



Επιστημονικό Σωματείο,
Έτος Ίδρυσης 1982, έδρα:
Κάνιγγος 27, 106 82 Αθήνα
(Ένωση Ελλήνων Χημικών)
<http://archaeometry.org.gr/index.php/en/>

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Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Ιανουάριος 2017 -

**ΚΑΛΗ ΧΡΟΝΙΑ 2017!
HAPPY NEW YEAR 2017!**

Newsletter of the Hellenic Society of Archaeometry

- January 2017 -

Nr. 190

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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

TECHNART 2017, BILBAO, SPAIN, MAY 2-6, 2017

Dear colleagues,

We have the pleasure to announce that the submitted contributions of the Technart 2017 conference will be published as a Virtual Special Issue in Microchemical Journal . All authors of papers presented at the conference (oral or poster) will have the chance to submit their work for this special issue.

All manuscripts will be subjected to the mandatory selection process for this journal, including the strict peer review procedure; therefore acceptance for presentation at the meeting is not a guarantee for publication in the journal.

The TECHNART 2017 will be held in Bilbao (May 2-6). The website for the TECHNART 2017 is ready for your visits.

www.ehu.eus/technart2017

Just a kind reminder of the important dates

Abstract submission deadline: 7 January 2017

Notification to authors: 10 February 2017

Early registration deadline: 28 February 2017

Registration deadline: 31 March 2017

Looking forward seeing to you all in Bilbao,

Kind regards,

The organizer Committee.

**THE 5TH YOUNG RESEARCHERS’
CONFERENCE IN AEGEAN
ARCHAEOLOGY”, INSTITUTE OF
ARCHAEOLOGY, UNIVERSITY OF
WARSAW, POLAND, JUNE 1ST -2ND, 2017,
CALL FOR PAPERS**

The Department of Aegean Archaeology at the Institute of Archaeology, University of Warsaw and Mare Nostrum Student’s Scientific Organization are pleased to announce CALL FOR PAPERS for “THE 5TH YOUNG RESEARCHERS’ CONFERENCE IN AEGEAN ARCHAEOLOGY”, which will take place at the Institute of Archaeology, University of Warsaw, Poland on June 1st and 2nd, 2017.

The organizers invite proposals on all themes related to Aegean Archaeology, i.e. Aegean areas and cultures in the Bronze Age (i.e. art, crafts, everyday life; social, funerary, political landscapes; long-distance relations, Aegeans overseas, influence on other cultures; etc.), also in a broader context (new methods, approaches, technologies applied to the research; new technologies in data, research, site management; etc.). Proposals are welcomed from PhD students or candidates, as well as scholars who have already completed their doctoral research. The proposals for 20 min. lectures should consist of an abstract (in English) of max. 300 words.

Please send the proposals to egea@uw.edu.pl by **January 31st 2017**.

The provisional program of the Conference will be announced after February 15th.
Conference fee: 50,00 PLN per person (c. 4,45 PLN = 1 EUR).

Organizing Committee:

Katarzyna Żebrowska, MA, Dr Agata Ulanowska, Prof. Kazimierz Lewartowski
For questions and detailed information feel free to contact us via e-mail (egea@uw.edu.pl) or find the 5 Aegean Conference on Facebook.

To learn more about the organizers and the venue, visit these official pages:

http://www.archeo.uw.edu.pl/sz_ablon.php?id=1208

https://www.facebook.com/zaeia_uw/

2017 UK ARCHAEOLOGICAL SCIENCE CONFERENCE, UCL CENTRAL LONDON CAMPUS, 5-8 APRIL 2017

UCL's Institute of Archaeology is proud to be hosting the **2017 UK Archaeological Science conference**. The conference will take place within UCL's central London campus from the **5-8 April 2017**.

UKAS is a biennial international conference which aims to bring together researchers from all areas of archaeological science. The conference attracts scientists with expertise in a wide range of analytical techniques including biomolecular and ancient DNA analysis, stable isotopes, mineralogy and metallurgy, archaeobotany, conservation and heritage science, residue analysis, geoarchaeology, and computational modelling.

Research themes covered include mobility, migration and cultural exchange, plant-animal-human relationships, material culture and technologies, climate and environment, subsistence and diet, heritage management, and the application of archaeological science in commercial archaeology.

Contact details

Website: <https://www.ucl.ac.uk/archaeology/calendar/conferences/ukas2017>

To stay up to date with the latest news and announcements join the conference mailing list by sending a blank email to ukas2017-news-subscribe@ucl.ac.uk

You can follow us on Twitter: [@UKAS2017](https://twitter.com/UKAS2017).

The conference committee can also be reached at ukas2017@ucl.ac.uk

Abstract Submission and Sessions

- [Abstract submission is now open](#)

Key Dates

- [Abstract submission is now open](#)
- [Early-bird registration is now open](#)
- Deadline for abstract submission: 31 December 2016
- Deadline for early-bird registration: 31 January 2017

Scientific Panel

[Rhiannon Stevens](#), [Ian Freestone](#), [Marcos Martinon-Torres](#), [Dorian Fuller](#), [Carl Heron](#), [Hazel Reade](#), [Sophy Charlton](#), [Manuel Arroyo-Kalin](#), [Louise Martin](#), [Marc Vander Linden](#), and [Patrick Quinn](#).

2ND INTERNATIONAL RADIOCARBON IN THE ENVIRONMENT CONFERENCE, 3 –7 JULY, 2017, DEBRECEN, HUNGARY, SECOND CIRCULAR

This is the second circular to announce the 2nd International Radiocarbon in the Environment Conference (REII-2017) to take place between 3-7 July, 2017, in the Hungarian Academy of Sciences, Debrecen (Hungary).

Topics

The scientific scope of the conference follows most of the well-received features of the previous Radiocarbon in the Environment Conference:

Radiocarbon in

- marine environment
- freshwater environment (including groundwater and karstic systems)
- terrestrial environment (tree rings, macrofossils, sediments, animals, etc.)
- in-situ isotope applications (in rocks and meteorites)
- the atmosphere (CO₂ and other trace gases, aerosol)
- past and recent climate studies (regional and global changes)
- anthropogenic (fossil and nuclear) pollution, (bio)fuels

Related studies will also be welcome, as well as stable isotopes and a session on development and progress in techniques, methods and statistical tools.

Important dates

Date

Call for abstract	November 15, 2016
Abstract deadline	January 31, 2017
Notification of Abstract Acceptance,	March 01, 2017
Registration open	
Early registration deadline	May 01, 2017
Accommodation deadline	May 01, 2017
Deadline for refund	May 01, 2017
Conference date	July 03-07, 2017

**10TH INTERNATIONAL SYMPOSIUM ON THE
CONSERVATION OF MONUMENTS IN THE
MEDITERRANEAN BASIN (MONUBASIN),
"NATURAL AND ANTHROPOGENIC HAZARDS
AND SUSTAINABLE PRESERVATION, NATIONAL
TECHNICAL UNIVERSITY OF ATHENS (NTUA,
SCHOOL OF CHEMICAL ENGINEERING,
MATERIAL SCIENCE AND ENGINEERING
SECTION), SEPTEMBER 20 TO 22 OF SEPTEMBER
2017, ATHENS, GREECE**

About MONUBASIN

This **International Symposium on the Conservation of Monuments in the Mediterranean Basin (MONUBASIN)** has provided a forum for scientists, technicians and experts, in the area of conservation and restoration of monuments, to present their work and exchange ideas and experiences for over **28 years**.

In this context, we have the great pleasure to announce that the **National Technical University of Athens (NTUA, School of Chemical Engineering, Material Science and Engineering Section)** will be organizing the **10th MONUBASIN**.

The Symposium will take place from **September 20 to 22 of September 2017** following previous symposia at Bari (1989), Geneva (1991), Venice (1994), Rhodes (1997), Seville (2000), Lisbon (2004), Orléans (2007), Patras (2010) and Ankara (2014).

The theme of this Symposium is "**Natural and Anthropogenic Hazards and Sustainable Preservation**" and refers to the natural and anthropogenic hazards on monuments, as well as to the technologies used for damage rehabilitation in the direction of sustainable, long-lasting preservation.

The Symposium addresses research work from restoration engineers, architects, geologists, restorers and conservators of stone artifacts and other specialists in the decay and restoration of monuments, as well as archaeologists, art historians and scientists in the fields of physics, chemistry and biology.

During the 10th Symposium, the **Monubasin Digital Repository (MDR)** will be presented to the participants. The MDR will offer access to all previous Symposiums' proceedings (more than 900 papers) providing various methods of search (e.g. full-text search, by author name, by paper title, by Symposium, etc.). All Symposium participants will have free access to the MDR contents.

Important dates

17/10/2016 **Conference Announcement**
31/01/2017 **Abstract submission deadline**
31/05/2017 **Full papers submission deadline**
20/06/2017 **Early registration deadline**
15/07/2017 **Symposium programme announcement**
20/09/2017 **Symposium starting day**

Call for Extended Abstracts - Papers

Authors are requested to submit extended abstracts on the following topics, after studying carefully Authors Guidelines.

1. Technologies for Damage Rehabilitation and Sustainable Preservation
2. Methodologies for Characterization and Damage Assessment
3. Historical and Structural Aspects of Monuments
4. Natural and Anthropogenic Damage Hazards
5. Digital Techniques for Cultural Heritage
6. Planning and Cultural Heritage Management

Please visit the site: <http://conference2017.monubasin.com/>

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

POST-DOCTORAL RESEARCH ASSOCIATE
FOR LEVERHULME PROJECT: PEOPLE AND
PLACE: THE MAKING OF THE KINGDOM
OF NORTHUMBRIA AD 300-800

We are looking for someone to join our project:

The postholder under the supervision of the Co-Investigators, will be one of 3 Research Associates based in the Department of Archaeology at Durham University working as a team to engage in key aspects of the project. This post will involve the osteological and isotopic analysis of skeletal assemblages curated in a variety of regional museums in Scotland and the north of England. The post will involve travel for the purpose of analysing, sampling and acquiring datasets. Tasks will include the full osteological and palaeopathological analysis of human skeletal assemblages, the sampling and preparation of bones and teeth for isotope analysis of strontium, oxygen, carbon and nitrogen, coordinating a programme of radiocarbon dating, and the integration and interpretation of these skeletal data-sets with funerary evidence in order to explore questions of diet, mobility, health and social identity. The post-holder will assist PDRA 3 to integrate scientific data within the GIS and will contribute to the creation and publication of all journal papers and the project monograph. The post-holder will support PDRA 1 and 3 in delivering conference papers and will support the PI in the production of annual reports to relevant funding bodies.

https://recruitment.durham.ac.uk/pls/corehrrecruit/erq_jobspec_details_form.jobspec?p_id=003942

Best wishes
Andrew

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w: <https://www.dur.ac.uk/archaeology/staff/?id=160>
<https://www.dur.ac.uk/imems/>

Director of the Institute of Medieval &
Early Modern Studies, and
Senior Lecturer in Archaeology,
Durham University, UK

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

ANNOUNCING A NEW OPPORTUNITY FOR FUNDING! THE ROBIN HÄGG GRANT

For the first time the Robin Hägg Fund is offering a grant through the INSTAP Study Center for East Crete to support postdoctoral research in Greece focusing on Aegean Prehistory. Candidates from all countries who have completed their doctorate within the past eight years and are under forty years of age are eligible to apply. Applications must be received by e-mail no later than **31 January 2017**. Please consult the INSTAP Study Center's website for the guidelines and application form: www.instapstudycenter.net.

