAFELOV, Bulgaria: The Episcopal Basilica in Philippopolis, Thrace (modern Plovdiv, Bulgaria): Challenge of Socialization and Exponation Sergiy TARANENKO | Sergiy ROMANCHUK, Ukraine: Reconstructing the ancient landscape in Kyiv Podil: issues of methodology Luca BOMBARDIERI | Anna Margherita JASINK | Panaiotis KRUKLIDIS, Italy: The Gallery and the Town: the Florentine Bronze Age Aegean and Cypriote Collections beyond the Museum walls Ira DILLENIA | Lestari Cendikia DEWI, Indonesia: Marine Environmental Status and Biodiversity Analysis for Supporting Marine Archaeological Sites Sustainability in Teluk Kao, Indonesia Herwig ZEINER | Silvia RUSSEGGER, Austria: NFC – in the Use for Culture 2.0 Stéphane GIRAUDEAU | Valentina FANTINI | Jacopo DE PAOLA, Italy: "Abandoned Art Nouveau as a research tool: comparing two different methods" Silvana Maria GRILLO, Italy | Walter PROCHASKA, Austria: The Marble Inventory of the Early Christian Basilica San Saturnino/Cagliari-Sardinia

Social | Evening Events

Monday, November 03 2014

7:30 pm | Opening – Wiener Planungswerkstatt

Tuesday, November 04 2014

2:00 pm | Guided Tour – Römermuseum (Meeting point – Registration desk) 2:00 pm | Guided Tour – Kunsthistorisches Museum (Meeting point – Registration desk) 6:00 pm | Guided Tour – City Hall (Meeting point – Registration desk)

7:30 pm | Mayor Cocktail Reception – Rathauskeller

Wednesday, November 05 2014

7:30 pm | Informal Farewell Evening – Restaurant Gösserbräu

Menu (Lunch) – City Hall

Please visit the site: http://www.chnt.at/program-2014/

CONFERENCE: DYES IN HISTORY AND ARCHAEOLOGY, 33 CENTRE FOR TEXTILE CONSERVATION AND TECHNICAL ART HISTORY UNIVERSITY OF GLASGOW, GLASGOW, UK, 29 OCTOBER - 01 NOVEMBER, 2014

Provisional program of DHA 33 is now available at: URL:http://www.gla.ac.uk/media/media_351958_en.pdf

Oral presentations:

30 October, 2014

Technical analysis of archaeological Andean painted textiles

Dyeing practice and the Society: A study of historical Chinese dyes of the Ming and Qing Dynasties (1368-1911) by chemical analysis and history of art

New revolutionary chemical insights regarding the ancient purple dyeing process and Pliny's ultimate decipherment

The Red Road of the Iberian Expansion, cochineal and the global dye trade: Characterization of crimson textiles dyed with scale insects using UHPLC and multivariate statistical analysis

Polish cochineal--True or legend?: Investigation of red dyes in Polish textiles from the collection of the National Museum in Warsaw

Mjolon or 'Swedish sumac' Arctostaphylos uva-ursi L. as a dye source and mordant

Colour fashions in Constantinople in the light of some unpublished archives of a Florentine company (end of XVth century)

Painters or shopkeepers--Who made brazilwood lake pigments? (XIIIth-XVIth century)

Reading polychrome laces: Multispectral imaging techniques on historic textiles from the Collection of the Metropolitan Museum of Art

A Garland of Dyes: Dye sources and the stylistic development of English Turkeywork carpets

Traditional tapestries in the old Polish territories

31 October, 2014

Extraction and identification of natural dyes for sustainable and historical applications

To extract or not to extract?: Strategies for the extraction of organic colorants from textile and paint samples

Scarlet, or Mock, or Not

Dyer's Greenweed fingerprinting in historical textiles using UHPLC and MS-MS

Brazilwood lakes: Towards the identification of a marker component

Iron gall dyestuffs: A model study of degradation of textiles

Mythic dyes or mythic colour?: New insight into the use of purple dyes on codices

A multi-disciplinary approach to analysis of historical red lake pigment samples

Correlation between colour, dye source(s) and fibres functionality - Hazard or criteria for "gold embroideries: dating and provenance?

Yellow silk for Buddha: Dye analysis on Tang Dynasty textiles from the Famen temple near Xi'an, Shaanxi Province, China

A coat of many colours: Dye analysis of an Uzbek coat

David Smith: Dyer and manufacturing chemist - Man of transition

German synthetic dyes go East and West, period 1860-1913

Early Bird registration is available until 31 August, 2014.

For more details on DHA 33, please visit: URL:http://www.glasgow.ac.uk/dyesinhistoryandarchaeology

If you have any enquiries please contact: arts-dha33@glasgow.ac.uk

DHA 33 Organising Committee
Centre for Textile Conservation and Technical Art History, University of Glasgow

THE NEW YORK AEGEAN BRONZE AGE COLLOQUIUM, "SALUTING ELLEN N. DAVIS: A MEMORIAL SYMPOSIUM", SATURDAY, SEPTEMBER 13, 2014, ROOSEVELT HOUSE PUBLIC POLICY INSTITUTE, HUNTER COLLEGE

The New York Aegean Bronze Age Colloquium Invites you to attend "*Saluting Ellen N. Davis: a Memorial Symposium*" Saturday, September 13, 2014 Roosevelt House Public Policy Institute at Hunter College 47-49 East 65th Street, New York City (between Park and Madison Avenues) r.s.v.p. by September 5 to millie.arias@hunter.cuny.edu

PROGRAM (each paper is 20 minutes, followed by 10 minutes for questions and discussion, in the spirit of the colloquium)

9:00-9:45	Registration
9:45-10:00	Robert B. Koehl, Welcoming remarks
10:00-10:30	Philip P. Betancourt, James D. Muhly, and Susan C. Ferrence, "Cycladic Connections in the Metallurgy from the Petras Cemetery in Eastern Crete"
10:30-11:00	Guenter Kopcke, "Reading Ellen's 'The Gold of the Shaft Graves: the Transylvanian Connection' - Some Thoughts"
11:00-11:30	Malcolm H. Wiener, "Helladic Pairs of Cups"
11:30-12:00	Judith Weingarten, "The Silver Kantharos from Gournia Revisited" (paper to be delivered in absentia)
12:00-12:30	Karen P. Foster, ""The Lion King in the Aegean and Near East"
12:30-2:00	Buffet lunch at Roosevelt House for all attendees sponsored by Hunter College President, Jennifer J. Raab
2:00-2:30	Elizabeth Shank, "Depictions of Water in Aegean Bronze Age Miniature Frescoes"
2:30-3:00	Andreas Vlachopoulos, "Purple rosettes" / ???????? ???????: New data on the polychromy of the Thera Wall-Paintings"
3:00-3:30	Bernice Jones, "The Third Minoan 'Snake Goddess' "
3:30-4:00	Robert B. Koehl, "The Chieftain Cup and Beyond"
4:00-4:30	J. Alexander MacGillivray, "The Minoan Salute"
4:30-5:00	Tom Palaima, "The Ideology of the Ruler in Mycenaean Prehistory: Twenty Years after the Missing Ruler"

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ – JOB VACANCIES/FELLOWSHIPS

JOB VACANCY - PROJECT CONSERVATOR

To whom it may concern

We have a vacancy at our company that I would like to share with all your subscribers to this list. Please see text below:

Role: Project Conservator (12 month fixed-term contract)
Location: Bicester (Oxfordshire)
Company: DC Thomson family history

DC Thomson Family History is looking to recruit a Project Conservator to assist with an exciting new joint project in conjunction with The National Archives working on the 1939 Register. The successful candidate should have a recognised professional qualification in conservation with a specialism book, paper or archives conservation at degree level or higher or equivalent experience.

Working alongside a team of scanning operators you will be required to work efficiently to assess and prepare volumes for digitisation.

Responsibilities:
• Prepare original documents for imaging.
• Assess the condition of documents and carry out minimal treatments where necessary, in accordance with the instructions of the Conservation Manager.
• Make decisions regarding treatments and materials, selecting the most appropriate available or adapting existing processes while adhering to the ICON code of ethics and professional standards.
• Work with fragile documents under pressure while maintaining a high level of manual dexterity.
• Manage own workload to meet targets and deadlines.
• Keep organised records and maintain project documentation as required.
• Provide on-going practical assistance to the scanning team where required.
• Work closely with other teams involved in digitization to ensure workflow.

Person Specification – Essential:
• A graduate from a recognised conservation programme or appropriate equivalent work experience with a specialism in book, paper or archives.
• Demonstrable paper, book or archive conservation experience and/or training.
• Knowledge of current conservation practice and ethical standards.
• Demonstrable skills in solving complex problems and making decisions with a high degree of professional judgement.
• Ability to work effectively both independently and as part of a team.

• Strong organisational skills and the ability to plan and prioritise workload whilst under pressure.
• Excellent communication skills and proficiency with IT systems including MS Office products.

Person Specification – Desirable:
• Experience of Project Work.
• Experience of preparing collections for digitisation.
• Experience of collection surveys and condition assessment.
• Experience of liaising with internal and external stakeholders.

If you are interested in this position, please email a copy of your CV along with a cover letter, notice period and salary expectations to:

recruitment@dctfh.com

Please apply as soon as possible and by Monday 18th August 2014 at the latest.
Please note that as the preferred start date of role is Monday 18th August 2014 we may fill this vacancy prior to the closing date if we find a suitable candidate.

* Please note that you must be willing to undergo a Basic Disclosure*

Details of this project can be found at http://blog.findmypast.co.uk/2014/new-project-to-release-the-1939-register-for-the-first-time-online/

Many thanks
Lucinda

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Lucinda O'Dell
HR Adviser, DC Thomson Family History
lodell@dctfh.com
www.dcthomsonfamilyhistory.com
The Glebe, 6 Chapel Place, London, EC2A 3DQ

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FULLY-FUNDED AHRC STUDENTSHIP: APPLICATIONS INVITED FOR RESEARCH INTO ROMAN SILVER COINAGE, AD 193 TO AD 260

Dear All,

Please pass-on to anyone you think suitable the details of a PhD studentship available at Liverpool University. Details at:
http://www.liv.ac.uk/archaeology-classics-and-egyptology/news/stories/title,516101,en.html#.U9pNs-NdX3Q

Thanks,

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Dr. Matthew Ponting FSA
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http://www.liv.ac.uk/archaeology-classics-and-egyptology/research/projects/roman/

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ASSISTANT DIRECTOR OF THE SCHOOL POSITION IN ATHENS

Deadline: October 31

Term: A full-time (12 months) position beginning July 1, 2015 for three years, with the possibility of renewal for a final fourth year.

Compensation: Salary commensurate with experience; benefits include room and board at the School.

Qualifications: Candidates must have earned the PhD from a North American university no more than three years prior to the application and must have spent a minimum of a year as a Member of the ASCSA. An active agenda for research and publication, knowledge of Greece and Modern Greek, and teaching experience are expected.

Duties:

- To help the Director in the administration of School business and to stand in for the Director when needed. Reports to the Director of the School.
- To assist with the academic program under the direction of the Mellon Professor by lecturing, leading short trips or offering mini-seminars/workshops on area(s) of expertise.
- To serve as a contact and resource person for all members of the School and to live in Loring Hall.
- To help with the planning of the Summer Session by suggesting itineraries, speakers, and generally offering support to the Summer Session Directors, but not making actual arrangements.
- To be a visible presence in the Athenian social and academic scene by attending functions as an official of the School.
- Pursue research on a project.

Application: The Assistant Director will be appointed by the ASCSA Managing Committee (through the Personnel Committee) in consultation with the Director of the School and the Andrew W. Mellon Professor. Letter of application, curriculum vitae, research project description (up to three pages in length) submitted online at: https://ascsa.wufoo.com/forms/assistant-director-application/. Arrange for three letters of recommendation to be sent to application@ascsa.org. Final candidates may be interviewed at the annual meeting of the AIA in New Orleans in January.

The appointment will be announced by January 15.

The American School of Classical Studies at Athens does not discriminate on the basis of race, age, sex, sexual orientation, color, religion, ethnic origin, or disability when considering admission to any form of membership or application for employment

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Ms. Mary Darlington

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THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS NEH FELLOWSHIPS

Deadline: October 31

Founded in 1881, the American School of Classical Studies at Athens (ASCSA) is the most significant resource in Greece for American scholars in the fields of Greek language, literature, history, archaeology, philosophy, and art, from pre-Hellenic times to the present. It offers two major research libraries: the Blegen, with over 100,000 volumes dedicated to the ancient Mediterranean world; and the Gennadius, with over 120,000 volumes and archives devoted to post-classical Hellenic civilization and, more broadly, the Balkans and the eastern Mediterranean. The School also sponsors excavations and provides centers for advanced research in archaeological and related topics at its excavations in the Athenian Agora and Corinth, and it houses an archaeological laboratory at the main building complex in Athens. By agreement with the Greek government, the ASCSA is authorized to serve as liaison with the Hellenic Ministry of Culture and Tourism on behalf of American students and scholars for the acquisition of permits to conduct archaeological work and to study museum collections.

Since its inception in 1994, the National Endowment for the Humanities (NEH) Fellowship program at the ASCSA has demonstrated its effectiveness by supporting projects for 43 scholars with distinguished research and teaching careers in the humanities.

Eligibility: Postdoctoral scholars and professionals in relevant fields including architecture or art who are US citizens or foreign nationals who have lived in the US for the three years immediately preceding the application deadline. Applicants must already hold their Ph.D. or equivalent terminal degree at the time of application. The ASCSA encourages younger scholars to apply.

Terms: Two to four fellowships, either five or ten months in duration. Stipend for a five-month project, $21,000; for a ten-month project, $42,000. Term must coincide with American School's academic year, September to June. School fees are waived, and the award provides lunches at Loring Hall five days per week. The NEH Fellow will pay for travel costs, housing, partial board, residence permit, and other living expenses from the stipend. A final report is due at the end of the award period, and the ASCSA expects that copies of all publications that result from research conducted as a Fellow of the ASCSA be contributed to the relevant library of the School. The NEH Fellow is required to send one copy of all books and electronic copies of articles to the NEH.

NEH Fellows will be expected to reside primarily at the American School of Classical Studies at Athens (though research may be carried out elsewhere in Greece), contribute to and enhance the scholarly dialogue, as well as contribute to and expand scholarly horizons at the School.

Application: Submit Senior Associate Membership application with fellowship online on the ASCSA web site by October 31.

Link to:
http://www.ascsa.edu.gr/index.php/admission-membership/student-associate-membership.

The following items should be attached to the Associate Member application submitted online on the ASCSA web site:
1. Short abstract of the project (up to 300 words).
2. A statement of the project (up to five pages), including desired number of months in Greece, a timetable, explicit goals, a selected bibliography, the importance of the work, the methodologies involved, where applicable, and the reasons it should occur at the ASCSA.
3. Current curriculum vitae, including a list of publications. If not a US citizen, state US visa status /date of residence.
4. Three letters of reference from individuals familiar with applicant's work and field of interest. These letters should comment on the feasibility of the project and the applicant's ability to carry it out successfully. Include a list of names, positions, and addresses of the referees. Instruct recommenders to submit letters to application@ascsa.org by November 4.

The following criteria will be used by the Selection Committee when considering applications.
1. Are the objectives and approaches clearly stated and coherent?
2. Will the project result in an important and original contribution?
3. Are the research perspectives and methodologies appropriate?
4. Is the projected timetable reasonable for the tenure of the fellowship?
5. What resources are necessary? Does the ASCSA provide resources that are not available at the home institution?
6. Will residence in Greece contribute substantially to the success of the project?
7. Please address how you might contribute to, and enhance, the scholarly dialogue at the ASCSA.
8. In what ways might this project expand scholarly horizons at the ASCSA?

NEH Fellowships
American School of Classical Studies at Athens
6-8 Charlton Street
Princeton, NJ 08540-5232
E-mail: application@ascsa.org
Web site: www.ascsa.edu.gr

The awards will be announced during February. Awardees will be expected to accept the award within two weeks of notification of funding, but no later than March 1.

The American School of Classical Studies at Athens does not discriminate on the basis of race, age, sex, sexual orientation, color, religion, ethnic origin, or disability when considering admission to any form of membership or application for employment.

FELLOWSHIPS: 4, FOR 9 MONTH SCHOLARSHIP VIA RESMED

Veuillez trouver ci-dessous l'appel à candidature Fernand Braudel-IFER septembre 2014, programme de mobilité internationale proposant des séjours de recherche dans des laboratoires d'accueil en France (volet incoming du programme Fernand Braudel-IFER) et en Europe (volet outgoing du programme Fernand Braudel-IFER).

4 bourses sont proposées dans le labex RESMED. Les projets doivent s'inscrire dans un des axes du labex ((http://www.labex-resmed.fr).

Le formulaire de candidature en ligne seulement *(accessible du 1 septembre midi GMT au 30 septembre minuit GMT), ainsi que le détail de l'appel, des conditions d'admission et de sélection sont disponibles à l'adresse suivante http://www.fmsh.fr/fr/c/1295.

Please find below the call for applications Fernand Braudel IFER September 2014, international researcher mobility programme offering 9 months research stay in one of a French laboratory (incoming part of the programme) and in a European laboratory in Europe (outgoing part of the program me).

4 scholarships are proposed by the Labex (Excellence Laboratory) RESMED. Projects must fit with the research areas of RESMED ((http://www.labex-resmed.fr).

The application form is available only online (accessible from September 1 midday GMT until September 30 midnight GMT) as well as call's details, the call's criteria and selection process are available at http://www.fmsh.fr/en/c/4171.

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www.mss-syriaques.org
http://bibleterresainte.wordpress.com/

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ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

THE MEDITERRANEAN ARCHAEOLOGICAL TRUST - GRANTS TO ASSIST PUBLICATION

Please note that, after trialling the process last year, applications / references this year will **only** be accepted in the format outlined below to the e-mail address indicated

The Mediterranean Archaeological Trust, set up in 1959 for the promotion of the study of archaeology, invites applications for grants, made on a competitive basis, for expenses in 2015-16, in the preparation for final publication of material from archaeological excavation or fieldwork in the Mediterranean world, excluding subventions to publishers or publication of material not from a specific excavation, or in symposia. Within the terms of the Trust, priority may be given to publication of Bronze Age sites. Grants for any amount, however small, will be considered, provided they expedite publication. The grants do not normally exceed GBP 2000.

Applicants should complete the application form (downloadable from the MAT web-site: https://sites.google.com/site/medarchtrust/grants), which should be sent no later than **31 January 2015** by e-mail attachment, to:

Professor John Bennet: medarchtr@gmail.com (in case of difficulty, please contact him on: d.j.bennet@shef.ac.uk)

Please follow the instructions on the form, taking care to indicate the importance of the site, your qualifications, other sources of support, and the present or planned status and place of publication. Apply in good time to ensure that your case can be fully considered. The references (which are essential) should be sent directly by the referees to the same e-mail address and must meet the deadline of 31 January. Successful applicants will be informed in April 2015, when they will be asked to provide full bank details for payment. A report on the use of the grant must be submitted by **Dec. 1, 2015**. Failure to do so is likely to mean future grant applications from you will not be considered.