In addition to the completed application form, proposals should include a *curriculum vitae* of the applicant, a 2-page description of the project that emphasizes the importance of working in Greece, relevant bibliography, copies of appropriate permits, and one letter of support from a colleague. Please send your application and required information as attachments to elizabethshank@hotmail.com.

The grant will be administered by the INSTAP Study Center for East Crete and is intended to provide supplementary income for researchers who are either exploring new fields of study or finishing research. The amount of the award is 1,500 € which can be applied to travel or living expenses, but should not be used as salary or for the purchase of equipment (e.g., cameras or computers).

Consideration for the fellowships is open to all candidates meeting the stated requirements. Awards are made irrespective of race, gender, religion, national origin, age, disability, marital status, sexual orientation, and actual or perceived medical conditions. It is possible that in the absence of qualified candidates with appropriate projects, a fellowship will not be awarded.

A committee consisting of representatives from INSTAP, the Swedish Institute at Athens, and the Department of Classical Archaeology and Ancient History at the University of Gothenburg is responsible for announcing the availability of grants and evaluating the applicants.

The *Robin Hägg Memorial Fund* is a research fund that has been created in memory of Robin Hägg, in accordance with his own wishes. It is administered by the INSTAP Study Center for East Crete and the Swedish Institute at Athens,

The fund remains open for contributions, which can be made through the SEB bank account of the Swedish Institute at Athens 5811-3313400 (IBAN: SE1150000000058113313400 and Bic ESSESESS for donations from outside Sweden). All donations should be marked "Robin Hägg".

It is also possible to send a check to INSTAP. Checks should be made out to the *Institute for Aegean Prehistory Study Center for East Crete* and sent to:

INSTAP Study Center for East Crete

c/o Elizabeth Shank
INSTAP US Coordinator for East Crete
2133 Arch Street
Suite 300
Philadelphia, PA 19103
USA

INTRODUCTION TO CERAMIC PETROLOGY **COURSE, 15-26 MAY 2017, THE FITCH** **LABORATORY, ATHENS, GREECE**

From 15-26 May 2017, the Fitch Laboratory will hold a two-week postgraduate training course providing an introduction to ceramic petrology, building upon the Laboratory's expertise on ceramic petrology applications and its extensive reference collections of geological and ceramic thin sections.

The course is designed for people with no (or limited) previous experience on petrology although familiarity with archaeological ceramics will be useful. It is an excellent introduction for students already on a research degree in archaeological materials, as well as for postdoctoral researchers and academics interested in being familiar with ceramic petrology applications. Although the focus is primarily with ceramic materials, the skills learnt are applicable to the study of lithics, building materials, pigments and soils.

The course comprises daily lectures and practicals introducing to optical polarizing light microscopy, the identification of main rock-forming minerals, the classification of rock types, the use and interpretation of geological maps and, subsequently, the analysis of ceramic thin sections to reconstruct provenance and technology. The participants are also introduced to the principles of chemical analysis of ceramics (with a critical review of the most commonly used techniques involving both desktop and portable equipment) and the combined use of chemical and petrographic data. Moreover a demonstration is held on the preparation of thin sections as well as of samples for chemical analysis. Furthermore, a field class to Aegina, including a visit to a traditional pottery workshop, provides practical experience on prospection for pottery raw materials and sampling, as well as contemporary potting practices. Towards the end, each participant has the opportunity to undertake a case study project. In total, the course includes 20 hours of lectures, 28 hours of laboratory practicals, 11 additional contact hours for project accomplishment, plus a day-fieldtrip.

A course manual and a fieldtrip guide are provided for participants covering all aspects of the course and further reading, and a certificate of attendance is issued for each participant upon course completion. The course co-coordinators and instructors are Dr **Evangelia Kiriatzi** (Director, Fitch Laboratory) and Dr **Ruth Siddall** (Senior Lecturer, Earth Science/Dean of Students, UCL) with contributions by Dr Noemi Müller (Scientific Research Officer, Fitch Laboratory), Dr John Gait (Williams Fellow in Ceramic Petrology, Fitch Laboratory) and Mr Michalis Sakalis (Technician, Fitch Laboratory).

Course Fee: The course fee includes tuition, B&B accommodation for 13 days, fieldtrip expenses, all teaching materials, BSA membership for a month including 24 hour access to the superb library and entry to archaeological sites and museums in Greece, plus daily coffee and biscuits, packed lunch for the fieldtrip and a welcome and a farewell meal. The fee is £900 (for shared accommodation in double rooms) or £1100 (for single accommodation). Self-catering accommodation (including breakfast) will be provided at the BSA Hostel, adjacent to the Fitch Laboratory building.

(http://www.bsa.ac.uk/index.php?option=com_content&view=article&id=46&Itemid=146).

Travel to and from Athens and health insurance are the sole responsibility of the course participant.

The course is limited to 12 places. Selection will be based on the applicant's academic profile, experience in ceramic studies, potential contribution of ceramic petrology to the applicant's research and career plans as well as references/support letters. The successful candidates will be informed by mid-March 2017. Post-graduate students are recommended to apply to their universities for financial support; limited funding will be available (to cover part of the fees) **only** for students who would otherwise be unable to attend and they should express their interest in such financial support in their application.

Applications forms can be downloaded from the BSA website. Applications should be submitted to the Fitch Laboratory administrator, Ms Zoe Zgouleta via e-mail (zoe.zgouleta@bsa.ac.uk).

Closing date: **12 February 2017**. References must also be received by then through e-mail: it is the applicant's responsibility to ensure that the references are sent.

For further information, please check the relevant sections on the British School at Athens web pages (<http://www.bsa.ac.uk/>) or contact either of the two course coordinators, Dr Evangelia Kiriatzi (e.kiriatzi@bsa.ac.uk) or Dr Ruth Siddall (r.siddall@ucl.ac.uk).

Zoe Zgouleta
Fitch Laboratory Administrator
British School at Athens
52 Souedias Str.
Tel: ++30 211 10 22 830 / Email: zoe.zgouleta@bsa.ac.uk

INTERNET SITES

NEW ONLINE REPOSITORY OF MAPS AND GEOSPATIAL DATA FOR THE MIDDLE EAST

The Center for Ancient Middle Eastern Landscapes (CAMEL Lab) at the Oriental Institute of the University of Chicago would like to announce that a substantial subset of its digital holdings of maps and geospatial data are now available for online public search and download.

Thanks to the funding of a 2014-2016 IMLS grant, geo-referenced versions of historical and modern maps and satellite imagery have been included in the Oriental Institute's ever-expanding Integrated Database, available at <https://oi-idb.uchicago.edu>. To access maps and geospatial data specifically, choose "CAMEL" from the first drop-down list.

The Integrated Database does not yet include a spatial search function or map interface. For tips on how to use text-based queries to locate specific datasets, see <http://oicollectionsearch.wikispaces.com/home>. Once you have located a georeferenced dataset of interest, an interactive map with up-to-date satellite imagery embedded in the dataset's page will allow you to see the spatial coverage of the dataset.

CAMEL (<https://oi.uchicago.edu/camel>) is a research laboratory at the Oriental Institute of the University of Chicago that is dedicated to the long-durée study of Middle Eastern landscapes, environments and cultural heritage, primarily through archaeological fieldwork, satellite imagery analysis, and spatial analysis within Geographical Information Systems (GIS).

CAMEL's database includes over 20,000 unique objects of spatial data that relate to the archaeology, anthropology, and history of the Middle East, almost 9000 of which are now publicly available. The main strengths of our collection are:

- Digitized and georeferenced versions of historical maps held by the Oriental Institute
- Historical aerial photographs of particular archaeological sites and landscapes
- Georeferenced historical satellite imagery covering large swaths of the Middle East, primarily from the Cold War-era Corona spy satellite program

For questions and comments, please contact the CAMEL director, Emily Hammer (<mailto:ehammer@uchicago.edu>) or Foy Scalf, Head of the Integrated Database Project (<mailto:scalffd@uchicago.edu>).

Please visit the site: <https://oi.uchicago.edu/article/new-online-repository-maps-and-geospatial-data-middle-east>

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS
JOURNAL OF LITHIC STUDIES, VOL 3, NO 3
(2016)

DOI: <http://dx.doi.org/10.2218/jls.v3i3>

Journal of Lithic Studies. (2016) Volume 3, Number 3.

Proceedings of the 1st Meeting of the Association for Ground Stone Tools Research
University of Haifa, July 2015

With guest editors Danny Rosenberg, Yorke Rowan, and Tatjana Gluhak.

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Irina Usacheva

ISSN 2055-0472 (Online)

NEW ISSUE OF BASOR FREE ACCESS **ARTICLE**

With each new issue of BASOR, we will feature an article for a week and offer free access to the article.

This week's article is:

Tel Dor and Iron Age IIA Chronology
Nadav Na'aman of Tel Aviv University.

<http://asorblog.org/tel-dor-iron-age-ii-a-chronology/>

The article discusses the date and historical background of the transfer of Tel Dor from Phoenician to Israelite hands. Archaeologically, the transfer was peaceful and took place in the late Iron Age IIA. Na'aman suggests that it happened under the reign of either Omri or Ahab, at a time when Israel expanded on all fronts. Either Tel Dor was endowed as a dowry on the occasion of Jezebel's marriage to Ahab (cf. 1 Kgs 9:16), or the king of Israel purchased it as part of his alliance with Tyre (cf. 1 Kgs 9:11–14). Dating the Israelite–Tyrian alliance helps establish the date of the transition between the early and late Iron Age IIA.

EΙΔΗΣΕΙΣ - NEWS RELEASE

ANCIENT SHELLFISH USED FOR PURPLE DYE VANISHES FROM EASTERN MED - RED-MOUTHED ROCK SHELL WAS ONE OF MAIN SOURCES OF TYRIAN PURPLE AND STUDY BLAMES ITS COLLAPSE ON RISING SEA TEMPERATURES

The shellfish that was one of the main sources of Tyrian purple – one of the most storied and valuable trading products in the ancient world – has disappeared from the eastern Mediterranean coast, amid warnings of an ongoing multi-species collapse blamed on global rises in sea temperatures.

Described by Aristotle and Pliny among other ancient writers, Tyrian purple or imperial purple was a dye extracted from shellfish along the Levant coast and favoured by emperors and kings in a trade of huge value. Associated with royalty, clothes with purple in them were believed to convey high status.

A new Israeli survey of shallow water Mediterranean habitats has noted the almost total disappearance of *stramonita haemastoma* – the red-mouthed rock shell – which was one of the two main sources of the dyes.

In a survey for Nature’s Scientific Reports, the Israeli marine biologist Gil Rilov identified the mollusc as one of a number of species to have vanished in recent decades from shallow eastern Mediterranean coastal waters highly vulnerable to sharp temperature changes.

Rilov said coastal waters were a “potential hotspot” for species collapse and present-day surveys had failed to find 38 of 59 mollusc species once common on Levant reefs. In addition, he said he found strong evidence for major, sustained population collapses of two urchins, one large predatory gastropod and a reef-building gastropod.

“Temperature trends indicate an exceptional warming of the coastal waters in the past three decades,” he wrote. “Though speculative at this stage, the fast rise ... may have helped push these invertebrates beyond their physiological tolerance limits leading to population collapses and possible extirpations.

“If so, these collapses may indicate the initiation of a multi-species range contraction at the Mediterranean south-eastern edge that may spread westward with additional warming.”

Among the species identified by Rilov as having almost entirely disappeared from areas in Israel and elsewhere in the region where it once existed was the red-mouthed rock shell.

“In all ... surveys conducted along the entire coast over the past seven years not a single live individual was recorded, and only three very large and seemingly old individuals were found in a shallow artificial lagoon at Akko [also known as Acre, in Israel] in 2010.”

The mollusc was one of the two major shellfish sources of the dye, which formed an ancient trade that was centred on the Levantine coast around the city of Tyre in modern-day Lebanon, from where it took its name. The dye’s origin was shrouded in mythology, not least the suggestion it was discovered by Heracles’ dog after it ate the shellfish and its mouth turned purple.

The dye was hugely valuable because it has been estimated that it took thousands of shells to produce a single kilo. It was produced by collecting thousands of dye-producing molluscs, crushing them and allowing them to rot in large vats before the colour was boiled out.

Rilov’s survey confirms other recent research describing the risk of sharply rising sea temperatures in the eastern Mediterranean basin.

Please visit the site:

<https://www.theguardian.com/environment/2016/dec/05/ancient-shellfish-red-mouthed-rock-shell-purple-dye-vanishes-eastern-med>

RESTORED SUBURBAN BATHS OF POMPEII **PROVIDE A GLIMPSE INTO THE EROTIC** **SIDE OF ROMAN AFFAIRS,** **BY DATTATREYA MANDAL**

The so-named Suburban Baths of Pompeii were probably constructed some time around the end of the 1st century BC, with their location against the city walls north of the Porta Marina. And as the name suggests, they served as a public thermal complex corresponding to the Julio-Claudian age. But beyond their functionality, these baths have also served as legacies of the Roman world, especially with their artworks mirroring many of the ‘hidden’ social and cultural aspects of the burgeoning empire. To that end, Professor Massimo Osanna, Superintendent of the Archaeological Site of Pompeii, has recently agreed to give public access to some of the recently restored Suburban Baths – known for their erotic frescoes.

Now beyond sensationalism, the artworks when viewed objectively, do reflect a slice of sexual history shared by the Romans, at a time when they were arguably at their apex in terms of political power and influence. According to the scholars, these frescoes used to decorate the apodyterium or dressing room, and probably were drawn to give a ‘snapshot’ of the services provided by the prostitutes in the establishment. These ‘benefits’ were offered in the private upstairs, while the brothels were frequented mostly by the rich merchants who traveled and plied their trade in the important hub of Pompeii.

And since we are talking about history, like most of Pompeii, the Suburban Baths were also destroyed by the calamitous eruption of Vesuvius on August 24, 79 AD. And ironically, the consequent volcanic ash (and pumice) rather aided in preserving many of the explicit frescoes, along with the numerous structural elements of the ancient Roman city. And by the later half of the 20th century (and in the recent years), most sections of the thermae had been successfully restored by archaeologists.

Please visit the site: <http://www.realmofhistory.com/2016/11/26/restored-suburban-baths-pompeii-roman/> [Go there for pix]

RESEARCHERS MAY HAVE FOUND FIRST POLLUTED RIVER FROM BEFORE BRONZE AGE

Industrial pollution may seem like a modern phenomenon, but in fact, an international team of researchers may have discovered what could be the world's first polluted river, contaminated approximately 7,000 years ago.

In this now-dry riverbed in the Wadi Faynan region of southern Jordan, Professor Russell Adams, from the Department of Anthropology at the University of Waterloo, and his colleagues found evidence of early pollution caused by the combustion of copper. Neolithic humans here may have been in the early stages of developing metallurgy by learning how to smelt.

The research findings, published in *Science of the Total Environment*, shed light on a turning point in history, when humans began moving from making tools out of stones to making tools out of metal. This period, known as the Chalcolithic or Copper Age, is a transitional period between the late Neolithic or Stone Age and the beginning of the Bronze Age.

"These populations were experimenting with fire, experimenting with pottery and experimenting with copper ores, and all three of these components are part of the early production of copper metals from ores," said Adams. "The technological innovation and the spread of the adoption and use of metals in society mark the beginning of the modern world."

People created copper at this time by combining charcoal and the blue-green copper ore found in abundance in this area in pottery crucibles or vessels and heating the mixture over a fire. The process was time-consuming and labour-intensive and, for this reason, it took thousands of years before copper became a central part of human societies.

Many of the objects created in the earliest phase of copper production were primarily symbolic and fulfilled a social function within society. Attaining rare and exotic items was a way in which individuals attained prestige.

As time passed, communities in the region grew larger and copper production expanded. People built mines, then large smelting furnaces and factories by about 2600 BC. "This region is home to the world's first industrial revolution," said Adams. "This really was the centre of innovative technology."

But people paid a heavy price for the increased metal production. Slag, the waste product of smelting, remained. It contained metals such as copper, lead, zinc, cadmium, and even arsenic, mercury and thallium. Plants absorbed these metals, people and animals such as goats and sheep ate them, and so the contaminants bioaccumulated in the environment.

Adams believes the pollution from thousands of years of copper mining and production must have led to widespread health problems in ancient populations. Infertility,

malformations and premature death would have been some of the effects. Researchers have found high levels of copper and lead in human bones dating back to the Roman period.

Adams and his international team of researchers are now trying to expand the analysis of the effects of this pollution to the Bronze Age, which began around 3200 BC. The Faynan region has a long history of human occupation, and the team is examining the extent and spread of this pollution at the time when metals and their industrial scale production became central to human societies.

Explore further: Bacterial resistance to copper in the making for thousands of years

More information: J.P. Grattan et al, The first polluted river? Repeated copper contamination of fluvial sediments associated with Late Neolithic human activity in southern Jordan, Science of The Total Environment (2016). DOI: 10.1016/j.scitotenv.2016.08.106

Please visit the site: <http://phys.org/news/2016-12-polluted-river-bronze-age.html>

MUMMIFIED LEGS ARE NEFERTARI'S

A pair of mummified knees are most likely those of the famously beautiful spouse of Pharaoh Ramses II, who died around 1250BC, say scientists

A pair of mummified knees found in a tomb in Egypt's Valley of the Queens are most likely those of Queen Nefertari, the royal spouse of Pharaoh Ramses II, say archaeologists.

Thought to have died around 1250 BC, Nefertari was the favourite consort of Ramses the Great, and was famed at the time for her beauty.

“[Her] main role [was] to be the decorative bystander when Ramses was flexing his pharaonic muscles at public events, and she was there as the eye candy,” said Joann Fletcher from the University of York, a co-author of the research published in the journal PlosOne. “But really, [she was] a striking woman who I think exerted a quiet power behind the throne.”

Nefertari's lavish tomb was discovered in 1904 – the walls covered in beautiful paintings, although the tomb itself had been looted long before. But it was unclear whether the fragmented, mummified legs discovered among the remaining contents did indeed belong to the queen.

When Nefertari's tomb was discovered in 1904 it was unclear whether the fragmented, mummified legs belonged to the queen.

“There is a long, long history certainly in that part of Egypt around the Valley of the Queens, the Valley of the Kings and the nobles' tombs - you have repeated reuse of many burial sites, so lots of tombs were reused in later times,” said Fletcher. “You have got the effects also of very occasional but dramatic flash floods, when all sorts of material can be washed into tombs – so while things are found in a tomb it doesn't necessarily follow that the human remains that you are finding are those of the individual portrayed in there and on the tomb walls.”

In an attempt to resolve the question, Fletcher and an international team of researchers carried out a host of tests on the remains– currently housed in the Egyptian museum in Turin, Italy – including radiocarbon dating, x-rays of the legs, comparison of the knees with ancient and modern samples, and an investigation of the chemistry of the embalming agents.

“Having studied the woman, and having looked at so many images of her beautiful face, I think there is a sense of immense irony that physically this is what we have got,” said Fletcher. “She has been reduced to knees. But because we don't give up – it's like: ‘we have got the knees, well, let's do what we can with them.’”

The results reveal that remains belong to a woman probably aged around 40 to 50 years, who appears to have had a high social status. “The expertise that had gone into that mummification – even judging from the legs – the care, the attention, the wrapping, the

materials employed; they are strongly suggestive someone of incredibly high status,” said Fletcher.