SPECIAL ISSUE OF THE JOURNAL CHEMISTRY ON WATER CHEMISTRY

Dear Colleagues,

I would like to inform you that a Special Issue of the Journal Chemistry on Water Chemistry is now opened for submissions. More information can you find at:
http://www.hindawi.com/journals/jchem/si/149375/cfp/

Kind regards,

Andreas

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Dr. Andreas N. Angelakis
Honorary Member of IWA
Fellow of IWA
Past President of EUREAU
Chairperson of IWA-SG on Water and Wastewater in Ancient Civilizations
Addresses:
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Emails: info@a-angelakis.gr or angelak@edeya.gr
Site: http://www.a-angelakis.gr/

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INTERNET SITES

NANOTECHNOLOGY & CHEMICAL GELS APPLIED TO PAPER RESTORATION

The restoration department of books and documents of the *Instituto del Patrimonio Cultural de España* (IPCE) is studying nanoparticles and chemical gels in the context of a vast European research project (Nano for Art) which has a trajectory of three years. This investigation seems to open the door to much more effective future working methods, easier and safer. And at last newest technology is applied to paper restoration, and not only painting or sculpture (with all my love for these two!). The greater porosity of cellulose and graphic supports in general (compared to stone or painting layers) shows the different needs of our discipline, which may not always benefit from technological advances on paintings and sculptures. At the documents and books department of IPCE they study these specificities to implement them on documentary heritage.

Nanotechnology

Nanoparticles are those of nano magnitude (10^{-9}) i.e. soooooooo very small particles. The same mass of any "nano" product has globally greater surface than the same amount of the regular product, in which particles are larger but less numerous. This makes nanoparticles more reactive, as there is more contact surface and fewer unreacted product. Then with fewer amount, we get the same effect that could be obtained with the same product with higher scale particles. In practice, and greatly simplifying the talk that gave us Emma Sánchez at the Institute, the main advantages of nanoparticles are: An equivalent concentration of the same chemical (calcium hydroxide, for example) penetrates much more easily among the paper fibres so that the chemical not only interacts more homogeneous and thorough with them, but lowers the probability of creating whitish areas on the paper surface, or may just not take place at all. And that is especially interesting in its application to deacidification, which often blurs the intensity of black or brown inks. But, above all, because the further the product penetrates into the document, the more complete is the deacidifying effect. When the particle diameter is smaller, it fits in narrower spaces among the fibre weft and so its effect is deeper throughout the paper.

I am struck by a solution of calcium hydroxide in water that rather than staying in the bottom of the bottle as a sediment, remains permanently as a homogeneous aqueous dispersion, never precipitating. Emma also tells us how this research has opened her eyes about the deacidification process, as we usually apply it without much variations, but there are really lots of variables that should be considered: the natural recess suffered by the initial pH increase after a few days, the thickness and type of paper, among many others.

Chemical semi-interpenetrated (IPN) hydrogels

If the benefits of nanotechnology have immediately convinced me, the promising chances of chemical gels leave me speechless: I want to apply them NOW! When will we be able to buy them, Emma? That will still take a long way… she says, but studies are certainly very promising. Physical gels are formed by a thickener (agar, Klucel, Carbopol, Methylcellulose… the ones we know) and a vehicle (water or any other

solvent, or mixture of them). The grid is formed by monomers or polymers linked to the vehicle by weak bonds.

- Physical gel = Thickener + vehicle (weak bonds)
- Chemical gel = Semi-interpenetrated grid (covalent bonds)

Chemical gels differ from physical on the bonding, which is covalent type. Covalent bonds are much stronger than the hydrogen ones. They are not fazed by pH or temperature changes nor other conditioning to which physical gels are subdued. "Inter-penetrated" because there are two independent polymer reticulum (hence semi) but intertwined. One is formed by the vehicle (same as physical gels), and the second one is synthesized by the solvent in presence of the first. And what does this mean? First of all that we can work with them in a wide variety of conditions, but, the most interesting to me is that it doesn't wet. Water retained (when this is the vehicle, that could be other: ethanol, acetone, isooctane…) does not escape from the mesh of the gel: stays there. The concentration is stable because of the strong covalent bonding, and does not migrate to the support in which it is applyed. Can you imagine? At last real possibility to apply a gel on a gouache, parchment manuscript or even an illuminated capital letter? Possibilities are endless! Because, let's be honest, doing this with physical gels carries important risks, as part of the vehicle can wet the support, even when working extremely carefully. But that isn't so with chemical hydrogels: they moisture the substrate such that the hydrophilic dirt migrates to the gel, but without thereby creating damp stains, since the vehicle is always retained in the gel. The example they show us on a parchment is clearly effective, because the action of the gel does not exceed an inch on the area in which it was applied.

We can can give it the exact desired shape with absolute certainty that it will only act there. Just as humectant method it is already extremely useful: A wrinkled parchment has been completely hydrated remaining dry to touch, explains Carmen Peña, restorer involved in the research. And let's not limit to water: I'm dying to apply it in scotch tapes and greasy stains without all the trappings… Hopefully the project continues delving into the paper section and soon we will be able to use them!

Dedicated to Emma to whom I am so thankful for the fantastic visit to the ICP and the wonderful explanations of nanotechnology and hydrogels.

Please visit the site: http://ritaudina.com/en/2014/06/24/nanotechnology-chemical-gels-applied-to-paper-restoration/

DRAWING YOUR ATTENTION TO AN ARCHAEOLOGICAL ART PROJECT INVOLVING LIDAR FABRIC, BY ASHLEY RICHTER AND VID PETROVIC

We are pleased to announce the start of a new initiative, Open Access Antiquarianism. It is intended to explore technology development for heritage, the accessibility of 3D data, visualization as outreach, and the use of creative mediums to push the boundaries of development for laser scanning, point cloud visualization, 3D modeling, and 3D printing for art and archaeology's sake.

Too often only archaeological and conservation experts get to see the stunning results of scientific data collection done at world monuments and museums. It gets locked down in the egos of academia, filtered out in low resolution by optimistic museums, or bogged down in copyright politics. The raw data remains unseen and little can be done creatively or experimentally with the derivatives that are "published." Larger conversations regarding 3D archiving systems, data quality control, and access need to be had. And a balance achieved between laser scanning experts, cultural heritage control, the tech industry, and the public.

The public deserves to be able to see and play with the increasingly available technologies that can let them explore digital interfaces with the point clouds of the past. Open Access Antiquarianism wants to work towards this bright future of interdisciplinary collaboration and data availability.

It is a huge undertaking in this context. Open Access Antiquarianism tried a Kickstarter Art Show to showcase the possibilities of point clouds as artistic mediums, but we underestimated the time required so we cancelled that project and are working on version 2.0 – stay tuned.

The Kickstarter Show provides insight into some of our ideas. We have a mix of 3D printed archaeological artifacts and site "dollhouses," immersive and interactive visualization displays of point clouds rendered in a new, in-house designed software system, and live photogrammetric explorations. At the nucleus of the show's modern antiquarian's study and Cabinet of Curiosities theme is the notion of LiDAR fabric which has been printed with the point clouds of archaeological excavations and structural conservation projects at world monuments.

Central to this is a series of furniture upholstered in this point cloud fabric as physical representations of the idea of the 'arm-chair archaeology' which point clouds and digital heritage make possible to new generations of digital antiquarians in the wonderful future of democratized science.

When the show finds funding, the initial exhibit will commence in southern California this coming spring, but the possibilities for collaboration and creative construction for the concept of Open Access Antiquarianism are endless and need to be explored.

So if you believe in the power of points clouds, the potential for laser scanning and visualization to transform the way the world looks at its past and present, or if you just really really want to immerse yourself in art built from science in an attempt to push the open access technology agenda—than please get involved with the project:
pledge your support for the Kickstarter 2.0 campaign and help us spread the word about this new venture, the first of its kind.

Open Access Antiquarianism arose out of a collaboration between computer science and archaeology that began at the University of California, San Diego's Center of Interdisciplinary Science for Art, Architecture, and Archaeology at the Qualcomm Institute branch of the California Institute for Telecommunications and Information Technology. Where, after years of working on high profile academic projects in cultural heritage diagnostics at sites all over the world—hunting for a Lost Da Vinci, imaging King Solomon's purported mines, building point clouds of Petra, the Baptistery of St. Giovanni in Florence, Castles in Calabria, and much more---we want to take things out of the academic world and explore the potentials of all of this technology of the future for the study of the past in more creative formats.

For more on the exploits of the Open Access Antiquarianism creators Vid Petrovic and Ashley M. Richter, check out their blog Adventures in Digital Archaeology which has recently been featured by Popular Archaeology Magazine.

Please visit the site: http://www.lidarnews.com/content/view/10846/136/

MicroPasts

MicroPasts is a web platform that brings together full-time academic researchers, volunteer archaeological and historical societies and other interested members of the public to collaborate on new kinds of research about archaeology, history and heritage. It is a place where enthusiasts (of any background) can not only create high-quality research data together, but also collaboratively design and fund entirely new research projects. In particular, we want to improve how people traditionally distinguished as 'academics', 'professionals' and 'volunteers' cooperate with one another (as well as with other people out there who as yet have no more than a passing interest).

Through MicroPasts, we will develop and support a range of online crowd-sourcing and crowd-funding projects about our human history. By joining in, you can help research, fund and/or design as many projects as you like, with as much or as little personal commitment as you wish. Some existing projects are about creating 3D models of archaeological artefacts, enriching old photographic archives, or transcribing old archaeological or historical records, to name just a few that we have come up with so far. Other new projects will need your help with financing before they can begin, whilst yet others might be collaborative research topics that you might want to propose yourself (as an individual, as part of an organised society or in tandem with other interested people that you meet online). We cannot yet say which projects will prove popular and which ones will not, and we hope that many as yet unanticipated agendas will be dreamt up collectively. In any case, we are keen for your ideas and your contributions wherever we can get them.

In a more technical sense, MicroPasts supports (a) modular applications for massive online data collection about archaeology, history and heritage, as well as (b) a micro-funding model for supporting new (not-for-profit) research projects where collaboration between academic institutions and volunteers is a key feature. The software used to build the platform is entirely free and open source, and the data we create is also required to be open-licensed and publicly available.

The initial stages of this effort have kindly been supported by the UK Arts and Humanities Research Council, and involve a collaboration between the UCL Institute of Archaeology and the British Museum. There is a large group of skilled helpers and advisors behind our work, as well as many other people who are developing particular crowd-funding or crowd-sourcing projects, but four of us who are perhaps most heavily involved at present are:

Chiara Bonacchi, UCL Institute of Archaeology
@Chiara_Bonacchi

Adi Keinan-Schoonbaert, UCL Institute of Archaeology
@Adi_Keinan

Andrew Bevan, UCL Institute of Archaeology

Daniel Pett, The British Museum
@portableant

Please visit the site: http://micropasts.org/

CONSERVING THE POTTERY, TERRACOTTA AND TABLETS FROM UR, DUYGU CAMURCUOGLU, CONSERVATOR, UR PROJECT, BRITISH MUSEUM

My job is to assess the condition of the objects from Ur being studied as part of the Ur digitisation project, conserve them if necessary, and guide the project team on handling and safe storage of the objects before/during photography and further digitisation work. I joined the project in August 2013 to lead the conservation and my first responsibility was to assess and conserve the terracotta objects and the clay tablets with ancient cuneiform inscriptions on study loan from Iraq.

There are over a thousand terracotta objects from Ur in the British Museum's collection, primarily reliefs, figurines and models. Although some are skilfully modelled, the majority are rather crude and mass-produced in moulds. My initial task was to assess each one, selecting those that needed treatment and completing the work before they could be handled and photographed. In the image above, you can see me assessing the condition of one of the important objects from Ur, the fired clay mask of Humbaba, a fearsome monster slain by Gilgamesh in Mesopotamian literature. During the process, colleagues from ceramics and glass conservation joined me to complete the assessment work on the objects, while I undertook the actual conservation treatments.

Following the terracotta objects, I assessed the condition of the pottery from Ur. This large collection comprises over a thousand ceramic vessels in various sizes, shapes, colours and fabrics. This was a huge challenge! Every day, my colleague Gareth Brereton and I went to one of British Museum's storage areas where the pottery from Ur is housed. We set up a small working area in this room for object assessments, photography and registration. There were a large number of cupboards to go through, so Gareth and I worked almost every morning together, assessing the condition of each pot so that Gareth could handle, photograph and register them. We had plenty of exercise going up and down the ladder each morning as some of the objects were stored very high up in the shelves.

Most terracotta objects and ceramic vessels from Ur are in good condition. They sometimes require conservation work, since they have unstable fragments, flakes or cracks on their surfaces. This is very normal due to the age of the objects, most are which are about 4,000 years old. It is crucial that the necessary treatments are undertaken.
When unstable objects are not treated using proper conservation techniques and materials, further problems may occur during storage and handling, such as loss of surfaces and decoration, cracks, breakage of fragments that can make it difficult to study and learn more from the objects.

I identify any cracks and/or unstable flakes on the surface of the vessels before stabilising them using conservation grade materials. I often use a fine brush or a micropipette for this work. Once the treatment is completed, I enter all my treatment records onto the British Museum's curatorial database, Merlin, so that the information is accessible across the Museum and the world via the collection online.

I have also been assessing and undertaking conservation on the cuneiform tablets from Ur. It is particularly important to prevent the loss of surfaces from tablets, because that would mean loss of the text.

Apart from undertaking remedial 'hands on' work with objects, I am also responsible from supporting the Ur team when they have any questions about handling the objects safely, as some are very fragile.

I also monitor the environmental conditions in the Ur project lab and storage cupboards, using digital sensors which we place in different areas. This is important because fluctuating temperature and relative humidity can severely damage archaeological objects. For example, soluble salts in the ceramic and clay fabrics can react very quickly with the fluctuating conditions, resulting in delamination and loss of object surfaces, which can contain elaborate decorations, pigments and reliefs.

When I have completed the conservation work on the pottery and the cuneiform tablets, I will move on to the conservation of other types of objects and materials from Ur, in order to prepare them for digitisation and further study. I am looking forward to the challenge!

The Ur Project is supported by the Leon Levy Foundation.

Please visit the site: http://blog.britishmuseum.org/2014/08/21/conserving-the-pottery-terracotta-and-tablets-from-ur/

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

JOURNAL OF FIELD ARCHAEOLOGY: VOLUME 39, NUMBER 3

We are pleased to announce the latest issue of the Journal of Field Archaeology: Volume 39, Number 3, July 2014. The table of contents is below, and the articles may be accessed for payment at: http://www.maneyonline.com/toc/jfa/39/3

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Thank you!

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METALLURGY AND POTTERY PRODUCTION IN MIDDLE BRONZE AGE CYPRUS

Jennifer M. Webb, David Frankel, Ambelikou Aletri. Metallurgy and Pottery Production in Middle Bronze Age Cyprus. Studies in Mediterranean archaeology, 138. Jonsered: Åströms Förlag, 2013.
Pp. xx, 245. ISBN 9789170812507. €76.00.

Contributors: Myrto Georgakopoulou, Thilo Rehren, George Constantinou and Ioannis Panayides.

Reviewed by Thomas Kiely, British Museum (tkiely@thebritishmuseum.ac.uk)

The commonly evoked metaphorical relationship between archaeology and mining becomes quite literal when, in the course of searching for metal ores, modern prospectors come across traces of their ancient forebears. Among the many entrepreneurs who flocked to Cyprus in search of economic opportunities following its occupation by Britain in 1878 were those who hoped to revive its eponymous metallurgical wealth. But if the island's reputation as a mine of archaeological riches was maintained to an almost embarrassing degree, commercially significant ore bodies eluded successive mining syndicates until the 1920s. Only then did direct traces of ancient mining and metallurgy come to light, such as those found by the Cyprus Mining Corporation.

Their important discoveries (along with those of several others) were published in the third volume of the Swedish Cyprus Expedition (SCE) in 1937.1

The impressive volume under review here is the final report of excavations at a Middle Cypriot Bronze Age settlement with metallurgical and pottery production workshops discovered in 1942 by another commercial mining venture and excavated the same year by the Department of Antiquities. The opening chapter outlines how the Hellenic Company of Chemical Products and Manures—later known by the somewhat less odiferous title of the Hellenic Mining Company—opened a mine west of the village of Ambelikou in the copper-rich foothills of the north-western Troodos range (p. 6-7, also xix-xx). Traces of ancient mine workings, tools and sherds of Red Polished ware characteristic of the Early or Middle Bronze Ages (2500–1650 BC) were found in some of the modern mining shafts. Fortunately, the company's manager C.P Manglis—who contributed to the essay in the SCE volume mentioned above—alerted the Department of Antiquities to these finds and to a large scatter of Red Polished ware sherds on the hillside (known as Aletri, "Plough") to the west of the mine workings. Its then acting Director Porphyrios Dikaios—a renowned pre-historian who virtually single-handedly discovered the pre-Bronze Age cultures of the island between the 1930s and 1950s—conducted excavations in two small areas of the ancient settlement between March and August of 1942. A broadly contemporary cemetery near the modern village was also explored, though the chamber tombs were almost completely looted.

Subsequent ceramic and radiocarbon analysis in the 1970s and 1980s respectively refined the date of the site to the early phases of the Middle Bronze Age (Middle Cypriot I and early Middle Cypriot II), a few generations or so to either side of the turn of the 20th century BC (pp. 9–10).

Ambelikou was immediately recognised as an important site in early preliminary reports for the light it cast on early metallurgy on Cyprus (though much less so for its equally significant insights into pottery production). Indeed some of the finds—including significant individual items such as a melting crucible and a casting mould—have been widely discussed in many subsequent publications. Yet Dikaios never published a comprehensive account of what was an admittedly small-scale excavation conducted in the difficult conditions of the Second World War. The main authors relate the subsequent but unsuccessful attempts to put this right, acknowledging the key role of both Robert Merrillees—who was able to interview the original foreman of the work, Kakoullis Georgiou—and Anne Dunn-Vaturi in the production of this volume. Their efforts to publish the finds began over thirty years ago and have only now been fully realised thanks to the sterling work of the main authors themselves (pp. 7–8). This scholarly modesty should not overshadow the impressive achievement of the authors in creating a model site report that is as meticulously documented and illustrated as it is carefully argued and contextualised. The accessibility of the writing, including on technical matters—and for lay-readers, the claims and counter-claims made by specialists over the years have often been confusing—is also admirable and recommends the book to a wide scholarly audience.

In addition to the historical background summarised above, Chapter 1 also surveys the topography and broader natural and human landscape context of the site (aided by numerous high quality maps and satellite images) and outlines its chronology in relationship to contemporary excavated sites (especially Dhenia, Marki and Alambra). A useful—and, for the uninitiated, necessary—preface, Chapter 2 (Constantinou, Panayides) provides a very accessible overview of the geology of the island and of its metal deposits and defines the nature of the copper ores exploited in the Ambelikou area in antiquity (22-23), more emphatically stated to be copper sulphide ores than in the main authors' own more cautious discussion (see p. 204). In Chapter 3, the meagre recording of ancient mining features in 1942 occupies just a few pages (pp. 25–28, though this subject is reprised with some valuable comparative material on p. 206). The results of some initial soundings and trial trenches, including some purely domestic material, help to define the extent and function of the settlement, fleshing out the predominantly industrial picture represented in the two main excavated areas, numbered 1and 2. By contrast, the short concluding section on the nearby looted cemetery demonstrates how little evidence was salvaged from this potentially important part of the site.

Areas 1 and 2 are fully treated in Chapters 4 and 5. Meticulous accounts of the architectural remains, industrial features and finds are accompanied by many photographs of the original excavations—some of which could perhaps have been reproduced at a bigger scale— and carefully redrafted and reinterpreted original plans and sections. The value of this exercise can be illustrated by one example: a feature containing ash and burnt animal bones simply described as a pit located in the metal workshop in Area 1 has now been identified as a rarely-surviving casting pit (p. 209–211 and fig. 11.6, t). Also intriguing is figure 5.7 showing the scatter of pots on the floor of the pottery workshop in Area 2, perhaps the last load of the kiln, nicely colour-coded to

show the degree of burning which suggests a catastrophic end for the site which was abandoned in a hurry and never reoccupied.