Together with the chemistry of the embalming agents, and analysis of various objects found in the tomb, the authors say the evidence suggests the knees are indeed those of Nefertari.

But not everyone is bowled over by the conclusion. As Christopher Eyre, professor of Egyptology at the University of Liverpool points out, no information could be gleaned from the team’s ancient DNA analysis, comparisons to other knees can be problematic and, in any case, the knees were largely assumed to belong to Nefertari.

Please visit the site: <https://www.theguardian.com/science/2016/dec/02/mummified-knees-are-queen-nefertaris-archaeologists-conclude>

BITUMEN FROM MIDDLE EAST **DISCOVERED IN 7TH CENTURY BURIED** **SHIP IN UK - PRESENCE OF RARE TAR-LIKE** **MATERIAL MAY SUGGEST TRADE** **BETWEEN MIDDLE EAST, BRITISH ISLES**

Middle Eastern Bitumen, a rare, tar-like material, is present in the seventh century ship buried at Sutton Hoo, according to a study published in the open-access journal PLOS ONE on December 01, 2016 by Pauline Burger and colleagues from the British Museum, UK and the University of Aberdeen.

The seventh century ship found within a burial mound at Sutton Hoo, UK was first excavated in 1939 and is known for the spectacular treasure it contained including jewellery, silverware, coins, and ceremonial armour. The site is thought to be an example of the European ship-burial rites of the time, and also includes a burial chamber where a corpse was likely laid. Fragments of black organic material found in this chamber were originally identified as locally-produced 'Stockholm Tar' and linked to repair and maintenance of the ship. The authors of the present study re-evaluated these previously-identified samples, as well as other tar-like materials found at the site, using imaging techniques and isotopic analysis and found the samples had been originally misidentified.

By comparing the samples from Sutton Hoo to various reference materials, the researchers' analysis revealed that the previously-identified 'Stockholm Tar' lumps actually displayed the molecular and isotopic characteristics of archaeological bitumen, and specifically bitumen from the Middle East rather than from a local British source. Archaeological finds of bitumen from this period in Britain are extremely rare and the authors state that this finding is the first material evidence for trading of Middle Eastern bitumen northwards into the British Isles.

While the original form and purpose of the bitumen could not be discerned from the remaining fragments, the authors suggest that it may have been included deliberately in the burial chamber, possibly the remaining components of ornamental objects adorning the grave, or perhaps included as a prestigious raw material.

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In your coverage please use this URL to provide access to the freely available paper:
<http://journals.plos.org/plosone/article?id=info%3Adoi/10.1371/journal.pone.0166276>

Citation: Burger P, Stacey RJ, Bowden SA, Hacke M, Parnell J (2016) Identification, Geochemical Characterisation and Significance of Bitumen among the Grave Goods of the 7th Century Mound 1 Ship-Burial at Sutton Hoo (Suffolk, UK). PLoS ONE 11(11): e0166276. doi:10.1371/journal.pone.0166276

Funding: This research was supported by funding from the European Commission Research Executive Agency (REA) via the Marie Curie Actions - Intra-European

Fellowships for Career Development funding scheme (FP7-MC-IEF), Grant Agreement No. 253942, awarded to PB and RJS for project AMPT (Ancient Maritime Pitch and Tar: a multi-disciplinary study of sources, technology and preservation). The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Please visit the site: https://www.eurekalert.org/pub_releases/2016-12/p-bfm112316.php [Go therefor pix]

**TRIBE OF DAN: SONS OF ISRAEL, OR OF
GREEK MERCENARIES HIRED BY EGYPT?
SAMSON THE GREEK? 3,000-YEAR-OLD
FINDS AT TEL DAN SUGGEST THAT THE
DANITES WERE AEGEAN SOLDIERS HIRED
BY CANAAN'S EGYPTIAN OVERLORDS TO
KEEP ORDER,
BY PHILIPPE BOHSTROM**

The Tribe of Dan, one of the 12 "Israelite tribes," may have started as no such thing. New archaeological evidence suggests that the Danites originated with mercenaries hired from the Aegean and Syria by the Egyptian overlords of Canaan to keep order.

According to the bible, after the Israelites conquered Canaan, the land was split between the tribes - with the exception of the tribe of Dan. Bitter at their lot, the tribe went northward, conquered and destroyed the city of Laish (also called Leshem), then rebuilt it and renamed it after their ancestor (Judges 18:1-29).

"And the coast of the children of Dan went out too little for them: therefore the children of Dan went up to fight against Leshem, and took it, and smote it with the edge of the sword, and possessed it, and dwelt therein, and called Leshem, Dan, after the name of Dan their father" (Joshua 19:47).

Tell el-Qadi had been identified previously as the biblical city of Dan. Now recent excavations have uncovered a large neighborhood from the 12-11th century B.C.E. that shows compelling Aegean influences.

The discoveries have rekindled a longstanding academic brawl over the origin of the Danites. Were they really just a tribe of Israel that was left in the cold, found a conveniently isolated city and conquered it? Do they have anything to do with a mysterious kingdom called Danuna mentioned in ancient writing found in Turkey? Or maybe with the Denyen - a faction of invading Sea Peoples, according to ancient Egyptian sources? Or with the Danaoi, one of the Greek tribes? Or are these all one and the same? The findings at Tell el-Qadi (now Tel Dan) suggest they could well be.

The city of Dan was built on a mound near the southern foot of Mount Hermon, the tallest mountain in the Golan Heights. Certainly by the standards of the arid Middle East, the area is lush and fertile, well-watered by natural springs. The city's position was also strategic, smack on a key trading route between Tyre and Damascus.

The first settlement there dates back 7,000 years, to the Neolithic period. Among the earliest mentions of the city are Egyptian and Mesopotamian texts going back nearly 4,000 years, to the 19th century B.C.E. The site remained more or less continuously occupied through to the end of the Roman period

By the Middle Bronze Age, around 2000 B.C.E., it had become a mighty city, surrounded by massive ramparts, called Laish (La-EESH). By the Late Bronze Age, Laish had established sprawling trade connections with the countries and coastal cities throughout the eastern Mediterranean, including Sidon and Tyre to the north, Egypt to the south, and to the west, Cyprus - and Mycenaean Greece.

Aegean influences: Weapons and gods

Laish's ties with the Aegean seem to have been strong as far back as the 14th century B.C.E., as attested by the discovery of a tomb built with rough stones in a style akin to that found in Enkomi, in today's Cyprus, and in Ugarit, on the coast of today's northern Syria.

In the tomb, the archaeologists found more than 100 ceramic vessels that proved, by chemical analysis, to mostly originate in the Argolid in Greece, the center of Mycenaean culture during the Bronze Age.

This was a time in which the Egyptians were expanding northwards. As Canaan became a province of Egypt, Laish became part of their administrative system.

The excavations at Tel Dan began in 1966 under the direction of Avraham Biran and continued until 1999. After a hiatus of several years, Dr. David Ilan of the Hebrew Union College renewed excavating and, based on old material and new findings, he began to suspect that an old theory about Danite origins, first proposed by Michael Astour and Yigal Yadin in the 1960s, might be right, though their idea was at odds with the biblical narrative. Namely, that the Danites didn't begin as a tribe of Israel at all, but originated in the Aegean world.

Among the Aegean influences in the city of Dan, Ilan identified pithoi (large storage vessels) in several of the houses, along with pottery, figurines and ritual items originating in the Aegean, Syria and Egypt.

The finds indicate that the peoples living in Dan were a mixed bunch who brought their eating habits, grooming practices, weapons of choice, and their gods with them to the city.

Cultic chamber with bird bowl

Among the more tantalizing discoveries was a modest rectangular building containing a small chamber-a holy-of-holies-in the corner. Ilan has identified this as a cultic structure of a type common in the Aegean. Similar buildings have been found in Enkomi and Kition in Cyprus, and at Phylakopi, on the island of Milos in Greece; locally, the same type was found at the Philistine site of Tel Qasile (in Tel Aviv).

Inside the putative sanctuary in Dan were fragments of a ceramic bowl to which a ceramic bird's head was attached, called a "bird bowl". A similar find was made at Tel Qasile (this is a good point to note that the Philistines who lived there are also thought by some to be of Aegean origin).

The excavators at Dan also found vessels decorated with Aegean-style birds, chalices, offering bowls, a model silo, and curious brain-shaped stones that may have been used in ritual.

Ilan postulates that these Aegean-style artifacts in Dan suggest the presence of worshippers hailing from the Aegean—perhaps the Denyen, Danuna (or Danaoi in Greek), in short, one of the ancient Greek tribes. The Denyen/Danuna were also one of the so-called "Sea Peoples" of Aegean origin who invaded Egypt, as described in Ramesses III's mortuary temple relief (1175 B.C.E.).

Surrounding the putative cultic structure, the excavators uncovered an industrial area featuring furnaces, crucibles, blowpipe nozzles, scrap metal, and slag from bronze smelting.

"We found all kinds of broken objects from the Middle and Late Bronze Ages that they melted and recast into new bronze objects, tools and weapons," Ilan says. "They were scavengers and recyclers who were desperate for metal. These were crisis years."

The mysterious proliferation of 'Dan'

Whether or not the Danites of ancient Israel originated in a Sea People will take more proving. Meanwhile, we can say that a slab carved in Luwian script from the 8th century B.C.E., some 2800 years ago, discovered in southern Turkey, attests to the existence of a Danunian Kingdom.

Elsewhere, in a letter found in the El-Amarna archives (written to Pharaoh Amenhotep IV), the king of the Phoenician city of Tyre mentions a country called Danuna.

Given the indications of very strong cultural ties between Dan and the Aegean world, Ilan believes that Michael Astour and Yigal Yadin were correct: the people of Dan originated, at least in part, with the Denyen/Danuna/Danaoi of the Aegean coastal region, probably in the coastal region where Turkey and Syria meet today.

"The most famous Danite in the Bible is Samson, a quite essential archetype of a Greek hero: He is very strong, his power resides in his long hair, he tells riddles and he hangs out with Philistine women," Ilan points out.

Yet more oblique evidence may be found in the song of Deborah, describing the tribes' various roles: "And Dan, why did he stay with the ships," (Judges 5:17). Dan was apparently the only Israelite tribe that had ships, and was conspicuously absent from giving support to Barak against the forces of Sisera. The writer of Judges seems to hint that the Danites originated elsewhere and were different from the other tribes.