Chapter 6, on the ceramic finds, opens with a useful characterisation of the overall assemblage, including the problems of dealing with the less than ideally stored sherd material (some 11,700 items in total).

This obscured the precise findspot of many pieces, and in some cases mixed up the settlement and tomb material. The following analysis and catalogue of ceramic fabrics restricts itself to 108 more or less complete vessels registered in 1942, together with 25 carefully selected fragments from the sherd trays. Colour images are selective, but the catalogue provides high quality drawings of virtually every item. The contrasting distribution of ground stone items— almost exclusively locally-sourced diabase— between Areas 1 and 2 described in Chapter 7 matches that of the ceramic finds, reminding us how the presence of implements for heavy duty grinding and pounding across the architectural units of Area 1 are key to identifying this zone of the site as a metallurgical complex for the roasting and refining of copper ore. Yet, the small finds (Chapter 8)—including domestic items such as spindle whorls and loomweights and the only complete plank figurine ever found in situ in a settlement context—support the contention (more fully developed in Chapter 11.5) that the site was not necessarily an isolated, seasonal or transitory location for metalworkers and potters but accommodated a range of domestic activities. In all three chapters, the analysis of the object types is exhaustive. The wealth of comparative material, from Cyprus and further afield, helps to explain the technical and functional significance of many of the finds to non-specialists.

The relatively concise (26 pages) but substantial concluding Chapter 11 provides a superlative reading of the significance of the excavated material. Section 11.1 addresses the vexed question of what types of copper ores were being processed at Middle Cypriot Ambelikou. The detailed and nuanced survey of the entire island concludes with the argument that the more technically demanding copper sulphide ores were probably being used (though not necessarily exclusively)—the main question now being the date of the earliest mining of sulphide ores in this part of the island. (On this subject, see also the short contribution by Georgakopoulou and Rehren (chapter 10) on the re-analysis of some of metallurgical samples from the site, identified as ore rather than slag). The following two sections of the conclusion stress the importance of the site as a crucial source of evidence both for metallurgical production—'all stages in the chaîne opératoire from mining, ore beneficiation and smelting to the casting of ingots were carried out at Aletri' (p. 206)—and pottery making. The ceramic workshop is the only pre-Bronze Age installation of this type yet discovered on Cyprus and is really brought to life by the colour-enhanced plan and convincing computer reconstruction. Equally valuable is the consideration of issues of scale and standardisation of pottery production, which was clearly beyond household level. This 'elementary specialisation' (p. 219) had previously been suggested for the period based on ethnographic parallels, so it is nice to find archaeological confirmation, especially as this kind of widespread 'mobilized local production' (p. 223) commonly falls below the radar of much archaeological fieldwork.

One of the few debatable conclusions in the volume emerges when 'regional and extra-regional relationships' are discussed (chapter 11.4). Ceramic analysis (see also Chapter 9, pp. 194–5 on the pXRF analysis) places the site in the immediate ambit of the nearby Karkotis Valley, but also highlights significant contacts further afield to the south-west of

Cyprus through the occurrence of Drab Polished wares, possibly brought by sea (see p. 220). The possibility that the Drab Polished wares arrived indirectly, via the much nearer Polis region (perhaps in return for copper), could also be stressed here.

More problematical is the claim that '[t]he strongest of Aletri's extra-regional connections…appear to have been with the north coast, in particular with the coastal settlement of Lapithos' (p. 220).

Although admittedly hindered by the absence of intact funerary deposits from the cemetery, where imported pottery would be expected to be more numerous if present, this argument is not actually based on significant evidence for ceramic imports from the settlement. Apart from the plank figurines (see pp. 170–172), the authors can only suggest that the comparatively finer Red Polished vessels were probably imported from the north (see p. 195) and in fact here they modify their previous claims for significant overland contacts with the nodal Dhenia area lying between Ambelikou and Lapithos. Their argument is based on the more general assumption that by the MC period the Lapithos area controlled much of the trade in metals from the northern Troodos, including the Ambelikou area, though we know much less about the much larger, and in antiquity more heavily-exploited, deposits around Skouriotissa less than ten miles to the south-east (p. 221). That Lapithos was at the centre of an important socio-economic (or even political) entity at this time is widely accepted by scholars, but the authors underplay the possible role of the nearby Karkotis valley—and indeed the broader lower Morphou Bay area, much of which remains unexplored and inaccessible to legal excavations for political reasons (see pp. 4–5)—as a regional centre and distribution-hub for copper produced in the north- western Troodos and then not necessarily in the direction of Lapithos. Arguably, both uneven exploration and regional variations in mortuary rituals obscure the true nature of power relationships between the two areas. Finally, as the ores of the north-west Troodos (especially the Skouriotissa mines) underpinned the wealth of the later kingdom of Soloi, can we not at least suggest that the area functioned in an analogous way at a much earlier date?

This book is a major contribution to our understanding of metallurgy and pottery production in Bronze Age Cyprus and further afield. Yet Webb and Frankel stress that 'some of the many problems associated with our understanding of the earlier periods of metallurgy in Cyprus could surely have been resolved and channelled in more helpful directions' (p. 225) if only the report of Aletri had appeared much earlier and more of the original information had been preserved. The same can be said of many other unpublished excavations, on Cyprus and throughout the Mediterranean, but this is especially the case given the peculiarly fragile and at times contentious nature of the ancient metallurgical record. All the more impressive then that the authors—well-known for speedily publishing their own fieldwork—and their colleagues have achieved so much with this re-excavation of a much older excavation.

Notes:

1. Einar Gjerstad et. al., The Swedish Cyprus Expedition Volume III (Stockholm: The Swedish Cyprus Expedition, 1937), p. 639-672.

Please visit the site: http://bmcr.brynmawr.edu/2014/2014-08-07.html

SHIPWRECKS

About the Byzantine ships found in Istanbul excavations.

Please visit the site: http://www.tinaturk.org/dergi/TINA_Periodical_1/

MARITIME NETWORKS IN THE MYCENAEAN WORLD, THOMAS F. TARTARON

Bryn Mawr Classical Review 2014.08.34

Thomas F. Tartaron, Maritime Networks in the Mycenaean World.
Cambridge; New York: Cambridge University Press, 2013. Pp. xvii, 341. ISBN 9781107002982. $99.00.

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Preview

Mycenaean long-distance maritime trade has been the subject of innumerable studies but comparatively little has been written about the local and regional networks that were vital to many communities in the Aegean. The primary reason for this neglect is a dearth of evidence pertaining to these short- and medium-distance links. With this book Tartaron addresses this deficiency head-on by building a theoretical and methodological framework for the study of seafaring and maritime networks in the Late Bronze Age Aegean. His presentation is well organized, thoroughly researched, soundly reasoned, and sensibly illustrated. While I am persuaded that his approach is both feasible and profitable, the book's ultimate success will depend on whether or not other scholars follow Tartaron's lead.

At the beginning of Chapter 1 Tartaron clearly states the problem to be addressed: "the premise of this book is that despite an apparently rich record of engagement with the sea, and the keen interest of scholars have shown in elucidating it, we remain surprisingly ignorant about many of its aspects" (p. 1). Lacunae include the location and use of Mycenaean harbors and anchorages, information regarding local and regional maritime networks, and a body of method and theory for addressing these issues. In order to fill these gaps in our knowledge and present a more balanced picture of Mycenaean maritime interactions, Tartaron advocates for employing the concept of "Mycenaean coastal worlds." This and other key terms and concepts are defined in this introductory chapter.

Chapter 2, "Mycenaeans and the Sea," provides a historical and cultural overview of the Mycenaean period and a brief discussion of Mycenaean long-distance maritime activity. The questions of what, where, when, how and why are succinctly addressed. Yet given the title of the book, the reader might expect a more comprehensive discussion of Mycenaean maritime networks than is provided. The chapter concludes with brief forays into the environmental and ethnographic evidence that foreshadow lengthier discussions in later chapters.

Evidence for Bronze Age Aegean sea craft is addressed in Chapter 3.
The general characteristics of Bronze Age ships and boats are presented, with visual representations used to illustrate the components discussed. Mycenaean long-distance

vessels are divided broadly into merchantmen and galleys. Pictorial evidence for the merchantman is lacking, although the Uluburun shipwreck just off the southern coast of Turkey may exemplify the type. Greater evidence for galleys is known. Prior to the LH IIIB period, the few ships depicted in Mycenaean art are Minoan in style (i.e., similar to those in the well-known "Flotilla Fresco" from Thera). LH IIIB witnessed the first appearance of oared galleys on Mycenaean pictorial pottery; their debut on the seas must be contemporary, if not earlier, than this period. Galleys offered several advantages over Minoan-style ships and merchantmen but made sacrifices as well. These changes seem to have been made in order to build a more effective ship for use in naval warfare, coastal raids, and piracy. An increase in the number of depictions in LH IIIC may reflect the realignment of power from the palaces to maritime communities (e.g., Perati, Lefkandi) and the power of galleys and their warrior-crews in the unsettled political conditions of the Postpalatial Aegean. After discussing long-distance vessels, small boats are addressed, or rather, hypothesized since virtually nothing is known with respect to the Mycenaeans. A variety of information is called upon to fill the gap: contemporary eastern Mediterranean representations, Bronze Age boat models, worldwide ethnographic data on traditional boat-building, and experiments in building and plying ancient ships. Omitted from this discussion (but see Table 6.1) is the recently discovered Middle Helladic boat from Mitrou.1 The results are nonetheless enlightening and suggest the existence of various boat types, including pilots/guides, barges, canoes, rowboats, and coasting vessels used for a host of short-range purposes.

In Chapter 4 the maritime environment of the Aegean Sea is examined.
Environmental conditions for navigation, such as regional winds and sea currents, are discussed, while a case study of Kapsali Bay on Kythera illustrates their seasonal variability. Implications for navigation are then considered. Tartaron stresses that while conditions are broadly predictable, they can turn unpredictable quickly. Consequently, coastal sailing and island-hopping were likely the general practice, and night sailing is unlikely to have been common given the perils of shallows and squalls in the Aegean. Knowledge of local coastal conditions was paramount to safe passage. Navigational aids, including landmarks, seamarks and sky marks are discussed, as well as the phenomenology of voyaging. These facets of seafaring have been much discussed by other scholars working in the Aegean over the past few decades. The real contribution here, in my opinion, is Tartaron's consideration of how this crucial knowledge was transmitted, especially with regard to the medium- to long-distance travels of specialist seafarers. To judge by the ethnographic evidence cited, individuals began learning as children through a combination of games/schooling and practical experience. As is common in much recent research, the concepts of habitus (Bourdieu) and structuration (Giddens) are invoked as ways to understand how traditional knowledge and behaviors are maintained in a society but at the same time permit innovation. From this discussion it is possible to infer that long apprenticeships were needed by Mycenaean seafarers to gain the skills and knowledge needed to voyage safely beyond local waters. Evidence for these individuals, and for Mycenaean maritime communities in general, is sought in the Linear B documents, artistic depictions and the Homeric epics.

Chapter 5 deals with the coasts and harbors of the Bronze Age Aegean.
Significant changes in coastlines have occurred since the Mycenaean period, obscuring much of the archeological evidence for Mycenaean coastal anchorages or harbors. Consequently, Tartaron theorizes about how these features may be recovered and what information such investigations might yield. He outlines a systematic process for

working back to the Late Bronze Age coastline through examination of geomorphology, long-term coastal evolution, and coastal landforms. Built harbors are deemed uncommon in the Bronze Age Aegean, but some evidence of coastal facilities is known (e.g., the Minoan ship sheds at Gournia and Kommos and artificial harbor basin at Romanou near Pylos). Relevant to, but missing from, this discussion is the virtual absence of stone anchors—a common enough Late Bronze Age artifact in the eastern Mediterranean—from the Aegean.2 Tartaron's strategy for identifying Bronze Age Aegean anchorages (p. 176) is of great importance in that it provides other scholars with a blueprint for future research.

In Chapter 6 Tartaron develops concepts for examining "Mycenaean coastal worlds." He first establishes the centrality of the coast as a zone mediating between land and sea, and thus its essential place in maritime networks. From these characteristics, the uniqueness of coasts and their inhabitants is stressed to justify employing this specialized concept for their analysis. Tartaron builds upon Westerdahls' idea of the "maritime cultural landscape"3 by formulating a tiered framework that consists of, in order of increasing geographical extent, the coastscape of everyday life, the maritime small world of habitual experience, the regional/intracultural maritime sphere, and the interregional/intercultural maritime sphere. Of particular note here is the discussion of maritime small worlds, which comprise many neighboring coastscapes and cohere due to regular contacts instigated by social and economic ties. Intervisibility and proximity can be important to their cohesion but Tartaron rightly notes that adverse winds and currents, not to mention political relations, may result in geographic discontinuities. Failure to fully account for these and other variables lay behind Tartaron's critique of earlier models of Bronze Age Aegean maritime networks.4

Chapter 7, the lengthiest in the book, presents a case study of a Bronze Age Aegean small world and two preliminary assessments of regions with potential for analysis. For the case study, Tartaron establishes the physical environment and experience of living in and around the Saronic Gulf. The site of Kolonna on Aegina is defined as the preeminent settlement of this small world from the Early Bronze Age through the early Late Bronze Age, at which time its influence in the region was eclipsed by that of Mycenae. While informative, discussion of the site's early history seems to depart from the topic at hand. Next, a selection of the known sites ringing the gulf (e.g., Ayios Konstantinos, Kalamianos, Kanakia) are presented, but a "complete" analysis of the region's sites and interconnections based on data gathered by various archaeological surveys is not attempted. Detailed study of Kalamianos—interpreted here as Mycenae's major Saronic harbor during LH IIIA–B— and its environs does, however, provide a model for thinking about inter-site, especially coastal–inland, relations. Discussion of Kalamianos concludes with an important account of oral histories from elderly residents of the region, which offer local perceptions of the region, agricultural and craft specializations within the region, kinship relations, the transmission of maritime knowledge, and rarity of maritime ventures beyond the Saronic. This ethnographic evidence fleshes out what ancient experiences may have been like and is a welcome addition to the traditional corpus of archaeological data mustered. The chapter ends with cursory assessments of two regions with potential for similar analyses: the Latmian Gulf (on which Miletus is located) and the Bay of Volos in Thessaly. Since both bodies of water are/were smaller than the Saronic Gulf (the Bay of Volos significantly so), reflection on the implications of scale is warranted but missing. "How small is a small world?" is a question unasked, whereas how large a small world may be was directly addressed earlier (p. 192).

Chapter 8, the concluding chapter, recapitulates the central topics of the book and offers thoughts on where the approach advanced might lead. Importantly, Tartaron notes that "it is first essential to recognize that coastscapes and small worlds are theoretical constructs devised by archaeologists to bring order to a world they know only dimly from fragmentary evidence" and that "they have no empirical reality independent of our typological frameworks; thus we designate coastscapes and small worlds, we do not discover or recognizethem" (p. 287). These statements effectively remind us of the nature of the archaeological enterprise and highlight the fact that the models in question are only hypothetical.

With this book, Tartaron has begun to blaze a new trail for Aegean archaeologists. If others are encouraged to think about Mycenaean short- and medium-range maritime networks in terms of "coastal worlds," and to pursue systematic and integrated archaeological and geological research agendas along the lines Tartaron puts forward, I believe there is great potential to significantly enrich our understanding of the maritime world of the Mycenaeans.

Notes:

1. Van de Moortel, A., 2012. "The Middle Bronze Age Boat of Mitrou, Central Greece," in N. Günsenin (ed.), Between the Continents. Proceedings of the 12th International Symposium on Boat and Ship Archaeology, Istanbul 2009, 17–26. Istanbul: Ege Yayınlari.
2. Sherratt, S., 2001. "Potemkin Palaces and Route-based Economies," in S. Voutsaki and J. Killen (eds.), Economy and Politics in the Mycenaean Palace States: Proceedings of a Conference Held on 1–3 July 1999 in the Faculty of Classics, 219–221. Cambridge: Cambridge Philological Society.
3. Westerdahl, C., 1992. "The Maritime Cultural Landscape." International Journal of Nautical Archaeology 21: 5–14.
4. Broodbank, C., 2000. An Island Archaeology of the Early Cyclades. Cambridge: Cambridge University Press; Knappett, C., T. Evans, and R. Rivers, 2008. "Modelling Maritime Interaction in the Aegean Bronze Age." Antiquity 82: 1009–24.

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PYTHAGORAS AND THE EARLY PYTHAGOREANS, LEONID ZHMUD

Bryn Mawr Classical Review 2014.08.30

Leonid Zhmud, Pythagoras and the Early Pythagoreans. (Translated from Russian by Kevin Windle and Rosh Ireland; first published 1994).
Oxford; New York: Oxford University Press, 2012. Pp. xxiv, 491.
ISBN 9780199289318. $185.00.

Reviewed by Carl Huffman, DePauw University (cahuff@depauw.edu)

Following Burkert's magisterial Lore and Science in Ancient Pythagoreanism (Harvard University Press, 1972), a consensus emerged that Pythagoras was not a mathematician or scientist but rather an expert on religious ritual and the fate of the soul, who founded a way of life. A set of taboos governed almost all aspects of life and Pythagoreans were divided into those who followed them without asking for any explanations and those who learned the reasons for them and who, unlike Pythagoras, did produce the first rational Pythagorean cosmology (Philolaus) and became the first Pythagorean mathematicians (Hippasus and Archytas). Leonid Zhmud's new book (a revision and expansion of his 1997 book, published in German) provides a barrage of important challenges to this view. Since Zhmud has an enviable mastery of the sources for and scholarship on Pythagoreanism, any serious scholar of ancient Greek philosophy will have to confront these challenges and either yield to Zhmud's position or be ready to show where he has gone astray.

Despite its title, the book is not really an overview of the philosophy of Pythagoras and the early Pythagoreans but rather an argument for a series of theses about the nature of those philosophies. If the book were an overview of early Pythagoreanism, there would surely need to be, e.g., a section devoted to the astronomical system of Philolaus, the best attested early Pythagorean astronomical system. But, while Zhmud refers to that system frequently, he never attempts to present a coherent account of it. The book is full of bold new theses. One repeated claim is that there is no development from myth to reason in Pythagorean philosophy. Most of the mythical elements are added in the later tradition. The exception is Pythagoras himself. He was a complex figure who had both a religious and a scientific/mathematical side. The surprise is that, while Pythagoras himself believed in metempsychosis, taught a way of life that involved some religious notions and claimed to be able to perform miraculous deeds, there is no trace of such ideas in any other early Pythagorean. Nor were the Pythagoreans divided into acusmatici, who followed the superstitious maxims known as acusmata, andmathematici, who emphasized scientific study. This division was invented in the second century AD. We have no evidence that any Pythagorean lived in accordance with the maxims. They were instead a literary phenomenon, which grew by accretion in much the same way as something like the Hippocratic corpus grew around the name of Hippocrates. Both the famous tetraktys and the idea that ten is the perfect number arose not among the early Pythagoreans but rather in Plato's Academy.

Many of the features of Zhmud's account of Pythagoreanism flow from the way in which he determines who counts as a Pythagorean. He includes a number of figures that have not typically been considered Pythagoreans. Zhmud argues against inclusion on doctrinal grounds because this begs the question of what doctrines should be counted as Pythagorean. Instead he starts with individual Pythagoreans and sees what their views and interests were. We can identify individual Pythagoreans from the list of Pythagoreans at the end of Iamblichus' On the Pythagorean Way of Life, which was taken from a well-informed early source, Aristoxenus. Zhmud comes to the surprising conclusion that the Pythagoreans were so varied in their interests that it makes little sense to talk about a shared Pythagorean philosophy (e.g. p. 394). When Zhmud talks about Pythagoreans he is talking about Menestor, Iccus, Hippon, Milon and Alcmaeon as much as more usual Pythagoreans such as Hippasus, Philolaus and Archytas. For Zhmud there is no common element that unites all Pythagoreans; he invokes Wittgenstein's notion of a family resemblance. This produces the paradox that the Pythagoreans have no common characteristic except that they are Pythagoreans. I confess that this makes no sense to me. Aristoxenus surely had some criterion according to which he included Pythagoreans on his list. Presumably he knew that they belonged to a Pythagorean brotherhood and lived a recognizably Pythagorean way of life. Zhmud might agree to the first part of this statement. He stresses that the Pythagorean groups were hetairiai, i.e. they were political associations. One had to share common political ideals to be a member. After the demise of the political power of the Pythagoreans in the middle of the fifth century, the groups lose even this common characteristic. Zhmud denies that there was any way of life that all Pythagoreans followed. He suggests that the code of behavior of the Pythagoreans was similar to the typical aristocratic ideals of the day. But this is contradicted by assertions in Plato (R. 600b) and Isocrates (Busiris 29) that over a hundred years after the death of Pythagoras his followers still stood out among others.

Another surprising result of Zhmud's emphasis on figures like Menestor and Alcmaeon is his conclusion that "the philosophical views of the early Pythagoreans lay not so much in mathematics as in natural sciences and medicine" (p. 23). This claim is in tension with his attempt elsewhere in the book to show that the Pythagoreans were at the forefront of the mathematical sciences too. Indeed, one of Zhmud's central goals is to rehabilitate Pythagoras himself as a mathematician, although he is careful not to make extravagant claims for Pythagoras' mathematical work.

Does Zhmud make convincing arguments for his new theses? As Zhmud himself emphasizes, this is an issue of source criticism. In my own case I find that the questions that he raises about the evidence are more fruitful than his own interpretations of it. In a short review I can only give a few examples. Zhmud concludes that already by the beginning of the fourth century there was a clear tradition associating Pythagoras with mathematics and natural philosophy. He uses two main arguments. He suggests that the reference to Pythagoras' wisdom and enquiry in authors such as Herodotus and Heraclitus indicate that he was involved in rational cognitive activity and was not just a religious figure. However, the evidence of Herodotus shows that enquiry (historia) could just as easily be applied to the collection of myths and religious lore as to natural science,1 so that these texts do not show us that his wisdom was scientific rather than religious.2 Zhmud also argues that "the testimony of Isocrates refutes the argument that pre-Platonic tradition did not know Pythagoras as a philosopher and a mathematician" (p. 50). The key passage reads: "After Pythagoras of Samos went to Egypt and became their student, he was the first to bring the rest of philosophy to the Greeks and was more clearly

interested than others in the sacrificial rites and the temple rituals" (Busiris 28). Zhmud emphasizes the assertion that Pythagoras brought "the rest of philosophy to the Greeks" and that, in his description of the philosophy of the Egyptian priests six sections earlier (23), Isocrates included astronomy, arithmetic and geometry. However, in the sections that specifically deal with Pythagoras (28-9) Isocrates makes no mention of mathematics and instead draws our attention to Pythagoras' interest in sacrificial rites and temple rituals.

One of the foundations of the current orthodoxy about Pythagoras is Burkert's distinction between the Aristotelian presentation of Pythagoreanism, which he regards as more historically accurate, and the Academic presentation of Pythagoreanism, which inaugurates the Neopythagorean tradition according to which Pythagoras anticipated most of Plato's philosophy.3 Zhmud makes a full frontal assault on this position. According to Zhmud, while the Academy presents Pythagoras in a favorable light, there is no evidence that it assigned Platonic and Academic doctrines back to him. It is rather Aristotle who tightly connects Platonism to Pythagoreanism and who invents a Pythagorean number-philosophy to serve as a background for the number-philosophy of the Academy including Plato's unwritten doctrines. Zhmud is right that the evidence for the Academy's view of Pythagoreanism is slender and much depends on few texts. Proclus' commentary on Plato's Parmenides in the Latin translation of William of Moerbeke reports that Speusippus assigned to the ancients, which in the context must be the Pythagoreans, the Platonic One and Indefinite Dyad as first principles. Some scholars accept this testimony at face value.4 Zhmud instead sides with others who regard the passage as Neoplatonic and not by Speusippus (p. 424). Zhmud here adopts a procedure that he also follows elsewhere: he does not present any new arguments on the issue or rehearse the arguments on each side but simply takes it as obvious that one side of the issue is correct (see e.g. p. 56, n. 108). On a text of this importance it would have been helpful to give a full examination of the arguments.

There are also problems with what Zhmud has to say about Aristotle.
One of the signal achievements of recent scholarship according to Zhmud himself is Burkert's widely accepted argument that a core of the fragments of Philolaus is authentic (pp. 2-4). However, Burkert's argument for the authenticity of these fragments is precisely the reliability of Aristotle's account of the early Pythagoreans. 5 His touchstone for the authenticity of individual fragments of Philolaus is whether they agree with Aristotle's presentation. Therefore, if Zhmud is right that Aristotle is totally unreliable in his account of Pythagoreanism then Burkert's argument for the authenticity of the fragments of Philolaus is undercut. Zhmud also overlooks one further feature of Aristotle's presentation: it receives resounding support from Plato himself. Zhmud's book oddly has very little to say about the dialogue in which Pythagoreanism most clearly appears, the Philebus. Plato refers to men before his time who had proposed limit and unlimited as basic principles (16c) and as both Aristotle's reports and the fragments of Philolaus show this can only be a reference to fifth-century Pythagoreanism as represented by Philolaus. It is no accident that the Philebus is the dialogue where most scholars have found the clearest allusion to Plato's unwritten doctrines.6 Hence, Plato himself presents his unwritten doctrines as a development of earlier Pythagorean principles and confirms Aristotle's account of the relationship between Plato and the Pythagoreans. This does not mean that Aristotle's report of fifth-century Pythagoreanism is entirely accurate. Zhmud is right that the system described by Aristotle according to which numbers are corporeal entities finds no support in the fragments of Philolaus. It

represents Aristotle's account of what he thinks Philolaus' system amounts to rather than a literal presentation of it. The crucial point is that Aristotle's reports are recognizably an interpretation of what is found in the fragments of Philolaus, and agree with what Plato says in the Philebus, so that we can confirm the authenticity of some of fragments of Philolaus as Burkert did while still recognizing that Aristotle is presenting the contents of those fragments under an interpretation.

So in the end I see no reason to abandon the present orthodoxy about early Pythagoreanism, which is based on Burkert. Nonetheless, I and anyone else who is not convinced by Zhmud's thesis have to respond to his formidable arguments and may find that the standard view needs to be modified in some respects. This is a rich book from which readers will learn much.

Notes:

1. See C. A. Huffman, "Heraclitus' Critique of Pythagoras' Enquiry in Fragment 129", Oxford Studies in Ancient Philosophy 35 (2008): 19-47.
2. See G. E. R. Lloyd, "Pythagoras" in C. A. Huffman (ed.), A History of Pythagoreanism, Cambridge University Press, 2014: 24-45.
3. W. Burkert, Lore and Science in Ancient Pythagoreanism, Harvard University Press, 1972: 82-3.
4. Burkert, Lore and Science in Ancient Pythagoreanism, 63-4; J. Dillon, "Pythagoreanism in the Academic Tradition: the Early Academy to Numenius" in A History of Pythagoreanism (see n. 2), 250-73, esp. n. 1.
5. Burkert, Lore and Science in Ancient Pythagoreanism, 218-77.
6. See e.g. C. Meinwald, "Plato's Pythagoreanism", Ancient Philosophy 22 (2002): 87-101, and F. Sayre, Plato's Late Ontology, Princeton University Press, 1983.

Please visit the site: http://bmcr.brynmawr.edu/2014/2014-08-30.html

EVOLUTION OF SANITATION AND WASTEWATER TECHNOLOGIES THROUGH THE CENTURIES

Editor(s): Andreas N. Angelakis and Joan B. Rose
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Most of the technological developments relevant to water supply and wastewater date back to more than to five thousand years ago. These developments were driven by the necessity to make efficient use of natural resources, to make civilizations more resistant to destructive natural elements, and to improve the standards of life, both at public and private level.

Rapid technological progress in the 20th century created a disregard for past sanitation and wastewater and stormwater technologies that were considered to be far behind the present ones. A great deal of unresolved problems in the developing world related to the wastewater management principles, such as the decentralization of the processes, the durability of the water projects, the cost effectiveness, and sustainability issues, such as protection from floods and droughts were intensified to an unprecedented degree.

New problems have arisen such as the contamination of surface and groundwater. Naturally, intensification of unresolved problems has led to the reconsideration of successful past achievements. This retrospective view, based on archaeological, historical, and technical evidence, has shown two things: the similarity of physicochemical and biological principles with the present ones and the advanced level of wastewater engineering and management practices.

Evolution of Sanitation and Wastewater Technologies through the Centuries presents and discusses the major achievements in the scientific fields of sanitation and hygienic water use systems throughout the millennia, and compares the water technological developments in several civilizations. It provides valuable insights into ancient wastewater and stormwater management technologies with their apparent characteristics of durability, adaptability to the environment, and sustainability. These technologies are the underpinning of modern achievements in sanitary engineering and wastewater management practices. It is the best proof that “the past is the key for the future”.

Evolution of Sanitation and Wastewater Technologies through the Centuries is a textbook for undergraduate and graduate courses of Water Resources, Civil Engineering, Hydraulics, Ancient History, Archaeology, Environmental Management and is also a valuable resource for all researchers in the these fields.

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KOUTROULOU MAGOULA IN CENTRAL GREECE: FROM THE NEOLITHIC TO THE PRESENT, ANTIQUITY, VOLUME 086, ISSUE 333, SEPTEMBER 2012

Yannis Hamilakis & Nina Kyparissi-Apostolika with contributions from Tom Loughlin, Vasilis Tsamis, James Cole, Constantinos Papadopoulos & Nicolas Zorzin

Introduction

The aim of this article is to introduce a new, inter-disciplinary and international, long-term research project, the Koutroulou Magoula Archaeology and Archaeological Ethnography Project, to outline its aims and report on some of its results.
Koutroulou Magoula is a tell site on the south-western edge of the Thessalian plain in central Greece, 2.5km south of the modern town of Neo Monastiri in Fthiotida (Figure 1). It is part of a rich archaeological landscape, in which dozens of Neolithic tells feature prominently. Systematic archaeological work on the site, directed by Kyparissi-Apostolika, started in 2001 and continued in the 2002, 2004, 2005, 2006, 2008 and 2009 seasons (Kyparissi-Apolostolika 2006). This revealed an extensive, finds-rich occupation, dated primarily to the Middle Neolithic (5800–5300 BC, based on conventional chronology). The site's architectural features and material culture are remarkably elaborate and well preserved. Informally since 2009 and more formally since 2010, work on site has continued within the Koutroulou Magoula Archaeology and Archaeological Ethnography Project, directed by Kyparissi-Apostolika and Hamilakis.

Please visit the site: http://antiquity.ac.uk/projgall/hamilakis333/

ΕΙΔΗΣΕΙΣ - NEWS RELEASE

FROM KYTHERA TO CRETE ON A RAFT

They traveled 48 hours from Kythera to Crete with a raft made of reeds. The reason for the First Mariners, the nine landmarks that decided to live the experience of the first trips made by man. The 12-meter designs constructed with stone tools similar to those allegedly used by the people during the Paleolithic era, materials thousand years.

The First Mariners" team started its journey with the raft named «Melida» from Kythera on July 17 and completed its venture by arriving in Chania, Crete on July 19.

The team was led by the 73 year-old historian and writer, Bob Hobman, who has built, filmed and navigated native craft through Indonesia's Spice Islands and the Pacific for four decades. The reason behind this pioneering project was the recent discovery of stone tools at Plakias on Crete's south western corner and on its neighboring island of Gavdos, which were dated to at least 130,000 years earlier. Until this discovery in August 2010, archaeologists had thought that human presence on the Greek islands began some 12,000 years.

Please visit the site: http://www.alternagreece.com/from-kythera-to-crete-on-a-raft/
[Go there for pix and a video, the latter in Greek]

ELITE TURKIC WARRIOR BURIAL DISCOVERED IN KAZAKHSTAN, BY DINARA URAZOVA

An archeological expedition in Zhaksy District of Akmola Oblast has discovered a burial of a warrior of the Turkic period belonging to 6-7 centuries AD.

The international expedition worked on the site on the territory of Zaporizhzhya rural district, near the village of Novochudnoye from 7 to 20 July, Tengrinews reports citing Akmola Media Ortalygy.

There were two mounds and the archeologists fully excavated both of them on July 18. One of them, in the north-western part of the burial, contained the remains of a warrior, who was enveloped in birch bark.
During the examination of the burial, remains of arrowheads made of iron, weapons and a bronze earring were discovered.

The other mound, located in the eastern sector, was a ritual burial, where fragments of a pitcher and bones of a horse were found. The archaeologists assume it was buried bridled and fully equipped as there were remains of a mouthpiece, a wooden saddle, saddle straps, an iron stirrup and a felt mat. Therefore, the burial can be classified as elite because the nomads were infrequently buried with their horses. Moreover, this is one of a few such burial grounds on the shore of the Ishim River.

According to Senior Lecturer at the Department of Archaeology and Ethnography of Gumilyov Eurasian National University Alexei Sviridov, the expedition consisted of professors and students of his university, two members of the Institute of Archaeology of the Russian Academy of Sciences and two members of the Institute of Bologna. Members of Zaporizhzhya school history club accompanied them.

"It is our third expedition this year . We have studied four sites.
The first two mounds are what historians call cenotaph. [A tombstone in a place that does not contain remains of the deceased, a symbolic grave erected in someone's honor.] There is hope that there is more to find in these two burials we are working on now," Sviridov said.

Please visit the site: http://en.tengrinews.kz/science/Elite-Turkic-warrior-burial-discovered-in-Kazakhstan-255136/ [Go there for pict]

EUROPE'S FIRST CATTLE FARMERS QUICKLY ADDED CHEESE TO MENU, BY ROBERT LEE HOTZ

Researchers on Wednesday said they found the earliest known chemical evidence of cheese-making, based on the analysis of milk-fat residues in pottery dating back about 7,200 years. The discovery suggests Europe's early farmers added a cheese course to their diet almost as soon as they learned to domesticate cattle and started regularly milking cows.

Researchers on Wednesday said they found the earliest known chemical evidence of cheese-making, based on the analysis of milk-fat residues in pottery dating back about 7,200 years. WSJ's Lee Hotz reports. Photo: Mélanie Salque/University of Bristol.

Scientists led by geochemist Richard Evershed at the U.K.'s University of Bristol tested ancient, perforated clay pots excavated at sites along the Vistula River in Poland, and found they had likely been used by prehistoric cheese mongers as strainers to separate curds and whey—a critical step in making cheese.

The pots have long puzzled archeologists, but their new analysis, reported in Nature, revealed unique carbon isotopes of milk in the traces of fatty acids that had soaked into the ceramic sieves.

"It is a no-brainer," said Dr. Evershed. "They have to be cheese strainers."
No one knows exactly when or where cheese-making began, but experts said the traces of milk fat on these unglazed clay strainers are the clearest evidence yet of the origins of this basic biotechnology, which launched a dairy trade that today produces more than 11 billion pounds of cheese every year and as many as 5,000 different named varieties world-wide, from Appenzeller to Zamorano.

Cheese historians suspect that the first cheese was most likely a soft, watery concoction, resembling a contemporary cottage cheese or a fromage frais, that was naturally curdled by the bacteria commonly found on a cow's teats.

Shards of the distinctive urns, which resemble pottery cheese strainers still in use today, are found often at sites settled by the Neolithic-era tribes who first brought the innovations of agriculture and animal husbandry to central Europe. They almost always turn up in association with large numbers of cattle bones.

In prehistoric times, when almost every adult was lactose-intolerant, the invention of cheese-making offered herders a way to turn fresh whole cow's milk into a food that they could consume without getting ill, experts said. Cheese contains far less lactose than milk. Moreover, cheese, which normally takes up a tenth of the volume of the milk from which it is made, is easier to store, transport and preserve.

"Making cheese is a particularly efficient way to exploit the nutritional benefits of milk, without becoming ill because of the lactose," said archeologist Peter Bogucki, an associate dean at Princeton University, who was part of the international research team.

In fact, evolutionary biologists at University College London have suggested that a genetic mutation to better tolerate lactose first originated in central Europe about the time this prehistoric cheese-making began. The inherited ability to digest cow's milk more easily is widespread today among people of European ancestry.

For decades, archeologists have debated how the vessels pocked with holes were used. Some scholars theorized that the pots were used to brew beer. Others speculated that primeval chefs used them to separate meat from stock or honey from honeycomb. The containers also may have been fire pots to hold glowing embers safely.

"Scholars have been duking it out for decades as to what these sieves were used for," said University of Vermont cheese chemist Paul Kindstedt, author of "Cheese and Culture: A History of Cheese and Its Place in Western Civilization." He wasn't involved in the research. "This new finding is really definitive —beyond a reasonable doubt—that this utensil was used for cheese making."

Please visit the site:
http://online.wsj.com/news/articles/SB10001424127887324481204578175372509354246

WINE CUP USED BY PERICLES FOUND IN GRAVE NORTH OF ATHENS

A cup believed to have been used by Classical Greek statesman Pericles has been found in a pauper's grave in north Athens, according to local reports Wednesday.

The ceramic wine cup, smashed in 12 pieces, was found during building construction in the northern Athens suburb of Kifissia, Ta Nea daily said.

After piecing it together, archaeologists were astounded to find the name "Pericles" scratched under one of its handles, alongside the names of five other men, in apparent order of seniority.

Experts are "99 per cent" sure that the cup was used by the Athenian statesman, as one of the other names listed, Ariphron, is that of Pericles' elder brother.

"The name Ariphron is extremely rare," Angelos Matthaiou, secretary of the Greek Epigraphic Society, told the newspaper.

"Having it listed above that of Pericles makes us 99 per cent sure that these are the two brothers," he said.

The cup was likely used in a wine symposium when Pericles was in his twenties, and the six men who drank from it scrawled their names as a memento, Matthaiou said.

"They were definitely woozy, as whoever wrote Pericles' name made a mistake and had to correct it," he said.

The cup was then apparently gifted to another man named Drapetis ("escapee" in Greek) who was possibly a slave servant or the owner of the tavern, said archaeologist Galini Daskalaki.

"This is a rare find, a genuine glimpse into a private moment," she said.

Ironically, the cup was found on Sparta street, Athens' great rival and nemesis in the Peloponnesian War that tore apart the Greek city-states for nearly 30 years.

General of Athens during the city's Golden Age, Pericles died of the plague in 429 BC during a Spartan siege.

The cup will be displayed in the autumn at the Epigraphical Museum in Athens.

Please visit the site:
http://www.ekathimerini.com/4dcgi/_w_articles_wsite1_1_30/07/2014_541804 [Go there for pict]

MUSEUM FINDS 6,500-YEAR-OLD HUMAN SKELETON IN OWN STORAGE ROOMS, BY KATHY MATHESON

An archaeology museum in Philadelphia has made an extraordinary find — in its own storage rooms.