The arrival of the Danuna mercenaries

If Aegean mercenaries came to Dan, they would have been hired. The ones who would have hired them were the Egyptian overlords of Canaan, to help them keep order in the land.

Archaeological evidence of ancient Egyptian control over Canaan has been found throughout Israel.

The Egyptians began raiding the Canaanite lands for plunder and slaves in the 15th century B.C.E., though there was a hiatus in the 14th century: Egypt was undergoing a period of instability and seems to have neglected this area, allowing the Hittite kingdom, based in what is now modern Turkey, to become a major player in the region.

Recognizing this threat in the 13th century B.C.E., the Egyptians seemed to have changed their policy in Canaan.

"The Egyptians were worried about the Hittites in the north, who were expanding, encroaching on their borders and making deals with vassal kings in Syria and Lebanon," Ilan explains.

Instead of having local proxy rulers, who tended to be unreliable and rebellious, the pharaohs decided to meet the mounting threat of the Hittites by establishing a series of small forts and administrative residences across Canaan. Aside from that at Beth Shean, these have been found in the archaeological sites of Tel Afek, Deir al-Balah, Tel Sharia, and in Tel Lachish.

In Tel Dan itself, the archaeologists found Egyptian cooking pots, a razor blade, and "practice arrowheads" made out of bone that look Egyptian, Ilan told Haaretz. He believes that Laish (Dan) was under Egyptian control during much of the Late Bronze Age.

But the outposts of the Egyptian empire were not manned solely by Egyptians, Ilan believes. They staffed these places with professional soldiers from the Aegean, Cyprus, Syria, Turkey, Libya, Nubia, and other countries. Much like Roman legionnaires, these soldiers would commit to serve the Egyptian crown for life. And like the legionnaires, they may have been given land grants at the end of their service.

This system of rule was highly advantageous to the Egyptians, since the foreigners had no allegiance to the local population, allowing the Egyptians to maintain a "Pax Egypta".

"This would explain the layers of mixed cultural material at Tel Dan, with elements from Syria, Egypt, Cyprus, and the Aegean," says Ilan. "We also have dozens of Egyptian cooking pots! These people served the Egyptians and the Egyptian army but they also included merchants doing business," he adds.

As is the nature of things, Ilan believes that these foreigners married local Canaanite women, a theory supported by the local (Canaanite) cooking vessels found inside the houses. And their children were something new.

But in the late 12th century B.C.E, in part of a thundering collapse of civilization throughout the Middle East, the Egyptians withdrew from Canaan. The erstwhile mercenaries, however, remained. David Ilan believes that these people who stayed behind at Tel Dan-Danuna, Egyptians, Canaanites and various other hybrid people-created a new amalgam society, and it is these who would become the Danites of biblical lore.

Please visit the site: <http://www.haaretz.com/jewish/archaeology/1.756385> [Go there for pix]

ISRAELI ARCHAEOLOGISTS REVEAL PREHISTORIC MAN'S PLANT-BASED DIET, BY YORI YALON

Study reveals ancient humans' diet in Paleolithic era was mostly plant-based, countering common claim that ancient humans' diet was protein-heavy • Scientific journal dubs Israeli study as "earliest known archive of food plants."

Remains of plants believed to be 780,000 years old were unearthed during excavations at Gesher Benot Yaakov, a Stone Age archaeological site in the Hula Valley in northern Israel. The discovery provides a testimony of our prehistoric ancestors' plant-based diet in the Paleolithic era, countering the common claim that ancient humans' diet was based heavily on animal products.

Professor Naama Goren-Inbar of the Institute of Archeology at the Hebrew University of Jerusalem has long studied findings of hominid crafts in the Levantine corridor, through which hominins migrated from Africa to Europe and Asia. In her study, titled "The plant component of an Acheulian diet: A case study from Gesher Benot Ya'akov, Israel," which was published in the scientific journal Proceedings of the National Academy of Sciences, the extensive research revealed that the more than 20,000 remains of edible plants that were discovered provided evidence of the variety of plants and vegetables available to the prehistoric human.

According to the article, the important discovery is the "earliest known archive of food plants," and the results shed light on prehistoric humans' ability to adapt to new environments as well as colonization beyond Africa. Goren-Inbar and Dr. Yoel Melamed of the Life Sciences Faculty at Bar-Ilan University have identified 55 species of edible plants. "In recent years, we were met with a golden opportunity to reveal numerous remains of fruits, nuts and seeds from trees, shrubs and the lake, alongside the remains of animals and man-made stone tools in one locality," Goren-Inbar said.

"Our region is known for its abundance of plants, but the real surprise was a discovery of plant-based sources in the lake [Hula Lake] itself. We found more than 10 species that grew here in prehistoric times but don't exist today," Melamed said.

The excavation team also found stone tools and animal fossils on site, which, Melamed explains, were preserved due to unique natural conditions.

"The site was submerged underground [in the waterlogged soil of the lake] in humid conditions and lack of oxygen, aided by the fast covering of layers of sediments," Melamed said.

Please visit the site:

http://www.israelhayom.com/site/newsletter_article.php?id=38565

DIRT PROVIDES NEW INSIGHT INTO ROMAN BURIALS

The first scientific evidence of frankincense being used in Roman burial rites in Britain has been uncovered by a team of archaeological scientists led by the University of Bradford. The findings - published today in the Journal of Archaeological Science - prove that, even while the Roman Empire was in decline, these precious substances were being transported to its furthest northern outpost.

The discovery was made by carrying out molecular analysis of materials previously thought to be of little interest - debris inside burial containers and residues on skeletal remains and plaster body casings. Until now, evidence for the use of resins in ancient funerary rites has rarely come to light outside of Egypt.

The samples came from burial sites across Britain, in Dorset, Wiltshire, London and York, dating from the third to the fourth century AD. Of the forty-nine burials analysed, four showed traces of frankincense - originating from southern Arabia or eastern Africa - and ten others contained evidence of resins imported from the Mediterranean region and northern Europe.

Classical texts mention these aromatic, antimicrobial substances as being used as a practical measure to mask the smell of decay or slow decomposition during the often lengthy funeral rites of the Roman elite. But it was their ritual importance which justified their transportation from one end of the empire to the other. Seen both as gifts from the gods and to the gods, these resins were thought to purify the dead and help them negotiate the final rite of passage to the afterlife.

Rhea Brettell from the University of Bradford, whose research is funded by the Arts and Humanities Research Council, was the first to realise that these grave deposits were an untapped reservoir of information which could provide the missing evidence:

"Archaeologists have relied on finding visible resin fragments to substantiate the descriptions of burial rites in classical texts, but these rarely survive," she says. "Our alternative approach of analysing grave deposits to find the molecular signatures of the resins - which fortunately are very distinctive - has enabled us to carry out the first systematic study across a whole province."

These resins were only recovered from burials of higher status individuals, identified from the type of container used, the clothing they were wearing and items buried with them. This is consistent with the known value of frankincense in antiquity and the fact it had to be brought to Britain via what, at the time, was a vast and complex trade route.

University of Bradford Professor of Archaeological Sciences, Carl Heron, who led the research, adds: "It is remarkable that the first evidence for the use of <http://phys.org/tags/frankincense/> in Britain should come from such seemingly unpromising samples yet our analysis demonstrates that traces of these exotic resins can survive for over 1700 years in what others would reject as dirt."

The project was a collaboration between the University of Bradford and specialists at the Anglo-Saxon Laboratory in York, the Museum of London and the Universities of Bamberg and Bordeaux.

Dr Rebecca Redfern, research osteologist in the Centre for Human Bioarchaeology at the Museum of London, said: "This eye opening study has provided us with new and amazing insights into the funerary rituals of late Roman Britain. The University of Bradford's significant research has also rewarded us with further understanding of a rich young Roman lady, used in the study, whose 4th century skeleton and sarcophagus was discovered near Spitalfields Market in the City of London in 1999, making her burial even more unique in Britain."

Please visit the site: <http://phys.org/news/2014-12-dirt-insight-roman-burials.html>

THE ENIGMA OF ITALY'S ANCIENT ETRUSCANS IS FINALLY UNRAVELLED - DNA TESTS ON THEIR ITALIAN DESCENDANTS SHOW THE 'TUSCII' CAME FROM TURKEY, BY JOHN HOOPER

They gave us the word "person" and invented a symbol of iron rule later adopted by the fascists. Some even argue it was they who really moulded Roman civilisation.

Yet the Etruscans, whose descendants today live in central Italy, have long been among the great enigmas of antiquity. Their language, which has never properly been deciphered, was unlike any other in classical Italy. Their origins have been hotly debated by scholars for centuries.

Genetic research made public at the weekend appears to put the matter beyond doubt, however. It shows the Etruscans came from the area which is now Turkey - and that the nearest genetic relatives of many of today's Tuscans and Umbrians are to be found, not in Italy, but around Izmir.

The European Human Genetic Conference in Nice was told on Saturday the results of a study carried out in three parts of Tuscany: the Casentino valley, and two towns, Volterra and Murlo, where important finds have been made of Etruscan remains. In each area, researchers took DNA samples from men with surnames unique to the district and whose families had lived there for at least three generations.

They then compared their Y chromosomes, which are passed from father to son, with those of other groups in Italy, the Balkans, modern-day Turkey and the Greek island of Lemnos, which linguistic evidence suggests could have links to the Etruscans.

"The DNA samples from Murlo and Volterra are much more highly correlated to those of the eastern peoples than to those of the other inhabitants of [Italy]," said Alberto Piazza of the University of Turin, who presented the research. "One particular genetic variant, found in the samples from Murlo, was shared only with people from Turkey."

This year, a similar but less conclusive study that tracked the DNA passed down from mothers to daughters, pointed to a direct genetic input from western Asia. In 2004, a team of researchers from Italy and Spain used samples taken from Etruscan burial chambers to establish that the Etruscans were more genetically akin to each other than to contemporary Italians.

The latest findings confirm what was said about the matter almost 2,500 years ago, by the Greek historian Herodotus. The first traces of Etruscan civilisation in Italy date from about 1200 BC.