The University of Pennsylvania's Penn Museum announced Tuesday that it had rediscovered a 6,500-year-old human skeleton originally excavated from southern Iraq around 1930.

The complete remains, which had been kept in a coffin-like box, were missing documentation until researchers recently began digitizing the museum's collection from an expedition to Ur, an ancient city near modern-day Nasiriyah.

Project manager William Hafford was matching archaeological objects with inventory lists from the Sumerian trek when he came across a description of a full skeleton that he couldn't find.

He consulted Janet Monge, chief curator of physical anthropology, who happened to know of an unlabeled, mystery skeleton in the facility's basement storage area.

"So we went, found the crate, opened it up and compared it to the field notes and the field photographs, and we had a match," Hafford said.

The body is believed to be that of a well-muscled man at least 50 who stood 5 feet, 9 inches tall, according to Monge. She hopes a skeletal analysis, possibly including a CT scan, will reveal more about his diet, stresses, diseases and ancestral origins.

Complete human skeletons from that era — known as the Ubaid period, from 5500-4000 B.C. — are rare, partly because the region's burial practices and type of land didn't lead to good preservation, Monge said.

The skeleton was cut into deep silt, indicating that the man had lived after an epic flood. That led Penn researchers to nickname their re-discovery "Noah."

Scholars from the Ivy League university teamed up with researchers from the British Museum in 1922 for a dig led by Sir Leonard Woolley.

Half of the objects found over the next 12 years at Ur were sent to the National Museum of Iraq in Baghdad, while the other half was split between London and Philadelphia.

Hafford and his counterparts in Britain are now working to digitize their share of the collection. They hope curators in Baghdad will eventually do the same, but coordination with officials in the war-torn nation has been difficult, Hafford said.

Coincidentally, in June, researchers at Bristol University in Britain discovered a box of materials from the same Ur expedition on top of a cupboard. Researchers determined the objects were 4,500 years old, including pottery, seeds, carbonized apple rings and animal bones.

No one knows how the box got to Bristol, which had no connection to the Woolley dig.

Monge said it's not uncommon for a research institution like the Penn Museum — which is filled with hundreds of thousands of objects, from the smallest pottery shard to enormous totem poles — to have question marks surrounding the origins of some items.

"I have quite a few specimens that are cold case, orphaned museum collections," Monge said. "So that gives us the fun enterprise of going back and sleuthing through all of the archival material and trying to identify them as best as we can."

Please visit the site: http://www.huffingtonpost.com/2014/08/05/museum-rediscovers-skeleton-storage_n_5652230.html

BYZANTINE SECRET INGREDIENT, BY ERIC A. POWELL

Eight hundred years ago, Byzantine monks painting the walls of a monastery in Cyprus made the aesthetic choice to use asbestos—heat-resistant mineral fibers now known to be highly carcinogenic—to give their work an extra sheen. University of California, Los Angeles, archaeological scientist Ioanna Kakoulli made the discovery while analyzing the chemical makeup of a painting depicting Jesus, beneath which she found a plaster finish containing chrysotile, one of the minerals in the asbestos group. "We were not expecting to find chrysotile in twelfth-century paintings," says Kakoulli. "It has never been reported and we have never found it on any other Byzantine paintings."

The heat-resistant properties of asbestos were known as early as 2000 B.C., when it was used to make pottery in Finland, and Roman artisans included it in fabrics used in funeral pyres to keep the ashes of the dead discrete. But scholars had believed asbestos was not used to make materials such as plasters until the Industrial Revolution. Kakoulli thinks the monks knew or discovered that the mineral made their plaster easy to smooth and able to be polished to a mirror-like surface upon which to paint. She plans to return to the monastery and examine other wall paintings to determine how widespread the innovation was.

Please visit the site: http://www.archaeology.org/issues/139-1407/trenches/2187-cyprus-byzantine-frescoes-asbestos

BRONZE VESSELS RETRIEVED FROM ETRUSCAN WELL

During a four-year excavation of an Etruscan well at the ancient Italian settlement of Cetamura del Chianti, a team led by a Florida State University archaeologist unearthed artefacts spanning more than 15 centuries of Etruscan, Roman and medieval civilisation in Tuscany.

Nancy de Grummond, the M. Lynette Thompson Professor of Classics at Florida State has performed work at the site since 1983, and is a leading scholar of Etruscan studies.
"*This rich assemblage of materials in bronze, silver, lead and iron, along with the abundant ceramics and remarkable evidence of organic remains, create an unparalleled opportunity for the study of culture, religion and daily life in Chianti and the surrounding region*," she said of the well excavation that began in 2011, which is part of a larger dig encompassing the entire Cetamura settlement.

Finds from the well
Among the most notable finds: 14 Roman and Etruscan bronze vessels, nearly 500 waterlogged grape seeds and an enormous amount of rare waterlogged wood from both Roman and Etruscan times.
The bronze vessels, of different shapes and sizes and with varying decorations, were used to extract water from the well, which has been excavated to a depth of more than 105 feet.
"*One of the Etruscan vessels, actually a wine bucket, is finely tooled and decorated with figurines of the marine monster Skylla*," de Grummond said. "*Another was adorned with a bronze finial of the head of a feline with the mane of a lion and the spots of a leopard and, for handle attachments, had African heads, probably sphinxes*."

Grape seeds
The grape seeds, found in at least three different levels of the well — including the Etruscan and Roman levels — are of tremendous scientific interest, according to de Grummond.
"*They can provide a key to the history of wine in ancient Tuscany over a period from the third century B.C.E. to the first century C.E*.," she said. "*Their excellent preservation will allow for DNA testing as well as Carbon 14 dating*."

Many of the seeds excavated in 2012 and 2013 have been analysed by Chiara Comegna in the laboratory of Gaetano di Pasquale at the University of Naples Federico II, using a morphometric program originally devised for tomato seeds. The seeds are measured in millimetres and can be sorted into types. Thus far, three distinctive types have been identified, and very likely more will emerge from analysis of seeds found in Etruscan levels in 2014. The payoff could come with matching these specimens with modern grapes of known varieties.

Though the grape seeds are of a primary importance, they are put into context by the many objects associated with the drinking of wine — a wine bucket, a strainer, an amphora — and numerous ceramic vessels related to the storage, serving and drinking of wine.

Well preserved wood

The grape seeds often were found inside the bronze vessels, a curious detail that de Grummond says could be indicative of ritual activity. The remarkable amounts of well-preserved wood found at the bottom of the well also were most likely ritual offerings.

"*Many of the pieces of wood were worked, and already several objects have been identified, such as parts of buckets, a spatula or spoon, a spool and a rounded object that might be a knob or child's top,*" she said. "*The sheer amount of Etruscan waterlogged wood — with some recognizable artefacts — could transform views about such perishable items*."

Sacred offerings

These and other finds — from the bones of various animals and birds to numerous worked and unworked deer antlers — suggest that the Cetamura well, like other water sources in antiquity, was regarded as sacred. In the Etruscan religion, throwing items into a well filled with water was an act of religious sacrifice.

"*Offerings to the gods were found inside in the form of hundreds of miniature votive cups, some 70 bronze and silver coins, and numerous pieces used in games of fortune, such as astragali, which are akin to jacks*," she said.

Besides being thrown into the well as part of a sacred ritual, some artefacts and items found their way in by intentional dumping or accidental dropping.

The well, dug out of the sandstone bedrock of Cetamura, has three major levels: medieval; Roman, dating to the late first century B.C.E. and the first century C.E.; and Etruscan, dating to the third and second centuries B.C.E. Not fed by a spring or other water source, the well would accumulate rainwater that filtered through the sandstone and poured into the shaft from the sides.

The actual excavation of the well, a spectacular engineering feat according to de Grummond, was carried out by the Italian archaeological firm Ichnos, directed by Francesco Cini of Montelupo Fiorentino. The bronze vessels and numerous other items are under restoration at Studio Art Centers International (SACI) in Florence, under the supervision of Nora Marosi.

Over the years, de Grummond's excavations at Cetamura have not only produced archaeological finds but myriad opportunities for student research at Florida State.

"*Thus far, two doctoral dissertations, 18 master's theses and four honours theses have resulted from study of Cetamura subjects, and students have assisted with two exhibitions in Italy and the writing of the catalogues*," she said.

De Grummond now is planning an exhibition of the new discoveries from the well and, once again, Florida State students will provide valuable collaboration.

Please visit the site:
http://www.pasthorizonspr.com/index.php/archives/08/2014/bronze-vessels-retrieved-from-etruscan-well

VAULTED TOMB DISCOVERED IN AMFISSA, BY NIKOLETA KALMOUKI

A monument of great importance was discovered near Amfissa, central Greece, during an excavation project. It is a Greek vaulted tomb that dates back to the Mycenaean period.

The tomb is 9 meters long with a deep vestibule and a circular burial chamber which has a maximum internal diameter of 5.90 meters. Although the superstructure of the dome had collapsed, the walls of the chamber maintain a height of almost three meters.

Along with the vaulted tomb, archaeologists unearthed many other unique findings such as 44 pieces of painted pottery, two bronze vases, gold and bronze rings, one of which with an engraved decoration on its sphendone, buttons made of semi precious stones, two bronze daggers, female and zoomorphic idols and a large number of sealstones with animal, floral and linear motives.

The excavation was held in the presence of the local ephorate of antiquities and police in order to protect the precious archaeological findings.

Please visit the site: http://greece.greekreporter.com/2014/07/30/vaulted-tomb-discovered-in-amfissa/

MINET DALIEH, SITE (PRE)HISTORIQUE UNIQUE DU GENRE EN MEDITERRANEE ORIENTALE, BY MAY MAKAREM

Le projet touristique prévu à l'emplacement de Minet Dahlieh, à Raouché, menace de détruire un site préhistorique qui est le seul du genre en Méditerranée orientale : un atelier in situ, c'est-à-dire dans sa position archéologique primaire, tel que les hommes du chalcolithique l'ont abandonné...

Il ne s'agit pas seulement d'un front de mer à sauvegarder, ni d'une portion de plage publique à préserver, ni d'empêcher de barrer la perspective et gâcher la vue sur la Grotte aux pigeons, un des landmarks les plus beaux de Beyrouth. Il s'agit aussi et surtout d'éviter de faire tomber sous les assauts des machines de démolition un site ancien qui fait partie de l'histoire du Liban et du patrimoine mondial.

Le port de Dalieh est « un atelier in situ, c'est-à-dire dans sa position archéologique primaire, tel que les hommes du chalcolithique l'ont abandonné », souligne Corinne Yazbeck, archéologue préhistorienne, professeure à l'Université libanaise, chef de département d'art et d'archéologie, section II, Fanar. « Le promontoire de Ras Beyrouth offre une succession de plages fossiles (ou paléorivages) en relation étroite avec des installations humaines durant le quaternaire. Ce cas unique en Méditerranée orientale permet d'analyser l'interaction entre l'homme et son milieu naturel, en particulier l'occupation du territoire et l'exploitation des ressources naturelles telles que le silex », ajoute la spécialiste.

Elle signale qu'au début du XXe siècle, la plage de Minet Dalieh a été le terrain de recherches du père jésuite Raoul Desribes qui a découvert, à une profondeur d'un mètre sous le sédiment qui recouvrait la terrasse, toute une industrie lithique. L'étude publiée par Desribes en 1921 décrit le site comme étant « un atelier solutréen » en raison de la ressemblance typologique et stylistique des outils avec ceux développés par l'Homo sapiens en Europe occidentale, dont la production de la taille du silex était à son apogée. Et « en particulier la production des lames en forme de "feuilles de laurier" au bord finement crénelé, qui complètent la panoplie de grattoirs, burins ou lamelles plus classiques », note l'archéologue. Dans les années 1960, J. Cauvin a baptisé les outils « Triangles bifaces de Minet Dalieh » alors que Desribes les avait désignés sous le nom de « Stylets de Minet Dalieh ». Plus tard, en 1993, les archéologues R. Neuville et J. Haller ont à nouveau analysé le matériel et ont confirmé leur appartenance au chalcolithique.

« Minet Dalieh représente un intérêt particulier puisque c'est le seul atelier de ce genre qui a été trouvé sur la côte nord du Levant. Des milliers de pièces témoignant des différentes étapes de fabrication de ce type d'outil ont été taillées dans le silex local du cénomanien », souligne encore Corinne Yazbeck.

La préhistoire ensevelie sous le béton

Avant son urbanisation sauvage, la région de Ras Beyrouth représentait un trésor scientifique. « Caractérisée par sa géologie si particulière où se superposent des formations carbonatées à lits de silex couleur chocolat de haute qualité, elle offrait une

opportunité rare, celle d'analyser l'évolution de l'interaction de l'homme avec son milieu naturel sur le même territoire depuis un million d'années. Car sa richesse en matières premières minérales ainsi que sa position topographique et la présence de sources d'eau douce ont attiré les groupes humains depuis la préhistoire », relève Corinne Yazbeck. Aussi, plusieurs chercheurs, dont les pères jésuites Henri Fleisch, Auguste Bergy et L. Dubertert, ainsi que des noms illustres en préhistoire proche-orientale, tels que Dorothy Garrod et R. Neuville, ont entrepris des travaux de terrain dans cette région, essentiellement de « collecte contrôlée » et non pas de fouilles strictu sensu.

La spécialiste indique également qu'au cours des années 1960, P. Sanlaville, géomorphologue, a collaboré avec le préhistorien Henri Fleisch pour établir « une chronologie relative basée sur les différents paléorivages, uniques sur la côte levantine ». Plus tard, L. Copeland et P. Wescombe, dans leur inventaire de référence Inventory of Stone Age Sites, ont publié les 14 sites préhistoriques de Ras Beyrouth et les ont numérotés par ordre en chiffres romains.

Ces sites, dont la grande majorité a été détruite, représentaient toutes les périodes de la préhistoire, depuis l'achéeuléen (1 million à 250 mille BP) jusqu'au chalcolithique (ou IVe millénaire) en passant par le moustérien (250 mille à 50 mille BP). Ils longeaient le littoral depuis Bir Hassan jusqu'au campus de l'Université américaine, en passant par Jnah, la corniche de Raouché, le Bain militaire, l'ancien phare de Beyrouth et le College international (IC). Il ne reste plus aujourd'hui que le port de Dalieh, à Raouché. Va-t-on assister à un nouveau massacre du patrimoine ?

Please visit the site: http://www.lorientlejour.com/article/878569/minet-dahlieh-site-prehistorique-unique-du-genre-en-mediterranee-orientale.html [Go there for slide show]

ANCIENT EGYPT PYRAMIDS MYSTERY MAY BE SOLVED, BY KORREY LADEROUTE

The ancient Egyptians knew in their day what we have just discovered now; friction. The mystery of how the pyramids came to be created in ancient Egypt may finally be solved, thanks to physicists from the University of Amsterdam and the Foundation for Fundamental Research on Matter. They looked at the effort that would be required to pull heavy stones on an enormous sled-like pulley and found that moistening the sand ahead of the contraption made it easier to move. The scientists originally found clues to the discovery from artwork that was found in the tomb of Djehutihotep. The painting was discovered intact in deep shades of gold, brown, orange and gray with hieroglyphic markings on it, as well as a scene.

The Victorian Era discovery dates back to 1900 B.C., and shows 172 able-bodied men lugging a huge stone statue of the Middle Kingdom Pharaoh on a sledge with ropes attached to it. A person can be seen at the front of the contraption showering the sand with water.

Egyptologists had thought that the reason ancient Egyptians had done this was for ceremonial reasons, but had never scientifically explained it. There has been great analysis and dialogue over exactly what the person is doing with the water and why. Now, however, the mystery may be solved of how ancient Egypt built the pyramids.

Researchers designed small-sized sledges and tried different ways of pulling them through sand. They found that when they pulled the sleds over the dry sand, the dirt piled up in front of the devices, creating berms in the sand and needing more effort to drag them. However, when they added water to it, the liquid made the surface stiffer, allowing the scientists to move the sledges easier. This is the key to the mystery of ancient Egypt built the Pyramids may be solved.

The droplets of water create bridge-like structures between the sand grains, allowing them to better fuse together. This is the very reason why building a sand castle with wet sand is better and easier. Keeping a perfect balance is key though; too much and the static friction gets weaker and weaker as more water is added to the equation, and to little creates berms in the sand that build up in front of the sled.

The optimum amount depends on the sand, but is usually between 2 and five percent of the volume of material.

Apparently Egyptian sand is very good at reducing friction when it is wet. This makes it optimal for not needing a heavy workforce in order to move large materials a long way. The amount of force that is required to move extremely large objects could be cut in half and the threat of sand berms would virtually disappear. Experiments with the Egyptian sand showed that the needed force shrank in proportion to the sands rigidity, making it twice as firm as dry sand.

Researchers explain that this experiment not only solved the mystery of how ancient Egypt built the Pyramids, but also that sand stiffness is precisely linked to the friction

force. The study may also have modern uses, such as understanding the ways of other granules. Knowing this may make the transport of other different types of granular materials like coal, concrete or asphalt more efficient.

Please visit the site: http://guardianlv.com/2014/05/ancient-egypt-pyramids-mystery-may-be-solved/

GREEK TOMB AT AMPHIPOLIS IS 'IMPORTANT DISCOVERY'

Archaeologists unearthing a burial site at Amphipolis in northern Greece have made an "extremely important find", says Greek PM Antonis Samaras.

Experts believe the tomb belonged to an important figure dating back to the last quarter of the Fourth Century BC.

A large mound complex has been unearthed at the Kasta hill site in the past two years.

Lead archaeologist Katerina Peristeri said it certainly dated from after the death of Alexander the Great.

"The land of Macedonia continues to move and surprise us, revealing from deep within its unique treasures," Mr Samaras said while visiting the mound complex on Tuesday.

Other ancient sites have been found in the Macedonia region of northern Greece, principally the Vergina tomb of Alexander's father, Philip II, which was unearthed in 1977.

There has been widespread speculation that a prominent figure in ancient Macedonia may have been buried at Kasta hill, 600km (370 miles) north of Athens.

The burial mound is 497m (1,600ft) long and constructed with marble imported from the nearby island of Thassos and there are suggestions it was built by the renowned architect, Dinocrates, who was a friend of Alexander's.

Archaeologists have restored the statute of a lion discovered earlier at the Amphipolis site

Ms Peristeri has in the past spoken of key historic events in the area involving some of Alexander's generals.

Alexander's widow Roxana and their son Alexander were murdered in 311BC by Cassander, who came to the fore after Alexander the Great's death in Babylon in 323BC.

A lion statue found at the site has been erected close to where it was discovered at Amphipolis, which was originally an Athenian colony but later conquered by Philip II.

Please visit the site: http://www.bbc.com/news/world-europe-28758920

NEW TO THE ARCHAEOLOGIST'S TOOL KIT: THE DRONE, BY WILLIAM NEUMAN AND RALPH BLUMENTHAL

As land values rise, Peru's ancient sites are under threat from development. To respond, Peru is creating a drone air force to map, monitor and safeguard its endangered treasures.

A small remote-controlled helicopter buzzed over ancient hilltop ruins here, snapping hundreds of photographs. Below, stone walls built more than a thousand years ago by the Moche civilization gave way to a grid of adobe walls put up only recently by what officials said were land speculators.
"This site is threatened on every side," said Luis Jaime Castillo Butters, Peru's vice minister of cultural heritage as he piloted the drone aircraft.

Archaeologists around the world, who have long relied on the classic tools of their profession, like the trowel and the plumb bob, are now turning to the modern technology of drones to defend and explore endangered sites. And perhaps nowhere is the shift happening as swiftly as in Peru, where Dr. Castillo has created a drone air force to map, monitor and safeguard his country's ancient treasures.

Drones mark "a before and after in archaeology," said Dr. Castillo, who is also a prominent archaeologist and one of a dozen experts who will outline the use of drones at a conference in San Francisco next year.

In remote northwestern New Mexico, archaeologists are using drones outfitted with thermal-imaging cameras to track the walls and passages of a 1,000-year-old Chaco Canyon settlement, now buried beneath the dirt.

In the Middle East, researchers have employed them to guard against looting.
"Aerial survey at the site is allowing for the identification of new looting pits and determinations of whether any of the looters' holes had been revisited," said Morag Kersel, an archaeologist from DePaul University in Chicago who is part of a team using drones in Jordan and Israel.

Peru, with its stunning concentration of archaeological riches, is suddenly fertile ground to try out this new technology. The country is becoming a research hot spot as archaeologists in the Middle East and elsewhere find their work interrupted by unrest.

But in Peru they encounter another kind of conflict. Here they struggle to protect the country's archaeological heritage from squatters and land traffickers, who often secure property through fraud or political connections to profit from rising land values. Experts say hundreds, perhaps thousands of ancient sites are endangered by such encroachment.

The drones can address the problem, quickly and cheaply, by providing bird's-eye views of ruins that can be converted into 3-D images and highly detailed maps.

The maps are then used to legally register the protected boundaries of sites, a kind of landmarking that can be cited in court to prevent development or to punish those who damage ruins by building anyway.
"While various scholars are utilizing drones in their individual investigations, no other country is systematically using drones to manage and protect their sites," said Lawrence Coben, founder of the Sustainable Preservation Initiative, a nonprofit organization providing economic opportunities to poor communities in which archaeological sites are located. Encroachment has become a particular concern in cities like Lima or Cuzco, near Machu Picchu, the Inca citadel, where land values have risen steadily as the population increases and the economy booms. Many Peruvians were shocked last year when workers using heavy machinery illegally demolished a 4,000-year-old pyramid in Lima to make way for possible development.
"Lima has grown to a point where the only land left is archaeological land," said Dr. Castillo, who is also a professor at the Pontifical Catholic University of Peru.

Though his work is focused on the deep past, Dr. Castillo is fascinated by gadgets and new technology. He began experimenting with drones about two years ago, buying a $100 one from the Sharper Image. Now he has a squadron of eight, all miniature helicopters that cost about $1,500 to $20,000. He hopes to soon add 20 more.

The drones, he said, "solve the first riddle of archaeology."
"Finally you can fly whenever you want to, wherever you want to, in any angle, for anything you want and get the great picture you always thought you should take," he said.

Dr. Castillo's eureka moment occurred in 2012, while teaching in Sweden, where researchers were working with a powerful Russian-made computer program that could meld hundreds of photographs into a 3-D composite image. Dr. Castillo realized that by feeding his drone photographs into the program, he could produce incredibly detailed and clear 3-D images of ancient temples, fortifications and burial sites.

When asked last year to become a deputy culture minister with jurisdiction over archaeology, he brought his fledgling air force with him, using the drones in the cities but also in more remote areas like this one, known as Cerro Chepén, a sprawling site on the northern coast of Peru that dates to about A.D. 850 and the late stages of the Moche civilization. While the immense stone walls here may not be as sophisticated as those at some later sites like Machu Picchu, they are still impressive.

Pointing to a nearby hillside, Dr. Castillo said that last year a survey team spent two months, at a cost of thousands of dollars, to map the area using conventional methods. Now, with a drone, he covers a similar area in less than 10 minutes. Once he loads the photos into a computer program, he can have a map the next day.
"The faster we produce the maps, the more parts of the site we're going to be able to save," he said.

Drones do have some drawbacks. Their batteries last as little as six minutes. The dust common at archaeological sites, especially in Peru's coastal desert, can foul the equipment.

Earlier on Cerro Chepén, Aldo Watanave, who leads Dr. Castillo's drone team, had been unable to get a larger drone to work when the apparatus that controls the camera's movement failed. Dr. Castillo and his staff often must rely on their ingenuity, jury-rigging the drones to hold cameras in place. In this instance, Mr. Watanave tried tying the apparatus in place with string but then the mechanism that made the camera take pictures at regular intervals also went on the fritz. Dr. Castillo ended up using a smaller drone for the job.

The nerve center for the drone effort is in the basement of the Culture Ministry, a massive gray concrete building in Lima. In cramped cubicles, eight men and women work with the 3-D maps created from drone photographs, refining them and adding information, including details about land ownership and archaeological excavations.

The task before them is daunting. Peru has an estimated 100,000 sites of archaeological importance, though experts acknowledge that is little more than a guess. Of those, only about 2,500 have been mapped in some way and only about 200 are fully inscribed in public registers owing to money and manpower issues.
"We have a mountain of work to do and a very small budget," said Nohemí Ortiz, who directs the office responsible for registering sites. "But we have to start somewhere."

Recently their work brought them to Pimentel, a Pacific beach town where about 700 years ago a fishing village occupied a raised expanse of sand. The sand on a recent visit was littered with artifacts, pieces of pottery, a ceramic shard featuring the snout of a feline creature, notched stones once used as fishing weights and chunks of coral that may have once marked the perimeter of houses.

But a large area of sand around the mound, and perhaps parts of the mound itself, were recently flattened with heavy equipment. Stakes were driven into the sand in what appeared to be an effort to establish property lines.

Government archaeologists discovered the encroachment when they arrived to map the site with conventional methods.

Carlos Wester La Torre, an archaeologist who directs the nearby Brüning National Archaeological Museum, said it appeared that local leaders had begun to parcel up the beachfront to take advantage of escalating land values.
"I think they wanted to disturb this so they could say it's not worth anything," he said of the damage to the site, "like taking a book and ripping out the pages so you can't read the story anymore."

Dr. Castillo's team had arrived just that day. Soon one of his drones was buzzing overhead, recording what was left of local prehistory before it, too, would be obliterated.

Please visit the site: http://www.nytimes.com/2014/08/14/arts/design/drones-are-used-to-patrol-endangered-archaeological-sites.html?_r=0

EMBALMING STUDY 'REWRITES' KEY CHAPTER IN EGYPTIAN HISTORY

Researchers from the Universities of York, Macquarie and Oxford have discovered new evidence to suggest that the origins of mummification started in ancient Egypt 1,500 years earlier than previously thought.

The scientific findings of an 11-year study by a researcher in the Department of Archaeology at York, and York's BioArCh facility, and an Egyptologist from the Department of Ancient History at Macquarie University, push back the origins of a central and vital facet of ancient Egyptian culture by over a millennium.

Traditional theories on ancient Egyptian mummification suggest that in prehistory -- the Late Neolithic and Predynastic periods between c. 4500 and 3100 B.C. -- bodies were desiccated naturally through the action of the hot, dry desert sand.

Scientific evidence for the early use of resins in artificial mummification has, until now, been limited to isolated occurrences during the late Old Kingdom (c. 2200 BC). Their use became more apparent during the Middle Kingdom (c. 2000-1600 BC).

But the York, Macquarie and Oxford team identified the presence of complex embalming agents in linen wrappings from bodies in securely provenanced tombs in one of the earliest recorded ancient Egyptian cemeteries at Mostagedda, in the region of Upper Egypt.

"For over a decade I have been intrigued by early and cryptic reports of the methods of wrapping bodies at the Neolithic cemeteries at Badari and Mostagedda," said Dr Jana Jones of Macquarie University, Sydney.

"In 2002, I examined samples of funerary textiles from these sites that had been sent to various museums in the United Kingdom through the 1930s from Egypt. Microscopic analysis with my colleague Mr Ron Oldfield revealed resins were likely to have been used, but I wasn't able to confirm my theories, or their full significance, without tapping into my York colleague's unique knowledge of ancient organic compounds."

Dr Jones initiated the research and led the study jointly with Dr Stephen Buckley, a Research Fellow at the University of York.

"Such controversial inferences challenge traditional beliefs on the beginnings of mummification," said Dr Jones. "They could only be proven conclusively through biochemical analysis, which Dr Buckley agreed to undertake after a number of aborted attempts by others. His knowledge includes many organic compounds present in an archaeological context, yet which are often not in the literature or mass spectra libraries."

Corresponding author on the article, Dr Buckley, used a combination of gas chromatography-mass spectrometry and sequential thermal desorption/pyrolysis to identify a pine resin, an aromatic plant extract, a plant gum/sugar, a natural petroleum source, and a plant oil/animal fat in the funerary wrappings.

Predating the earliest scientific evidence by more than a millennium, these embalming agents constitute complex, processed recipes of the same natural products, in similar proportions, as those employed at the zenith of Pharaonic mummification some 3,000 years later.

Dr Buckley, who designed the experimental research and conducted the chemical analyses, said: "The antibacterial properties of some of these ingredients and the localised soft-tissue preservation that they would have afforded lead us to conclude that these represent the very beginnings of experimentation that would evolve into the mummification practice of the Pharaonic period."

Dr Buckley added: "Having previously led research on embalming agents employed in mummification during Egypt's Pharaonic period it was notable that the relative abundances of the constituents are typical of those used in mummification throughout much of ancient Egypt's 3000 year Pharaonic history. Moreover, these resinous recipes applied to the prehistoric linen wrapped bodies contained antibacterial agents, used in the same proportions employed by the Egyptian embalmers when their skill was at its peak, some 2500-3000 years later."

Professor Thomas Higham, who was responsible for dating the burials at the University of Oxford, said: "This work demonstrates the huge potential of material in museum collections to allow researchers to unearth new information about the archaeological past. Using modern scientific tools our work has helped to illuminate a key aspect of the early history of ancient Egypt."

"Our ground-breaking results show just what can be achieved through interdisciplinary collaboration between the sciences and the humanities," said Dr Jones.

Further information:
A gallery of images for the media to download to accompany this news release is available at:
www.york.ac.uk/news-and-events/news/2014/research/embalming-study/gallery

The article 'Evidence for prehistoric origins of Egyptian mummification in Late Neolithic burials' is published in the journal PLOS ONE: http://dx.plos.org/10.1371/journal.pone.0103608

More information about the Department of Archaeology at the University of York at www.york.ac.uk/archaeology/

The BioArCh research facility at the University of York is part of Palaeo: Centre for Human Palaeoecology & Evolutionary Origins www.york.ac.uk/palaeo/

More information on the Department of Ancient History at Macquarie University at http://mq.edu.au/about_us/faculties_and_departments/faculty_of_arts/department_of_ancient_history/

Please visit the site:

http://www.york.ac.uk/news-and-events/news/2014/research/mummification/ [Full study at http://dx.plos.org/10.1371/journal.pone.0103608]

CLIMATE CHANGE AND DROUGHT IN ANCIENT TIMES UNIVERSITAET TÜBINGEN

Summary:
The influence of climate on agriculture is believed to be a key factor in the rise and fall of societies in the Ancient Near East. An investigation into archaeological finds of grain has taken place in order to find out what influence climate had on agriculture in early farming societies. The research team analyzed grains of barley up to 12,000 years old from 33 locations across the Fertile Crescent to ascertain if they had had enough water while growing and ripening.

The influence of climate on agriculture is believed to be a key factor in the rise and fall of societies in the Ancient Near East. Dr. Simone Riehl of Tübingen University's Institute for Archaeological Science and the Senckenberg Center for Human Evolution and Palaeoenvironment has headed an investigation into archaeological finds of grain in order to find out what influence climate had on agriculture in early farming societies.

Her findings are published in this week's PNAS -- Proceedings of the National Academy of Sciences.

She and her team analyzed grains of barley up to 12,000 years old from 33 locations across the Fertile Crescent to ascertain if they had had enough water while growing and ripening. Riehl found that periods of drought had had noticeable and widely differing effects on agriculture and societies in the Ancient Near East, with settlements finding a variety of ways to deal with the problem.

The 1,037 ancient samples were between 12,000 and 2,500 years old. They were compared with modern samples from 13 locations in the former Fertile Crescent. Dr. Riehl and her team measured the grains' content of two stable carbon isotopes. When barley grass gets insufficient water while growing, the proportion of heavier carbon isotopes deposited in its cells will be higher than normal. The two isotopes 12C und 13C remain stable for thousands of years and can be measured precisely -- giving Simone Riehl and her colleagues reliable information on the availability of water while the plants were growing.

They found that many settlements were affected by drought linked to major climate fluctuations. "Geographic factors and technologies introduced by humans played a big role and influenced societies' options for development as well as their particular ways of dealing with drought," says Riehl. Her findings indicate that harvests in coastal regions of the northern Levant were little affected by drought; but further inland, drought lead to the need for irrigation or, in extreme cases, abandonment of the settlement.

The findings give archaeologists clues as to how early agricultural societies dealt with climate fluctuations and differing local environments. "They can also help evaluate current conditions in regions with a high risk of crop failures," Riehl adds. The study is part of a German Research Foundation-backed project looking into the conditions under which Ancient Near Eastern societies rose and fell.

Journal Reference:

S. Riehl, K. E. Pustovoytov, H. Weippert, S. Klett, F. Hole. Drought stress variability in ancient Near Eastern agricultural systems evidenced by 13C in barley grain. Proceedings of the National Academy of Sciences, 2014; DOI:10.1073/pnas.1409516111

Please visit the site:
http://www.sciencedaily.com/releases/2014/08/140811151549.htm

‘SIGNIFICANT’ HUMAN BURIAL SITE UNCOVERED BY ARCHAEOLOGISTS IN CYPRUS, BY JEAN CHRISTOU

Archaeologists have discovered what they believe could be one of the earliest documented formal human burials found on Cyprus to date at Kretou Marottou-Ais Yiorkis, they said on Thursday.

The burial, excavated by Drs Xenia-Paula Kyriakou and Paul Croft, was found in a tightly flexed position, in a grave cut into a larger, somewhat earlier pit, the Antiquities Department said. It consists of an adult individual, probably a male.

Similar sites in Cyprus have shown that the island was in early and consistent contact with the mainland Neolithic, and indicate that the island was colonised far earlier than previously believed.

Human remains, however, had been elusive at all early Neolithic sites, “thus a formal burial is very significant”, the department said.

Previously, parts of an infant burial were recovered at Kretou Marottou-Ais Yiorkis, and elements representing several individuals were recovered from Neolithic wells at Kissonerga-Mylouthkia.

At Perekklisha-Shillourokambos numerous human remains were recovered in a large pit, and a flexed individual adjacent to a cat burial also was documented at that site. “These may be somewhat more recent than the Kretou Marottou-Ais Yiorkis burial, but this remains to be determined pending the outcome of radiocarbon dating,” the department added.

The newly-discovered site was discovered during the 2014 excavation season at the early Neolithic site by the University of Nevada, Las Vegas (UNLV), under the direction of Dr Alan H Simmons and funded by the National Science Foundation, the National Geographic Society and the Wenner-Gren Foundation.

The grave fill was especially rich in stones, animal bones and chipped stone, compared with the fill of the larger pit.

The site is located in the foothills of the Troodos Mountains in the Paphos region, rather than near the coast, a more common Neolithic pattern.

The department said it had many unique features, including circular plastered platforms, a huge chipped stone assemblage, and well-preserved paleoeconomic data, including cattle, which previously had not been documented on Cyprus until the Bronze Age.

Animal bones found included a predominance of deer, followed by pig. Several addition cattle bones were also recovered in 2014. In the structure area the partial remains of two other structures were revealed, placing the total at six.

"Kretou Marottou-Ais Yiorkis continues to be an important site for better understanding the early colonisation of Cyprus," the department said.

"It is especially significant due to its rare upland location, its unique architecture and its well-preserved paleoeconomic data".

Over 300,000 items have been recovered to date.

Please visit the site: http://cyprus-mail.com/2014/08/14/significant-human-burial-site-uncovered-by-archaeologists-in-cyprus/

UNIQUE FIGURINES FOUND IN PATARA

Excavations ongoing in the ancient city of Patara in the southern province of Antalya have revealed two figurines dating back to 3,000 and 7,000 B.C. DHA Photo

Excavations ongoing in the ancient city of Patara in the southern province of Antalyahave revealed two figurines dating back to 3,000 and 7,000 B.C.

According to reports, the stone figurines, which had not been discovered in earlier excavations, reveal the connection between the Bronze Age and Anatolian cultures.

The other figurine that was found during the excavations is made of earthenware and highlights the importance of the Patara Port in ancient times. The figurine from the eastern Mediterranean depicts the goddess Astarte, who is the goddess of fertility. Although it reflects the artistic features of Ionian civilization, the Astarte figurine was found along with Cypriot ceramics.

The head of the excavations, Professor Havva İşkan Işık at Akdeniz University's Archaeology Department, said the history of Lycia would be rewritten with these new findings.

Please visit the site: http://www.hurriyetdailynews.com/unique-figurines-found-in-patara.aspx?pageID=238&nID=70641&NewsCatID=375

GOVERNMENT ANNOUNCES 700BC PHOENICIAN SHIPWRECK FIND, BY DUNCAN BARRY

Justice and Culture Minister Owen Bonnici this morning said that a Phoenician ship has been located in the central Mediterranean, describing it as a historic event.

The shipwreck is at a depth of 120 metres and is located one mile off the coast of Gozo. It dates back to 700BC.

Dr Bonnici said the boat was most probably around 50 feet long and it could also be the oldest shipwreck in the Mediterranean.

The discovery was kept under wraps until the necessary studies were carried out in the ambit of the GROPLAN Project funded by the French National Research Agency.

GROPLAN is aimed at developing underwater photogrammetry, a 3D recording system that enables scientists to accomplish tasks in an efficient and cost effective manner.

Project partners include the CNRS CCJ Centre Camille Julian, the CNRS Centre National de la Recherche Scientifique Deleation Provence Corse Laboratoire des Sciences de l'Information et des Systemes, the University of Malta's Department of Classic and Archaeology, the Superintendence of Cultural Heritage, COMEX and the A&M University of Texas, US, among others.

The shipwreck is well preserved and new software development tools are being created to compile data which in turn will be included in the National Inventory of Cultural Property of the Maltese Islands, a register of cultural property in Malta.

Data related to this project and other finds can be viewed on http//:chims.datatrak.ws/gengisnet/login.aspx.

Dr Bonnici said that the result of the project is surprising due to the fact that Malta hasn't infinite resources for such projects.

One of the project's researchers explained that this find is typical of a Phoenician vessel which made stops in Sardegna and Malta to sell its cargo, some of which includes lava grinding stones and seven different types of vases.

The exact location of the site will not be revealed for the time being.

Please visit the site: http://www.independent.com.mt/articles/2014-08-25/news/government-announces-700bc-phoenician-shipwreck-find-6334119936/

EARLIEST KNOWN WOODEN TOILET SEAT DISCOVERED AT VINDOLANDA

Finding something that you can relate to is always a special moment on an archaeological dig. At Vindolanda this is a common occurrence, a site where the special qualities lie not only in the discovery of gold and silver or artefacts which relate to the military might of the Roman Army but also of everyday ordinary items which nearly 2000 years later become extraordinary to the modern day visitors, volunteers and archaeologists alike. Personal letters, worn shoes, baby booties, socks, combs, jewellery, tools and textiles are just some of the items preserved in a remarkable condition that provide you with a unique window into the lives of people stationed at this most northern outpost of the Roman Empire.