About seven and a half centuries later, Herodotus wrote that after the Lydians had undergone a period of severe deprivation in western Anatolia, "their king divided the

people into two groups, and made them draw lots, so that the one group should remain and the other leave the country; he himself was to be the head of those who drew the lot to remain there, and his son, whose name was Tyrrhenus, of those who departed".

It was a Roman who muddied the waters. The historian Livy, writing in the first century BC, claimed the Etruscans were from northern Europe. A few years later, Dionysius of Halicarnassus, a Greek writer living in Rome, came up with the theory that the Etruscans were, on the contrary, indigenous Italians who had always lived in Etruria.

The Lydian empire had by then long since passed into history. Its inhabitants were said by Herodotus to have been the first people to make use of gold and silver coins and the first to establish shops, rather stalls, from which to trade goods. They gave the world the saying "as rich as Croesus" - Croesus was their last king.

Herodotus's story about the drawing of the lots may or may not be true, but the genetic research indicates that some Lydians did, as he wrote, leave their native land and travel, probably via Lemnos, to Italy.

There, they were called "tusci" in Latin. The obvious explanation for this has always been their fondness for building tower-like, walled, hilltop towns like those still to be seen scattered across Umbria and Tuscany.

But the latest conclusions may add weight to a rival, apparently more fanciful, theory that links their name to Troy, the "city of towers" and a part of the Lydian empire. The most likely date for the fall of Troy, as described by Homer, is between 1250 and 1200 BC.

The Etruscans' contribution to Roman civilisation is still debated. They provided Rome with some of its early kings, and maybe even its name.

The "fasces", the bundle of whipping rods around a double-bladed axe that became an emblem of authority for the Romans, was almost certainly of Etruscan origin.

However, not many words in Latin are thought to derive from Etruscan. An exception is "persona" from "phersu".

The Etruscans unquestionably created glorious art. Among their most celebrated works is the so-called Sarcophagus of the Bride and Bridegroom (or Married Couple), which is in a Rome museum. It shows two people with slightly tip-tilted noses and pixie-like features.

It is known the Etruscans tried to predict the future by reading the patterns of lightning. It is thought that they introduced the chariot to Italy. They almost certainly ate good meat. Tuscany is famed for its beef, particularly that from the Chiana valley, which has been celebrated since classical times.

Another recent genetic study, of "chianina" and three other Tuscan cattle strains, found they were unrelated to Italian breeds. Yet matches were found in Turkey and the Balkans, along the supposed route of some of ancient Italy's most enigmatic immigrants.

Timeline

1200BC First traces of Etruscan civilisation

700BC Etruscans borrow alphabetic writing from Greeks, and become first people in Italy to write

616-579BC Rome ruled by its first, legendary Etruscan king, Lucius Tarquinius Priscus

550BC Etruscan power at zenith. Three confederations hold Po valley and coast south of Rome, heartland of southern Tuscany, and western Umbria. Allied with Carthaginians, Etruscans trade across the Mediterranean

535BC At Alalia, off Corsica, fleet of Carthaginians and Etruscans defeat Greek fleet. But Carthaginians, not Etruscans, assert control over seas

510BC Last Etruscan king, Lucius Tarquinius Superbus, is expelled from Rome

474BC At Cumae, off Naples, Greek fleet defeats Etruscans, who start to lose grip on area south of Rome

396BC Romans capture Veii, an Etruscan settlement north of Rome; destruction of settlement marks start of long period in which Romans gradually annex towns of Etruscan heartland. By start of first century BC, all of Etruria has been absorbed by Rome republic

Please visit the site:

https://www.theguardian.com/world/2007/jun/18/italy.johnhooper?CMP=Share_iOSApp_Other

RARE LATE BRONZE AGE CROWN FOUND IN PIERIA

A rare diadem dated to the later bronze age (1,500-1,200 BC) was brought to light at Pydna Pieria, and will be put of public display at the Archaeological Museum of Dion in central Macedonia. The coronet was unearthed among a trove of other valuable personal items found in the grave of a young girl. It had three layers of jewelries across it and covered the forehead of the skeleton.

The Pieria Archaeological Department will present the rare finding during an event that is scheduled to take place at the Archaeological Museum of Dion. Archaeologist Konstantinos Noulas said the skeleton of the immature girl was found a strongly contacted position in the grave. The skeleton was adorned with numerous jewels and precious items, including a necklace with glass beads and carnelian (a semi-precious stone), a bracelet and three bronze rings, while pottery surrounded the interior of the grave. A bronze umbilical belt was found on the young girl's skeleton, while the cause of her death is still unknown.

The town of Pydna is considered the most significant city in Pieria and one of the most important settlements in Macedonia. The head archaeologist of the excavations on site, Mattheos Besios said nearly 1,100 graves were found in the cemetery outside the northern gates of Pydna from the later bronze age till the Hellenistic period.

Please visit the site: <http://en.protothema.gr/beautiful-later-bronze-age-crown-found-in-pieria/> [Go there for pict]

NEW BIBLICAL TEXT DISCOVERED

Thanks to a grant from the German Research Council (DFG - STU 469/1-1), multi-spectral imaging has revealed never-before-seen Ethiopic text in a palimpsest at the Staatsbibliothek zu Berlin.

Among the manuscripts catalogued by August Dillmann in his 1878 Verzeichnis der abessinischen Handschriften in the Royal (now State) Library of Berlin is one of the few known Ethiopic palimpsests, Petermann II Nachtrag 24, the upper writing of which, datable to the 17th century, includes a commentary on the Book of Revelation. Via funding from the Deutsche Forschungsgemeinschaft (project no. STU 469/1-1, Textkritische Ausgabe und Übersetzung des 1 Henoch) and with the gracious support of the Orientabteilung of the Staatsbibliothek zu Berlin (Curator, Christoph Rauch), it was possible to conduct multi-spectral imaging of the manuscript from 24. October to 4. November 2016.

This work has enabled significant sections of the undertexts to be read, revealing fragments from at least nine earlier codices, the majority of which date to the 14th century and before; several texts contain archaic linguistic features attested in only the earliest stratum of Ge'ez material evidence. Manuscripts represented include Enoch, Acts, an Old Testament lectionary, a homiliary, and multiple hagiographic codices.

The project marked a coming together of several specialist teams:

(a) the Early Manuscript Electronic Library under the direction of Michael Phelps, along with Damianos Kasotakis and image processing specialists Dr. Keith Knox and Prof. Roger Easton (Rochester Institute of Technology);

(b) Mega-Vision, headed by Ken Boydston;

(c) BAM Bundesanstalt für Materialforschung und –prüfung and Centre for the Study of Manuscript Cultures (Universität Hamburg), represented by Prof. Ira Rabin and Ivan Shevchuk; and

(d) Chair of New Testament in the Protestant Faculty of Theology of Ludwig-Maximilians-Universität, Prof. Loren Stuckenbruck, together with research assistant Ted Erho, who brought expertise to the study of the Ethiopic texts.

The video, produced by Ken Boydston of Mega-Vision, provides a beautiful example of results from the photography and imaging of this remarkable palimpsest

Please visit the site: <http://www.nt2.evtheol.uni-muenchen.de/forschung/henoch/new-text/index.html> [Go there for video]

STAINED GLASS EVIDENCE OF HIGH LIVING STANDARDS IN ANCIENT BATHONEA

Nearly 20,000 pieces of glass have been unearthed and evaluated amid excavations at the ancient site of Bathonea on the Küçükçekmece Lake Basin in Istanbul's Avcılar district.

According to archeologists, the glass findings reveal that locals in the area 1,500 years ago had high living standards, using strained glass in buildings as well as window glasses.

Excavations in Bathonea are currently being headed by Associate Professor Şengül Aydıngün from Kocaeli University's Archaeology Department. The finds were evaluated this summer in laboratory, storage and analysis works.

An expert on ancient glass design and the history of glass, Şeniz Atik, the deputy head of excavations, said the excavations unearthed large basilica-like structures and 20,000 glass pieces were found in graves on the coast of Küçükçekmece Lake, as well as numbers of window glasses and golden-gilded mosaic pieces (tesserae).

"Most of the 20,000 glass pieces unearthed in previous years were the ones used in windows. It is remarkable that the region is rich in window glasses used in ancient structures and specially-made thin strained-glasses. These strained-glasses were used as panel and window glasses in important buildings," Atik said.

"We also found lots of mosaic pieces, glass cups, candles, bowls and stemware. Most of the archaeological finds are in good quality. This is a proof that life standards were high here. Some glass bottles found in the region are different from the ones in Anatolia. Considering all this, we believe that some of these glasses were local and some were imported. All these findings are being examined in scrutiny. Since they are too small, they will first be classified and reunited. Then drawings will be made and then they will be defined. It takes a long time to carry out analyses and prepare a publication," he added.

Important production center around Istanbul

Atik, who recently released a publication about the glass pieces extracted in the excavations in Marmaray in Istanbul's Yenikapı, said the Yenikapı finds were similar to the finds in Bathonea.

"This shows that there was an important production center in and around Istanbul. Because Yenikapı was a big port, some of the glasses in Bathonea were possibly imported from there. After the works on the findings are completed, the relations between Bathonea and Istanbul and other cities will be revealed. An important part of the findings are from between the 5th and 7th centuries. This field was also active in the later periods, especially in the 10th and 12th centuries. We also have findings from the late Ottoman period," he said.

Speaking on the importance of specially-cut strained glasses and golden-gilded mosaic pieces, Atik said they drew the conclusion from the archaeological findings of glass from 5th and 7th centuries of Bathonea that living standards were very high.

Please visit the site: <http://www.hurriyeddailynews.com/stained-glass-evidence-of-high-living-standards-in-ancient-bathonea.aspx?pageID=238&nID=106990&NewsCatID=375>

LOST GREEK CITY DATING BACK 2,500 YEARS DISCOVERED BY ARCHAEOLOGISTS, BY SAMUEL OSBORNE

Researchers from the University of Gothenburg and the University of Bournemouth have begun exploring the ruins at a village called Vlochos, around 300km (190 miles) north of Athens.

While some of the ruins were already known, they had been dismissed as part of an irrelevant settlement on a hill, the leader of the team, Robin Ronnlund, said in a statement.

He added: "A colleague and I came across the site in connection with another project last year, and we realised the great potential right away.

"The fact that nobody has ever explored the hill before is a mystery."

The team, which also includes researchers from the Ephorate of Antiquities of Karditsa, found the remains of towers, walls and city gates on the summit and slopes of the hill.

They hope to avoid excavation and use methods such as ground-penetrating radar instead, which will allow them to leave the site in the same condition as when they found it.

During their first two weeks of field work in September, they have discovered an ancient pottery and coins dating back to around 500 BC.

Mr Ronnlund said the city appears to have flourished from the fourth to the third century BC before it was abandoned — possibly because of the Roman conquest of the area.

A second field project is planned for August next year.

He added: "Very little is known about ancient cities in the region, and many researchers have previously believed that western Thessaly was somewhat of a backwater during Antiquity.

"Our project therefore fills an important gap in the knowledge about the area and shows that a lot remains to be discovered in the Greek soil."

Please visit the site: <http://www.independent.co.uk/news/science/archaeology/greece-lost-city-vlochos-university-of-gothenburg-bournemouth-a7471246.html>

ARCHAEOLOGISTS JUST DISCOVERED A 2,500-YEAR-OLD LOST CITY ATOP A GREEK MOUNTAIN PEAK 'THE FACT THAT NOBODY HAS NEVER EXPLORED THE HILL BEFORE IS A MYSTERY', BY SAGE LAZZARO

A few weeks ago, Egyptian archaeologists excavated parts of Abydos, a "lost city" they believe dates back to 5,316 BCE and could have been part of the first capital of one of the earliest Egyptian empires. Now, a similar discovery has been made in Greece.

An international team of Swedish and Greek archaeologists discovered the remains of a former metropolis located 190 miles north of Athens. The 2,500-year-old lost city is buried underground, yet it is high in the sky on the Strongilovoúni hill on the great Thessalian plains.

"A colleague and I came across the site in connection with another project last year, and we realized the great potential right away. The fact that nobody has never explored the hill before is a mystery," Robin Rönnlund, PhD student in Classical Archaeology and Ancient History at the University of Gothenburg and leader of the fieldwork, said in a statement.

At the 99-acre site, towers, walls and city gates can be found on the summit and slopes of the mountain, but hardly anything is visible from the ground below. The discovery of a town square and street grid indicates they've discovered a large city.

But rather than excavate, the team is using ground-penetrating radar, which will enable them to learn from the site without disturbing it. So far this method has been successful and led to the discovery of many of the aforementioned city structures.

"We also found ancient pottery and coins that can help to date the city. Our oldest finds are from around 500 BC, but the city seems to have flourished mainly from the fourth to the third century BC before it was abandoned for some reason, maybe in connection with the Roman conquest of the area," Rönnlund said.

He believes the find can change the view of an area that traditionally has been considered a backwater of the ancient world and provide clues as to what happened during a particularly violent time in Greek history.

Please visit the site: <http://observer.com/2016/12/archaeologists-just-discovered-a-2500-year-old-lost-city-atop-a-greek-mountain-peak/> [Go there for pix and video]

2100-YEAR-OLD WINE PRESS UNEARTHED **AT ASHKELON CONSTRUCTION SITE,** **BY YORI YALON**

Wine press was discovered during an archaeological survey of a site slated for a new elementary school * Excavation director Ilan Peretz: We now know farming existed here much earlier than we thought * Press to be preserved as part of schoolyard.

A real history lesson: An archaeological survey by the Israel Antiquities Authority in preparation for the construction of a new elementary school in Ashkelon has revealed a 2,100-year-old wine press dating from the Hellenistic Period.

The wine press is the oldest one found to date in the area. Alongside the press, excavations uncovered the remains of a large building. The findings appear to indicate that a sizeable farm existed and operated there during the late Hellenistic Period.

The square wine press consists of a flat surface where people trampled wine grapes with their bare feet to extract the juice; a pit used to separate the grape skins from the grape juice; and a collecting vat into which the filtered grape juice was piped. All sections of the press were covered with a thick layer of white plaster mixed with seashells to prevent the liquid from leaking out.

Excavation director Ilan Peretz explained that the building discovered next to the wine press appears to have been used for storing wine jugs and for housing workers.

"Although we knew that there had been extensive agricultural activity, especially wine production, in the area during Roman and Byzantine times, we are now seeing evidence that the farming activity began much earlier than that," Peretz said.

The Israel Antiquities Authority and the Ashkelon Municipality intend to work together on a project that will preserve the wine press in the yard of the school slated to go up on the site and continue archaeological excavations there, with school pupils taking part in the work.

[URL and caption for the picture accompanying the article.]

http://media.israelhayom.co.il/2016/12/14/148169827722450256a_b.jpg

The two-millennia-old wine press discovered at the site of a new elementary school
Photo credit: Assaf Peretz / Israel Antiquities Authority

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Please visit the site:

http://www.israelhayom.com/site/newsletter_article.php?id=38757

NEW EXHIBIT GIVES 9,500-YEAR-OLD JERICHO MAN DIGITAL MAKEOVER - AFTER EXTENSIVE STUDY, BRITISH MUSEUM TO SHOWCASE 3D RECONSTRUCTION OF HEAD THAT WAS FOUND COVERED IN PLASTER NEAR WEST BANK CITY, BY ILAN BEN ZION

Researchers and visitors to the British Museum in London will come face to face with a man buried near Jericho nearly 10,000 years ago for the first time Thursday, thanks to some decidedly modern inventions.

The skull, partly covered by plaster, found near Jericho in the 1950s is the centerpiece of a new exhibit titled "The Jericho Skull: From person to ancestor and back again" that opens Thursday at the British Museum. A 3D-printed reproduction of the original cranium and a reconstruction of the person's face, both products of new research into the ancient artwork, will appear alongside the skull itself.

The skull was one of seven discovered near Jericho by Kathleen Kenyon in 1953, all of which are believed to have served as part of a Neolithic ritual relating to ancestor worship. Other examples are on display in the UK, Canada and Jordan, and at East Jerusalem's Rockefeller Museum.

The plastered skulls found in the Levant, at sites in modern-day Jordan, Israel, Syria and the West Bank, are considered some of the earliest examples of sculptured portraiture.

The digital reproductions are the culmination of new high-tech examinations of the artifact. Micro-CT imaging allowed scientists to examine areas of the head previously unseen.

"From this detailed examination, specialists were able suggest this individual was male," the museum said in a statement. "The images also showed that the skull lacked a jaw, his teeth were broken and decayed, and he had broken his nose during his adult life which had healed before he died."

During his childhood, the man's skull was bound and reshaped, and after his death the skull was cut open and filled with soil to support the plaster, a fact previously unobserved.

The CT scan provided imagery for a 3D model, from which researchers reconstructed the man's face.

"There are still some questions left to be answered such as hair or eye color. However the scientific analyses and facial reconstruction means we now understand more about this

individual's appearance and his life-history - further helping us to curate the Jericho Skull with care, respect and dignity," the museum said.

For those unable to make the trip to London to see the exhibit before it closes on February 19, the museum uploaded an interactive digital model of the skull.

Please visit the site: <http://www.timesofisrael.com/new-exhibit-gives-9500-year-old-skull-a-digital-makeover/> [Go there for picx]

PALEOLITHIC TEETH YIELD SOLUTIONS FOR MODERN DENTISTRY

Early human teeth were healthier than modern teeth, says Steinhardt Museum researcher

Among the about 5 million specimens at TAU's Steinhardt Museum of Natural History, Israel National Center for Biodiversity Studies, are hundreds of ancient sets of teeth that are helping shed light on today's most pressing dental problems.

Dr. Rachel Sarig, a dental anthropologist at the Steinhardt Museum and a specialist in orthodontics at TAU's Maurice and Gabriela Goldschleger School of Dental Medicine, is investigating why early human teeth appear to be healthier than contemporary teeth. "Today, 70% of the population suffers from overcrowding of teeth in the mouth, misaligned teeth, jaws that don't fit together and pesky wisdom teeth that need extracting," says Sarig.

According to Sarig, the problem of overcrowding has developed since prehistoric times. "When we look at skulls that date back more than 100,000 years, we see that the teeth are very well aligned," she says. Analyzing mandibles and teeth at the museum's Dan David Center for Human Evolution and Biohistory Research, Sarig and her colleagues are determining the origins of teeth and jaw problems. They are applying their findings to improving modern dental practices.

The planned opening of the Steinhardt Natural History Museum was celebrated at the Annual Gala of the American Friends of Tel Aviv University at the World Trade Center in New York on December 7, 2016. The event honored the Museum's benefactor - the philanthropist, financier and investor, Michael Steinhardt - and was attended by his wife, Judy, and members of the Steinhardt family, as well as by TAU Chairman of the Board Prof. Jacob A. Frenkel; TAU President Prof. Joseph Klafter; AFTAU National Chairman Richard Sincere; Consulate General of New York Dani Dayan; and Chair of the Museum Prof. Tamar Dayan.

The Steinhardt Museum, which evokes Noah's Ark in its architectural design, will tell the story of biodiversity in Israel and the Middle East in recent centuries and the history of mankind over the last million-and-a-half years. Thousands of items from TAU's vast natural history collection will be presented to the public for the first time as part of the Museum's exhibitions. The 9,620 sq. meter building will welcome scientists and students from Israel and around the world, schoolchildren, teachers, nature guides, families and tourists. About 150,000 people are expected to visit annually.

It's all in the diet
Why did modern human's teeth get so cramped?

The TAU team believes that the overcrowding, like many modern ailments, is related to environmental factors and diet. "If you eat raw food mixed with seeds, berries and particles of sand and stones, the mixture is abrasive," says Sarig. This exercises the jaw muscles and causes teeth to grind and work harder. "Nowadays, our diets are made up

largely of processed foods which don't exercise the jaw and cause the muscles to atrophy," she says.

Sarig and her colleagues discovered that jaw and teeth changes are mainly observed in the Natufian culture some 12,000 years ago -on the cusp of the agricultural revolution. "During this time there was a transition from a hunter-gatherer to an organized society, and animals began to be raised for food," says Sarig. "This was a turning point in human development and had a massive effect on physiology."

"Today, we don't activate our jaws like the ancients did," says Sarig. "We should take prehistoric man as an example of healthy dentition."

In a separate research direction, Sarig is using tooth specimens in the collection to determine early human migration patterns from Africa through Israel to Europe. "The limestone caves that dot the Carmel range in northern Israel and other areas have yielded thousands of long bones, mandibles and teeth, many of them excavated by TAU scientists," says Sarig. "From these specimens, we estimated that the earliest migrations through Israel were 100,000 years ago; however, recent findings by TAU scientists may point to far earlier migrations in the region," she notes.