Now archaeologists have another piece of this very personal human hoard at Vindolanda, a wooden latrine (toilet) seat, was discovered by the Director of Excavations, Dr Andrew Birley, in the deep pre-hadrianic trenches at Vindolanda. There are many examples of stone and marble seat benches from across the Roman Empire but this is believed to be the only surviving wooden seat, almost perfectly preserved in the anaerobic, oxygen free, conditions which exist at Vindolanda. Although this wooden seat is not as grand as a marble or stone toilet bench, it would be far more comfortable to sit on in the cool climate of Britannia. The seat has clearly been well used and was decommissioned from its original purpose and discarded amongst the rubbish left behind in the final fort at the site before the construction of Hadrian's Wall started in the early second century.

Dr Birley commented on the find 'there is always great excitement when you find something that has never been seen before and this discovery is wonderful....' Andrew went on to say 'We know a lot about Roman toilets from previous excavations at the site and from the wider Roman world which have included many fabulous Roman latrines but never before have we had the pleasure of seeing a surviving and perfectly preserved wooden seat. As soon as we started to uncover it there was no doubt at all on what we had found. It is made from a very well worked piece of wood and looks pretty comfortable. Now we need to find the toilet that went with it as Roman loos are fascinating places to excavate - their drains often contain astonishing artefacts. Let's face it, if you drop something down a Roman latrine you are unlikely to attempt to fish it out unless you are pretty brave or foolhardy'.

Discoveries at Vindolanda from latrines have included a baby boot, coins, a betrothal medallion, and a bronze lamp.

Archaeologists now need to find a 'spongia' the natural sponge on a stick which Romans used instead of toilet paper, and with over 100 years of archaeology remaining and the unique conditions for the preservation of such organic finds a discovery may just be possible.

The wooden seat will take up to 18 months to conserve and once this process is complete the artefact will be put on display at the Roman Army Museum.

Please visit the site: http://www.vindolanda.com/_blog/press-releases/post/press-release---earliest-known-wooden-toilet-seat-discovered-at-vindolanda/ [Go there for pict]

ROLLIN' BONES: THE HISTORY OF DICE

The following is reprinted from the book Uncle John's Unsinkable Bathroom Reader.

The next time you find yourself rolling a pair of dice, know that you're tapping into something primordial- keeping alive an ancient tradition that began long before recorded history.

Archaeologists can't pinpoint the first human who threw dice, but they do know this: Unlike many customs that started in one place and then spread, dice-throwing appeared independently all across the populated world. The oldest known dice -dating back at least 8,000 years- consisted of found objects such as fruit pits, pebbles, and seashells. But the direct precursors of today's dice were bone: the ankle bones of hoofed animals, such as sheep and oxen. These bones -later called astragali by the Greeks- were chosen because they are roughly cube-shaped, with two rounded sides that couldn't be landed on, and four flat ones that could. Which side would be facing up after a toss, or a series of tosses, was as much a gamble to our ancestors as it is to us today.

The first dice throwers weren't gamers, though -they were religious shamans who used astragali (as well as sticks, rocks, or even animal entrails) for divination, the practice of telling the future by interpreting signs from the gods. How did these early dice make their way from the shaman to the layman? According to David Schwartz in Roll the Bones: The History of Gambling:

The line between divination and gambling is blurred. One hunter, for example, might say to another, "If the bones land short side up, we will search for game to the south; if not, we look north," thus using the astragali to plumb the future. But after the hunt, the hunters might cast bones to determine who would go home with the most desirable cuts.

SQUARING OFF

And with that, gambling -and dice gaming- was born, leading to the next big step in dice evolution. Around 7,000 years ago, ancient Mesopotamians carved down the rounded sides of the astragali to make them even more cube-like. Now they could land on one of six sides, allowing the outcome to become more complex. As their technology advanced, materials such as ivory, wood, and whalebone were used to make dice. (Image credit: Swiss Museum of Games)

It is believed that the shamans were the first ones to make marks on the sides of the dice, but it didn't take long for them to roll into the rest of society. Dice first appeared in board games in Ur, a city in southern Mesopotamia. Now referred to as the "Royal Game of Ur," this early version of backgammon (circa 3,000 BC) used four-sided, pyramidal dice.

However, the most common dice, then and now, are six-sided cubic hexahedrons with little dots, or pips, to denote their values. The pip pattern still in use today -one opposite six, two opposite five, and three opposite four- first appeared in Mesopotamia circa 1300 BC, centuriesbefore the introduction of Arabic numerals.

WHEN IN ROME

In the first millennium BC, civilizations thrived in Greece, India, and China- and they all threw dice. In Rome, it was common for gamblers to call out the goddess Fortuna's name while rolling a 20-sided die during a game of chance. But they had to do it quietly - dice games were illegal in Rome (except during the winter solstice festival of Saturnalia). Not that that stopped anyone from playing it: One surviving fresco depicts two quarreling dicers being thrown out of a public house by the proprietor.

* When General Julius Caesar led his army across the Rubicon River to attack Rome in 49 BC -which set in motion his rise to power- he knew that there was no turning back, proclaiming, "Lea iacta est."
Translation: "The die is cast."

* Later Roman leaders were also dice aficionados, including Mark Antony, Caligula (he was notorious for cheating), Claudius, Nero, and Commodus, who built special dicing rooms in his palace.

ROLLING ALONG

After the fall of the Roman Empire, many of civilization's advancements and inventions fell out of use. Not dice, though- their use continued through the Middle Ages, being one of the few leisure activities affordable to peasants. In the rest of the world, dice played an important role among the tribes and indigenous peoples of Africa and the Americas, for both recreation and divination. And in 12th-century China, a variation of a dice game led to the introduction of dominoes, which are basically flattened-out dice.

But it was in Medieval Europe that the popularity of dice game soared, starting in the 1100s with a game called Hazard that was played by both aristocrats and commoners. "They dance and play at dice both day and night," wrote Chaucer in The Canterbury Tales. These games were so popular that over the ensuing centuries dice guilds and schools formed all over western Europe. That didn't stop the Catholic Church from attempting to ban all gambling games, though. Over the next few hundred years, dozens of popes, bishops, and priests instituted bans against dicing games. And just like in ancient Rome, the bans didn't stop people from playing them.

A CRAPPY ORIGIN

It was inevitable then, that dice traveled aboard the ships emigrating to the New World (the religious Pilgrims on the Mayflower were none too fond of the crew's gambling games). In colonial America, the game of Hazard was introduce by the French in New Orleans, who called it crapaud, meaning "toad." The game became popular with slaves, who shortened the name to craps, which is still the most popular gambling dice game in the the United States. And in the early 20th century, board games like Monopoly became popular, guaranteeing that nearly every American home would have at least one set of dice.

PAIR OF DICE LOST

Where there is gaming, there is cheating. While ancient civilizations may have believed the gods were responsible for the outcome of the roll, many unscrupulous players felt the need to give the gods a little help. Loaded dice -as well as dice with the corners shaved off- were found in the ruins of Pompeii. When wooden dice were common, enterprising gamblers would grow small trees around pebbles; then they'd carve the dice with the weight inside, leaving no visible marks.

Modern cheaters are just as crafty in their methods. One type of trick dice are trappers: Drops of mercury are loaded into a center reservoir; by holding the die a certain way and tapping it against a table, the mercury travels down a tunnel to another reservoir, subtly weighting the die. Another trick is to fill a die with wax that melts at just below body temperature: Held in a closed fist, the wax melts, settling to the desired side.

Today casinos spend millions trying to thwart cheaters in a high tech war of wits using extremely sensitive equipment to detect even the slightest alteration in a pair of suspect dice. And to keep people from bringing their own dice to the craps table, all casino dice have tiny serial numbers. A more radical way of stoping cheaters: virtual dice rolled by a computer. This not only makes loading dice impossible, but also allows craps players to "roll the bones" from the keypad of a cell phone. But nothing can replace the actual feeling of shaking the dice in your hands and letting them fly.

DICEY VARIATIONS

Dice made from the ankles of sheep are still used in Mongolia today. And they're just one type of thousands that exist. Have you ever rolled a 30-sided die -the highest number symmetrical polyhedron? Or how about the 100-sided die, called the Zocchihedron (invented in the 1980s by a gamer named Lou Zocchi)? There's also the no-sided die -a sphere with a moving internal weight that causes the sphere to stop rolling with one of its six numbers facing up. There are barrel dice (roughly cylindrical, with flat surfaces), letter dice (like in the game Boggle), playing card dice (often called "poker dice"), six-siders numbered zero through five, three-sided dice, doubling cubes (such as those used in backgammon), asymmetrical polyhedrons, and countless others.

And those are just the varieties used in gaming. Myriad other dice are used in cleromancy, the ancient practice of divining with dice. Tibetan Buddhists use a set of three dice made from conch shells to help make daily decisions. Astrologers use a set of 12-sided dice relating to the Zodiac signs. There are I Ching dice with trigrams and yin/yang symbols. And if you've ever shaken a Magic 8-Ball and asked it a question, you've practiced cleromancy: The responses -"Yes," "No," "Ask again," "Later, " etc.- are printed on a 20-sided icosahedron.

Though rarely used in games since the Roman Empire, noncubical dice have made a resurgence in the past few decades. They were used for teaching arithmetic before they took hold of the world of gaming by storm, most notably in the role-playing game Dungeons & Dragons.

Please visit the site: http://www.neatorama.com/2014/08/18/Rollin-Bones-The-History-of-Dice/#!bJpPlY

NANOTECHNOLOGY HELPS SOLVE MYSTERY SURROUNDING PORTRAIT OF A MUMMY

He looks almost Byzantine or Greek, gazing doe-eyed over the viewer's left shoulder, his mouth forming a slight pout, like a star-struck lover or perhaps a fan of the races witnessing his favorite charioteer losing control of his horses.

'Bearded Man, 170-180 A.D.' from the Walters Art Museum collection, object #32.6In reality, he's the "Bearded Man, 170-180 A.D.," a Roman-Egyptian whose portrait adorned the sarcophagus sheltering his mummified remains. But the details of who he was and what he was thinking have been lost to time.

But perhaps not for much longer. A microscopic sliver of painted wood could hold the keys to unraveling the first part of this centuries-old mystery. Figuring out what kind of pigment was used (whether it was a natural matter or a synthetic pigment mixed to custom specifications), and the exact materials used to create it, could help scientists unlock his identity.

"Understanding the pigment means better understanding of the provenance of the individual" said Darryl Butt, a Boise State University distinguished professor in the Department of Materials Science and Engineering and associate director of the Center for Advanced Energy Studies (CAES). "Where the pigment came from may connect it to a specific area and maybe even a family."

For years, researchers were limited by the lack of samples large enough to be properly analyzed. But advances in the field of nanotechnology mean scientists now can work with fragments tinier than the eye can even register. Using a $1.5 million ion beam microscope at CAES, Butt — along with CAES colleagues Yaqaio Wu and Jatu Burns, and Boise State student researchers Gordon Alanko and Jennifer Watkins — is working with a sliver of the wood portrait smaller than a human hair.

The team transferred the fragment to a sample holder using a tiny deer hair called an "eyelash." Their biggest challenge was to move it to the equipment without losing it.
So far they have extracted five needle-tip sized fragments 20 nanometers wide (a nanometer is a billionth of a meter), as well as two thin foils. From that, they have been able to analyze and map out the chemistry of the material in three dimensions.

"So far we've learned that the paint is a synthetic pigment," said Butt, who as an artist in his own right often mixes his own pigments for his paintings. "These are very vibrant pigments, possibly heated in a lead crucible. People thought that process had been developed in the 1800s or so. This could prove it happened a lot earlier."

Butt and his team are analyzing a speck of purple paint, which is significant because the blue used to blend the purple hue was a precious pigment back in the day, signaling a prominent individual.

Their data is being analyzed by researchers from the Detroit Museum of Art, where a companion to the "Bearded Man" mummy resides. It's part of a project, titled APPEAR (Ancient Panel Paintings-Examination, Analysis, Research), a collaboration between 12 museums, including the British Museum in London and the Walters Art Museum in Baltimore, Maryland.

Butt got into solving art mysteries when he met Glenn Gates, a conservation scientist at the Walters Art Museum at a conference at Stanford University. Both are officers of a new section of the American Ceramic Society — the Art, Archaeology and Conservation Science division.

"This research was a gamble that we [materials scientists] could do some really cool stuff," Butt said, noting that he would love to branch out into analyzing pottery and other ancient artifacts.

While studying the provenance of Roman-Egyptian mummies is something new at Boise State, many researchers in the art, geology, history, anthropology and even English departments are involved in what Butt likes to call 'reverse engineering' of objects of cultural heritage.

"This particular problem, that is of understanding a particle of pigment from a 2,000-year-old sarcophagus, is a bit unique in that it highlights some of the amazing tools that we have at Boise State and at CAES that could shed new light on problems associated with understanding human history," he said.

Butt hopes that these and similar transdisciplinary projects will open up external research opportunities for students, including creation of a "pipeline" of students who travel to various user facilities or museums to carry out interdisciplinary research.

"Envision, for example, art students studying works of art using synchrotron radiation and bright x-rays at a national laboratory, while science and engineering students use their technical skills to unravel mysteries of materials used by ancient societies in the field or held by museums," he said.

The idea can sound far-fetched even for those who are participating in the research, although there is a certain, sound logic to transdisciplinary work between the arts and the sciences.
"I never anticipated having an opportunity to work on a project like this as an undergraduate research assistant in an engineering discipline," said Watkins, who is a junior majoring in materials science and engineering. "I've enjoyed being able to interact with other departments on campus and experience other facets of research that I otherwise would not have been exposed to. I think there is a very interesting niche for materials characterization in archaeological research."

"The key to creating these external opportunities or internships for students requires that we develop a reputation as well as students with the right skills and mindset for this kind of work," Butt said.
"That's what we're doing now."

Source: Boise State University

Please visit the site: http://www.nanowerk.com/nanotechnology-news/newsid=36930.php [Go there for pix]

WHAT LIES BENEATH STONEHENGE? A GROUNDBREAKING SURVEY OF THE SITE HAS TURNED UP TANTALIZING NEW CLUES TO WHAT REALLY WENT ON THERE, BY ED CAESAR

We walked the Avenue, the ancient route along which the stones were first dragged from the River Avon. For centuries, this was the formal path to the great henge, but now the only hint of its existence was an indentation or two in the tall grass. It was a fine English summer's day, with thin, fast clouds above, and as we passed through fields dotted with buttercups and daisies, cows and sheep, we could have been hikers anywhere, were it not for the ghostly monument in the near distance.

Faint as the Avenue was, Vince Gaffney hustled along as if it were illuminated by runway lights. A short, sprightly archaeologist of 56, from Newcastle upon Tyne in northeast England, he knows this landscape as well as anyone alive: has walked it, breathed it, studied it for uncounted hours. He has not lost his sense of wonder. Stopping to fix the monument in his eyeline, and reaching out toward the stones on the horizon, he said, "Look, it becomes cathedralesque."

Gaffney's latest research effort, the Stonehenge Hidden Landscapes Project, is a four-year collaboration between a British team and the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology in Austria that has produced the first detailed underground survey of the area surrounding Stonehenge, totaling more than four square miles. The results are astonishing. The researchers have found buried evidence of more than 15 previously unknown or poorly understood late Neolithic monuments: henges, barrows, segmented ditches, pits. To Gaffney, these findings suggest a scale of activity around Stonehenge far beyond what was previously suspected. "There was sort of this idea that Stonehenge sat in the middle and around it was effectively an area where people were probably excluded," Gaffney told me, "a ring of the dead around a special area—to which few people might ever have been admitted....Perhaps there were priests, big men, whatever they were, inside Stonehenge having processions up the Avenue, doing...something extremely mysterious. Of course that sort of analysis depends on not knowing what's actually in the area around Stonehenge itself. It was terra incognita, really."

Nobody has yet put a spade in the ground to verify the new findings, which were painstakingly gathered by geophysicists and others wielding magnetometers and ground-penetrating radars that scan the ground to detect structures and objects several yards below the surface. But Gaffney has no doubt of the work's value. "This is among the most important landscapes, and probably the most studied landscape, in the world," he says. "And the area has been absolutely transformed by this survey. Won't be the same again."

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The joys and frustrations of all archaeological study—perhaps all historical inquiry—come into particularly sharp relief at Stonehenge.
Even to the most casual observer, the monument is deeply significant.
Those vast stones, standing in concentric rings in the middle of a basin on Salisbury Plain, carefully placed by who-knows-who thousands of years ago, must mean something. But nobody can tell us what. Not exactly. The clues that remain will always prove insufficient to our curiosity. Each archaeological advance yields more questions, and more theories to be tested. Our ignorance shrinks by fractions. What we know is always dwarfed by what we can never know.

Take the big question: Was Stonehenge predominantly a temple, a parliament or a graveyard? Was it a healing ground? We don't know, for sure. We know that people were buried there, and that the stones are aligned in astronomically important ways. We also understand, because of the chemical composition of animal bones found nearby and the provenance of the stones, that people traveled hundreds of miles to visit Stonehenge. But we cannot say, with certainty, why.

Try a simpler question: How did the bluestones, which weigh between four and eight tons apiece, arrive at the site, nearly 5,000 years ago, from 170 miles away in North Wales? Land or sea? Both alternatives explode with possibilities, and nobody has an impregnable theory. Mike Parker Pearson of University College London is working on a new idea that the bluestones might have been lifted onto huge wooden lattices and carried by dozens of men to the site. But it's just a theory. We can't know, definitively. We can only have better-informed questions.

The ineffability of Stonehenge has not dulled our appetite. The site has long proved irresistible to diggers. In 1620, the Duke of Buckingham had his men excavate right in the center of the monument.
Although they did not know it at the time, they dug on the site of a prehistoric pit. Buckingham's men found skulls of cattle "and other beasts" and large quantities of "burnt coals or charcoals"—but no treasure, as they had hoped.

In the 19th century, "barrow-digging," or the excavation of prehistoric monuments and burial hills, was a popular pastime among the landed gentry. In 1839, a naval officer named Captain Beamish dug out an estimated 400 cubic feet of soil from the northeast of the Altar Stone at Stonehenge. As Parker Pearson notes in his book Stonehenge, Beamish's "big hole was probably the final blow for any prehistoric features...that once lay at Stonehenge's center."

Work at Stonehenge became less invasive. In 1952, Willard Libby—the American chemist and later a Nobel Prize winner—used his new radiocarbon dating technique on a piece of charcoal from a pit within Stonehenge to date the monument to 1848 B.C., give or take 275 years.
That date has since been refined several times. The prevailing opinion is that the first stones were erected on the site around 2600 B.C. (although the building of Stonehenge was carried out over a millennium, and there were centuries of ritual activity at the site before the stones were in place).

In 2003, Parker Pearson conducted his own survey, concentrating on the nearby settlement at Durrington Walls and the area between there and the River Avon. Based on

huts, tools and animal bones he uncovered, he concluded that Durrington Walls likely housed the workers who built Stonehenge. Based on an analysis of human remains he later excavated from Stonehenge, he also surmised that, far from being a site of quotidian religious activity, Stonehenge served as a cemetery–a "place for the dead."

The Stonehenge Hidden Landscapes Project is different from everything that came before it. When Gaffney and his team started their work, they were less interested in theories than in data. To that end, they concentrated on taking what amounts to a three-dimensional and yards-deep photograph of the entire landscape. "The perceived wisdom was driven by the monuments we knew about," says Gaffney. "We've put in the data between the monuments."

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Chris Gaffney, Vince's younger, slighter and less voluble brother, was one of the instigators of this new approach. The duo's grandfather was a metalwork teacher from Newcastle with an interest in archaeology, who took his clever grandchildren on trips to Hadrian's Wall, the old barrier between the Roman Empire and the blasted north. Small wonder that Vince became an archaeologist and Chris a geophysicist, now at the University of Bradford.

The Gaffney brothers' interest in new technologies that were becoming available to archaeologists led them to the first GPS-guided magnetometer systems. A magnetometer has sensors that allow a geophysicist to see evidence of historic building, and even ancient ditch-digging, beneath the soil by mapping variations in the earth's magnetic field. The GPS-guided versions were able to pinpoint some of those discoveries to within one centimeter. The Gaffneys believed that Stonehenge scholarship needed a massive magnetometer- and radar-led survey of the whole site. "We just didn't know if anything's there," Vince Gaffney recalled. "So we're constructing various hypotheses on the basis of something we don't know."

Around the same time, an Austrian archaeologist named Wolfgang Neubauer, now of the Boltzmann Institute, was hoping to conduct large-scale projects all over Europe using tools including GPS magnetometers and ground-penetrating radar. Neubauer's team had also developed software to process the 40 or 50 gigabytes of raw data that these instruments could create in a day. Suddenly, instead of waiting weeks or months to see what the machines had found, it was possible to cover several acres with magnetometers and radar in a day and to display that information on a screen almost instantaneously.

One of the areas Neubauer wanted to scan was Stonehenge, and in the spring of 2009 he contacted Vince Gaffney. A few months later, the Boltzmann Institute and the University of Birmingham—plus several other British and European universities, museums and companies that contributed expertise and resources—began their collaboration at Stonehenge.

Their first days on site, Gaffney recalled, were "like a geophysical circus has come to town." Tractors pushed the ground-penetrating radars, which looked like high-powered lawn mowers. All-terrain vehicles dragged the magnetometer sensors on long strings. Delicate instruments covering hard, uneven ground kept mechanics and technicians busy. "I have seen one of our magnetometers shear clear apart in front of me," said Gaffney. "It

was back in service the next day." In all, the fieldwork took about 120 days, spread over four years.

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In a multimedia room at the University of Birmingham there was a vast touch screen, six feet by nine, on which a new map of the Stonehenge landscape appeared. Gaffney pointed out the key features.

There was Stonehenge itself, marked by the familiar circles. To the north was the long, thin strip called the Stonehenge Cursus or the Greater Cursus, which was demarcated by ditches, and ran east to west for nearly two miles. (The Cursus was given its name by the antiquarian William Stukeley in the 18th century because it looked like an ancient Roman race course. Its construction predates the first building work at Stonehenge by several hundred years.) Gaffney also pointed out the Cursus Barrows—hillocks containing mass human graves—just south of the Cursus itself, and King Barrow Ridge to the east.

Scattered all over the map were blotches of black: features without names. These were new finds, including the more than 15 possible new or poorly understood Neolithic monuments. Gaffney emphasized possible, acknowledging that it will require digging—"the testimony of the spade"—to discover precisely what was there.

Standing in front of this constellation of evidence, he seemed unable to decide where to start, like a child at the Christmas tree. "These are little henge monuments," he said, touching the screen to highlight a group of black smudges. "Nice little entrance there, and a ditch.
These things we know nothing about."

He saved his greatest enthusiasm for the discoveries that had been made in the Cursus. This feature, said Gaffney, had always been thought of as a "bloody great barrier to the north of Stonehenge."
Nobody knew quite what it was for. Because the Cursus runs east to west, archaeologists have always believed that its presence owes something to the passage of the sun. The monument must be significant: It was dug in the fourth millennium B.C. using antler picks—hundreds of thousands of man-hours went into its construction.

The Hidden Landscapes Project's instruments discovered several new clues. First of all, they found gaps in the ditch, in particular a very large break in the northern side, to allow people to enter and exit the Cursus. Now, instead of seeing the Cursus exclusively as a monument that encouraged movement along the path of the sun, east to west, Gaffney began to consider these gaps as "channels through the landscape" to guide the movement of people north to south.

A bigger discovery, Gaffney says, was a "bloody huge" pit about five yards in diameter at the eastern end of the Cursus. Today it lies buried at least three feet below the surface of the ground. Such a pit was much too large for a practical use—for instance, burying trash—because of the labor involved in digging it. In the archaeologists' minds it could only have ritual implications, as "a marker of some kind," Gaffney said. What's more, if

you drew a straight line between the pit and the heelstone at Stonehenge, it ran directly along the final section of the Avenue, on the path of the sunrise on the summer solstice.

"We thought, That's a bit of a coincidence!" Gaffney recalled. "That was the point at which we thought, What's at the other end? And there's another pit! Two pits, marking the midsummer sunrise and the midsummer solstice, set within a monument that's meant to be something to do with the passage of the sun."

With his hands passing over the map, Gaffney showed how—on the longest days of the year—the pits formed a triangle with Stonehenge marking sunrise and sunset.

"Nobody had ever seen these pits before," he continued. "But they link the area of Stonehenge with the Cursus directly. Either these things have been put inside the Cursus to mark these points, or the Cursus has been wrapped around them."

What was so interesting about the Cursus pits was that they told a story about the landscape. The "sunrise" pit was visible from Stonehenge, but the "sunset" pit was not—it was nestled behind a ridge, and could have been seen only if there had been fire and smoke coming from it. (At some point the pits will have to be excavated for evidence of such activity.) These discoveries fed into a larger understanding of Stonehenge as "diachronic"—operating in light and dark, sunrise and sunset, day and night.

"The point I think we're coming to," said Gaffney, "is that increasingly we can see the area around Stonehenge as providing extensive evidence for complex liturgical movement—which we can now understand, largely because we know where things are."

Parker Pearson, for his part, takes a cautious view of the new research. "Until you dig holes, you just don't know what you've got," he told me in his office at University College London. "What date it is, how significant it is. [There are] extraordinary new features coming up, and we're thinking well, what are they?"

To be sure, he said the data from the Hidden Landscapes Project "backs up the pattern we've already been seeing for some years. We have an excessive number of solstice-aligned monuments in that landscape.
Nowhere in the rest of Europe comes even close." He added, "This is fantastic stuff that's been done, and it's raised a whole series of new questions," he said. "It's going to take years."

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The clouds shifted in front of the sun, dappling the landscape with shadow. Gaffney and I were walking the Avenue, 300 yards or so from Stonehenge, and in the distance a string of barrows gleamed like opals. Although he acknowledged the fallibility of all archaeological projection ("In the end," he said, "we are all wrong"), his work has led him to a new interpretation of how Stonehenge was used.

Gaffney's idea was not to focus on Stonehenge itself, but on "processionality" within the whole landscape. He imagined people moving around the area like Roman Catholics processing through the Stations of the Cross. He recalled an Easter Friday ritual he saw in Croatia, in which a "bloke with a cross" led fellow barefoot celebrants on a miles-long

trip. In Gaffney's view, the building of the great stone circle was a "monumentalizing" of a similar, if heathen, procession.

As we walked downhill through the fields, Gaffney stopped from time to time to point out the hillocks in which "the illustrious dead" were buried. He also noted how the Avenue was not a straight line between the Avon and Stonehenge, but rather a series of tacks that brought the visitor to the Stonehenge site in a "theatrical" way, along the line of sunrise on the summer solstice.

He thrust himself into the mind of a Bronze Age visitor to the site.
"You will have seen nothing like it," he said. "It would have been massively impressive."
Soon we descended into a valley called Stonehenge Bottom, only a hundred yards or so from the great stones.
"They're disappearing....Watch, just watch!" he said.

Within a few yards, the monument became invisible. When you picture Stonehenge in your mind's eye, you imagine the concentric rings of vast stones standing in a desolate open landscape, visible for miles around. But now, here we were, a hundred yards away, and the thing had gone.

We stood in a field, watched by some lethargic cows, and savored the strangeness of the moment. Then, as we stepped uphill, Stonehenge re-emerged on the horizon. It happened fast. The lintels, then the great sarsens, then the smaller bluestones were suddenly before us.

Gaffney's voice lifted. He spoke about Jerusalem Syndrome: the feeling of intense emotion experienced by pilgrims on their first sighting of the Holy City. In the prehistoric world, there was no conception of God as he was understood by the later Abrahamic faiths. But, said Gaffney, as Stonehenge reappeared before us, "whatever the ancient version of Jerusalem Syndrome is, that's what you're feeling now."

Please visit the site: http://www.smithsonianmag.com/history/what-lies-beneath-Stonehenge-180952437/?all&no-ist [Go there for drawings]

SPHINXES EMERGE FROM HUGE ANCIENT GREEK TOMB, BY ROSSELLA LORENZI

Two headless sphinxes emerged from a massive burial site in northern Greece as archaeologists began removing large stones from the tomb's sealing wall.

The headless, wingless 4.8-foot-high sphinxes each weigh about 1.5 tons and bear traces of red coloring on their feet. They would have been 6.5 feet high with their heads, the Greek Culture Ministry said in a statement.

The statues are believed to have been placed there to guard the burial, which is the largest tomb ever uncovered in Greece.

The tomb dates back to around 325-300 B.C., at the end of the reign of warrior-king Alexander the Great. It lies in the ancient city of Amphipolis, in Greece's northeastern Macedonia region about 65 miles from the country's second-biggest city, Thessaloniki.

The city, an Athenian colony, was conquered by Philip II of Macedon, Alexander's father, in 357 B.C.

Prominent generals and admirals of Alexander had links with Amphipolis. It's here that Alexander's wife Roxana and his son Alexander IV were killed in 311 B.C. on the orders of his successor, King Cassander.

Archaeologists began excavating the site, a huge mound complex, in 2012. They revealed a circular tomb measuring 1,600 feet across which featured a 10-foot high perimeter wall. This was built of marble brought from the island of Thassos.

The burial complex site was possibly built by Dinocrates, a famous architect of the time and a close friend of Alexander. It is 10 times larger than the tomb of Alexander's father, Philip II, which was discovered in Vergina, central Macedonia, in the 1970s.

A wide path leads to the tomb whose entrance is guarded by the two sphinx statues.

"Pieces of the sphinx's wings were found at the site, allowing for a full restoration," the Greek Ministry of Culture said.

"Part of the back of the statue of the Lion of Amphipolis was also unearthed at the site," the statement said.

Work led by Katerina Peristeri, the archaeologist in charge of the dig, proved the impressive 16-foot-tall marble lion statue which now stands on a pedestal three miles from the excavation site, once crowned the monumental tomb.

Much of the tomb was demolished during the Roman occupation of Greece, and several marble blocks were reused to stabilize the banks of the river Strymon. It was right on the river bed that the 4th century B.C. lion and other marble blocks were found in 1912 by the Greek army.

According to the Culture Ministry, the sphinxes and the lion, both in Thassos marble, appear to be have been crafted in the same workshop.

"The seated sphinxes — as opposed to the lying sphinxes in Egyptian art — are unusual," classical archaeologist Dorothy King wrote in her blog.

"The closest parallel I can think of are those from the Hecatomnid Androns at Labraunda, about a quarter of a century earlier," she said.

Those bearded Hecatomnid figures reflected Persian royal iconography, King noted.

Behind the sphinx guarded entrance, the archaeologists found a mosaic floor featuring black and white rhombus shapes.

What lies behind the entrance remains a mystery. A geophysical survey carried out last year indicates the interior of the tomb consists of three rooms.

Peristeri's team hopes to fully explore the burial by the end of the month to determine who was laid to rest there.

Archaeologists have debunked speculation that the body of Alexander the Great lies in the tomb. Alexander, the overlord of an empire stretching from Greece to India, died at Babylon, now in central Iraq, in June of 323 B.C. — just before his 33rd birthday.

His elusive tomb is one of the great unsolved mysteries of the ancient world.

History has it that after Alexander died in Babylon, his body, en route to Macedon, was hijacked by Ptolemy and taken to Egypt. The sarcophagus of the warrior king was then moved from Memphis to Alexandria, the capital of his kingdom, and there it remained until late Antiquity.

By the fourth century A.D., the tomb's location was no longer known.

At the moment, the leading theory is that a senior general of Alexander's army was buried in the imposing tomb at Amphipolis.

But what if the Lion Tomb was indeed built for Alexander?

"If Alexander was on his way to being buried in Macedonia when Ptolemy pinched his body … to me that suggests that there was a tomb that had been or was being prepared for him in Macedonia," King wrote.

Please visit the site: http://news.discovery.com/history/archaeology/sphinxes-emerge-from-huge-ancient-greek-tomb-140821.htm [Go there for pix gallery]

OLDEST METAL OBJECT FOUND TO DATE IN MIDDLE EAST

A copper awl, the oldest metal object found to date in the Middle East, has been discovered during the excavations at Tel Tsaf. The awl dates back to the late 6th millennium or the early 5th millennium BCE, moving back by several hundred years the date it was previously thought that the peoples of the region began to use metals.

A copper awl, the oldest metal object found to date in the Middle East, was discovered during the excavations at Tel Tsaf, according to a recent study published by researchers from the Zinman Institute of Archaeology and the Department of archaeology at the University of Haifa , in conjunction with researchers from the Hebrew University of Jerusalem and the German Archaeological Institute of Berlin. According to the study, which appeared in the journal PLoS ONE, the awl dates back to the late 6th millennium or the early 5th millennium BCE, moving back by several hundred years the date it was previously thought that the peoples of the region began to use metals.

Tel Tsaf, a Middle Chalcolithic village dated to about 5200-4600 BCE, is located near the Jordan River and the international border with Jordan. The site was first documented in the 1950s and excavations there began at the end of the 1970s. From the earliest digs nearly 40 years ago, this area, the most important archeological site in the region dated to this period, has been supplying researchers with a great deal of valuable data, and continues to do so during this latest research project led by Dr. Danny Rosenberg of the University of Haifa in conjunction with Dr. Florian Klimscha of the Eurasia Department of the German Archaeological Institute in Berlin. For example, the researchers learned of the community's great wealth and the long-distance commercial ties it maintained from the large buildings made of mud-bricks and the large number of silos in which wheat and barley were stored on an unprecedented scale. There were many roasting ovens in the courtyards, all filled with burnt animal bones testifying to the holding of large events and many other findings, among them items made of obsidian (a volcanic glass with origins in Anatolia or Armenia), shells from the Nile River in Egypt and other areas around the Mediterranean, figurines of people and animals, and pottery unlike that found in almost any other location in the region.

But the most important finding to date is only 4 centimeters long. This unique item, a copper awl, which is 1 millimeter thick at the tip that was set in a wooden handle, was actually found during a previous excavation at the site by Prof. Yosef Garfinkel of the Hebrew University. The cone-shaped awl was found in a sealed grave of a woman about 40 years old that was dug inside a silo, and around her waist was a belt made of 1,668 ostrich-egg shell beads. The grave was covered with several large stones, and according to Dr. Rosenberg, its location within a silo testifies to both the importance of the deceased and the importance the community ascribed to the facility in which she was buried.

But while the grave, the woman's skeleton, and the beaded belt were all previously reported in scientific journals, the little awl was only reported on recently, after its chemical components were analyzed by Prof. Sariel Shalev of the Department of Archaeology at the University of Haifa's. As noted, the awl was found to made of copper,

and according to Dr. Rosenberg, the fact that it was found just above the skeleton ad in a sealed grave, meant that it was buried with the woman, apparently as a burial offering, and may have belonged to her.

This artifact is important because until now, researchers believed that area residents began to use metals only in the Late Chalcolithic period (during the second half of the 5th millennium BCE, so that this finding moves back the appearance of metal in our region by several hundred years. This has significant impact on our understanding of the developing use of complex technologies and the related social contexts.

But this is not the only reason the awl is significant. The chemical examination of the metal shows it may have come from the Caucasus, some 1,000 kilometers from Tel Tsaf. According to Dr. Rosenberg, while the long-distance commercial ties maintained by village communities in our region were already known from even earlier periods, the import of a new technology combined with the processing of a new raw material coming from such a distant location is unique to Tel Tsaf and provides additional evidence of the importance of this site in the ancient world.

The researchers are still not sure what the awl was used for, but the early use of a metal object, as well as its distant source, also testify to the high social status of the woman and the importance of the building she was buried in.

"The appearance of the item in a woman's grave, which represents one of the most elaborate burials we've seen in our region from that era, testifies to both the importance of the awl and the importance of the woman, and it's possible that we are seeing here the first indications of social hierarchy and complexity," said Dr. Rosenberg. "However, in this area far more is unknown than is known, and although the discovery of the awl at Tel Tsaf constitutes evidence of a peak of technological development among the peoples of the region and is a discovery of global importance, there's a lot of progress still to be made and many parts of the wider picture are still unknown to us."

"It seems that at least some of the questions raised by this unique item will be answered by an interdisciplinary research project we have been conducting at the site since last year," Dr. Rosenberg continued. "This project integrates multinational archeologists and researchers from a variety of other scientific disciplines, who will address the even more complex questions that will undoubtedly arise."

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Please visit the site:
http://www.sciencedaily.com/releases/2014/08/140821101538.htm [Go there for pict]

ARTIFICIAL LIMBS HAVE GONE THROUGH AN AMAZING EVOLUTION, BY DINA SPECTOR

Long before the bionic man, prosthetics designed to replace lost body parts offered limited movement and might be crafted out of materials found at hand, like wood and other fibers.

"In the past, prosthetics looked very much like what they were replacing," said Jacky Finch, a researcher in the KNH Center for Biomedical Egyptology at the University of Manchester. Finch was the lead author of a 2012 study published in the Journal of Prosthetics & Orthotics that describes two different artificial toes from ancient Egypt, believed to be the earliest known artificial body parts.
"Nowadays, implants are placed in the sensory system to control nerve action, rather than devices attached to the body by straps or artificially powered," she said.

Prosthetics have been around since ancient times, but the technology did not really take off until the two World Wars. A large number of amputees from war injuries tested the ingenuity of engineers and spurred the growth of artificial limb manufacturers.

The London Science Museum's "Brought to Life" exhibit chronicles this period of technological advancement, providing a general overview of the major milestones in artificial body parts. We have republished a selection of these images along with more recent innovations.

Please visit the site: http://www.businessinsider.com/the-evolution-of-prosthetic-technology-2014-8 [Go there for pict]

CENTURIES-OLD BABY RATTLE AMONG KÜLTEPE FINDINGS

A baby rattle has been found in the Kültepe Kaniş-Karum trade colony, where excavations have been continuing since 1948 in the central Anatolian province of Kayseri.

A baby rattle has been found in the Kültepe Kaniş-Karum trade colony, where excavations have been continuing since 1948 in the central Anatolian province of Kayseri.

A team from Ankara University Archaeology Department, headed by Professor Fikri Kulakoğlu, has been working in the area and unearthed the rattle, which dates back to 4,000 B.C.

Kulakoğlu said works had been continuing there for 69 years. He said, "Archaeological excavations have been carried out in Kültepe since 1948. Here it is possible to find what we [commonly] find in houses today. [We have found] Pots and pans, glasses, oven, seats and etc. We have seen all of these things in the excavations for nearly 70 years. There are also very interesting objects. We have found a toy, which we estimate to date back to 4,000 years ago, being the oldest in the world."

The professor said more than 50,000 people were living in Kültepe 4,000 years ago, adding, "There are very fine objects from a big metropolitan. We sometimes think the population was above 70,000. Some of them were Assyrians, but most of were Anatolians. Of course, not all of them were adults. Among them are young people, children and babies. We naturally found objects that we associate with babies. For example, one of them is a rattle. It is made of kiln and has pebbles inside. It makes a sound when it is shaken just like baby rattles we all know today."

Please visit the site: http://www.hurriyetdailynews.com/centuries-old-baby-rattle-among-kultepe-findings.aspx?pageID=238&nid=70582&NewsCatID=375