Please visit the site: <https://english.tau.ac.il/impact/paleoteeth>

NEW DEAD SEA SCROLLS FRAGMENTS **FOUND IN JUDEAN DESERT,** **BY PHILIPPE BOHSTROM**

Documents from Iron Age and Roman times surfacing in the black market helped convince archaeologists there was more to be found.

New fragments of the Dead Sea Scrolls have been found in the Cave of the Skulls by the Dead Sea in Israel, in a salvation excavation by Israeli authorities. The pieces are small and the writing on them is too faded to make out without advanced analysis. At this stage the archaeologists aren't even sure if they're written in ancient Hebrew, Aramaic or another language.

"The most important thing that can come out of these fragments is if we can connect them with other documents that were looted from the Judean Desert, and that have no known provenance," says Dr. Uri Davidovich of the Hebrew University of Jerusalem, among the scientists investigating the caves.

In 1947, a Bedouin shepherd tossing a stone into a cave in the vicinity of Qumran heard the sound of an earthenware jar cracking, which led to what some have called the greatest archaeological discovery of the 20th century. Upon crawling inside, he found the first of what came to be known as the Dead Sea Scrolls.

The Cave of the Skulls, named for seven human skulls and other skeletal remains, discovered by Prof. Yohanan Aharoni in 1960, is part of the Large Cave Complex, a series of naturally occurring spaces atop a steep cliff on the northern bank of Tze'elim Stream, in the southern part of the desert. The site is in one of the starkest areas of the Judean Desert.

The complex also includes the Cave of the Arrows, where the extraordinarily arid conditions preserved a dozen 30-inch-long reed arrow shafts for approximately 1,800 years, as well as iron arrowheads; and the Cave of the Scrolls where the earliest known documents from the time of the Bar Kokhba revolt were unearthed by archaeologists.

Lice combs and papyri

The latest finds, two papyri fragments about two by two centimeters with writing and several fragments without discernible letters, were made during a three-week salvage excavation in the Cave of the Skulls this May and June by a joint expedition of the Israel Antiquities Authority and the Hebrew University of Jerusalem. The excavations were led by Uri Davidovich and Roi Porat of the Hebrew University, together with Amir Ganor and Eitan Klein from the IAA.

It bears noting that many of the previously found scrolls have perfectly clear writing, and some are more obscure and still being deciphered.

Though the finds so far are small and many are from secondary dumps associated with modern looting of the caves, the excavations shed new light on human activities in the Judean Desert cliff caves. Despite the inhospitable conditions, they were occupied on and off for thousands of years, starting in prehistoric times and through the Roman period.

Hundreds of fragments of leather, ropes, textiles, wooden objects and bone tools were discovered inside the cave thanks to the aridity of the Judean desert, which preserved the organic material.

Some things evidently never change, and one is pests. One of the more relatable finds in the cave was pieces of wooden lice combs from the time of the Bar Kokhba revolt.

Along with the unique artifacts made of organic materials, dozens of pottery shards, stone vessels and flint items were discovered inside the cave. Several metal objects were found as well, including needles and cosmetic tools as well as hollow-headed hobnails for sandals.

Another interesting discovery was a bundle - textile wrapping a cluster of beads, which was found in a natural niche at the edge of the cave's western wing. This bundle has yet to be opened but has meanwhile been X-rayed to identify its content. Joining two other bundles of beads Aharoni had previously discovered, this is the largest collection of beads ever discovered in the Levant from the Chalcolithic period, a prehistoric time predating the Copper Age.

It bears stressing that looters have damaged the layering so badly that certain artifacts cannot be reliably dated.

Housing for herders?

Even so, thousands of remains from foodstuffs including wheat and barley, palm dates, olives and pomegranates support the archaeologists' long-held contention that these caves were used by refugees during the Roman and Chalcolithic times. They were certainly used by the Jewish warriors and rebels to hide from the approaching Roman armies over 2,000 years ago, say the excavation directors.

What use these caves had in earlier Chalcolithic times is a matter for speculation. Suggestions range from seasonal living spaces for herders or traders, to places of refuge related to social tensions within the settled communities located west of the Judean Desert.

Davidovich thinks the second explanation is more likely. "These caves are very difficult to access, and they were used in their natural forms without changes or modifications that would make them more convenient for prolonged occupation," he points out. "This does not make sense when you think of ephemeral stays by shepherds or the like, but is much more plausible when you consider that they served as temporary refuge places."

The renewed excavations in the Cave of the Skulls is just the first step in a new project of the IAA and the Hebrew University to continue exploring the Judean Desert caves, to salvage hidden treasures that might still lay in the caves, at least before robbers get there first. "We have all the reasons to believe that there are still scrolls hidden," Davidovich

says. "Several documents from the Roman times and even from the Iron Age have surfaced in recent years in the antiquities market. They must have originated in the Judean Desert caves.

Please visit the site: <http://www.haaretz.com/archaeology/1.760249> [Go there for pix]

EARLIEST EVIDENCE DISCOVERED OF PLANTS COOKED IN ANCIENT POTTERY

A team of international scientists, led by the University of Bristol, has uncovered the earliest direct evidence of humans processing plants for food found anywhere in the world.

Researchers at the Organic Geochemistry Unit in the University of Bristol's School of Chemistry, working with colleagues at Sapienza, University of Rome and the Universities of Modena and Milan, studied unglazed pottery dating from more than 10,000 years ago, from two sites in the Libyan Sahara.

The invention of cooking has long been recognised as a critical step in human development.

Ancient cooking would have initially involved the use of fires or pits and the invention of ceramic cooking vessels led to an expansion of food preparation techniques.

Cooking would have allowed the consumption of previously unpalatable or even toxic foodstuffs and would also have increased the availability of new energy sources.

Remarkably, until now, evidence of cooking plants in early prehistoric cooking vessels has been lacking.

The researchers detected lipid residues of foodstuffs preserved within the fabric of unglazed cooking pots.

Significantly, over half of the vessels studied were found to have been used for processing plants based on the identification of diagnostic plant oil and wax compounds.

Detailed investigations of the molecular and stable isotope compositions showed a broad range of plants were processed, including grains, the leafy parts of terrestrial plants, and most unusually, aquatic plants.

The interpretations of the chemical signatures obtained from the pottery are supported by abundant plant remains preserved in remarkable condition due to the arid desert environment at the sites.

The plant chemical signatures from the pottery show that the processing of plants was practiced for over 4,000 years, indicating the importance of plants to the ancient people of the prehistoric Sahara.

Dr Julie Dunne, a post-doctoral research associate Bristol's School of Chemistry and lead author of the paper, said: "Until now, the importance of plants in prehistoric diets has been under-recognised but this work clearly demonstrates the importance of plants as a reliable dietary resource.

"These findings also emphasise the sophistication of these early hunter-gatherers in their utilisation of a broad range of plant types, and the ability to boil them for long periods of time in newly invented ceramic vessels would have significantly increased the range of plants prehistoric people could eat."

Co-author Professor Richard Evershed, also from Bristol's School of Chemistry, added: "The finding of extensive plant wax and oil residues in early prehistoric pottery provides us with an entirely different picture of the way early pottery was used in the Sahara compared to other regions in the ancient world.

"Our new evidence fits beautifully with the theories proposing very different patterns of plant and animal domestication in Africa and Europe/Eurasia."

The research was funded by the UK's Natural Environment Research Council (NERC) and is published today in Nature Plants.

Please visit the site: <http://popular-archaeology.com/issue/winter-2017/article/earliest-evidence-discovered-of-plants-cooked-in-ancient-pottery1>

ARCHAEOLOGISTS CONNECT ANCIENT CORINTH'S INNER AND OUTER HARBOURS UNDERWATER ARCHAEOLOGY

Researchers from the Greek Ministry of Culture and Sports and the University of Copenhagen are continuing to make important discoveries at Lechaion, the main harbour town of ancient Corinth. Among them structures that join the Inner and Outer Harbours, and a unique wooden bulwark that made up part of a mole flanking the entrance to the Inner Harbour.

Greek and Danish archaeologists investigating Lechaion's harbour areas are finding that the town appears to have been much more important than previously thought. In the course of three excavation seasons, they have delineated major offshore structures, a monumental entrance canal and several inland canals connecting at least four harbour basins. In total, the area is greater than 500.000 m² – bringing it on par with other major harbour towns of the age, such as Athens' harbours in the Piraeus and Roman Portus.

"This season topographical and geophysical surveys have made it possible for us to successfully delineate the canal zone between the inner and outer harbours. In the process we discovered that the entrance canal connecting the Inner and Outer Harbours was up to 30 m wide in the 4th and 3rd century BC, then grew narrower in later centuries. The precise reason why remains to be discovered," says co-director of the Lechaion Harbour Project Bjørn Lovén.

The team mapped the full extent of the mole flanking the eastern side of the entrance canal as far as 46 meters offshore in 1–3 meters of water. Working carefully and methodically for 35 days, divers defined the eastern side of the canal. At the harbour entrance, and interconnected with this mole, they discovered strong stone foundations, perhaps for a tower that would protect the entrance. Nearby were found two column drums. Their precise purpose remains unknown, but such drums found at other excavated Roman harbours supported porticoes on the harbour front. Future explorations promise more discoveries. "The extremely rare wooden structures we've found in the early stages at Lechaion give us hope that we'll find other organic materials, such as wooden tools, furniture, wooden parts of buildings and shipwrecks – the potential is immense and it is important to stress that we almost never find organic material on land in the central Mediterranean region", says Bjørn Lovén.

About Corinth and Lechaion

Located on the isthmus connecting the Peloponnese and the rest of mainland Greece, Corinth and Lechaion served as a perennial nexus of land and sea routes. From an early date Lechaion's wharves swelled with trading goods, helping Corinth to become fabulously wealthy. Ancient authors comment that transshipping goods at Lechaion was far preferable to sailing around the bottom of the Peloponnese, a kind of mini Cape Horn. One of them, the first-century BC author Strabo, quoted a timeworn proverb: "If you see Cape Malea [at the southeast tip of the Peloponnese], forget your home".

Throughout antiquity, Lechaion played a crucial role in supporting Corinth's function as a cultural metropolis. Beginning in the 8th century BC her waterfront saw Corinthian colonists set out for Corfu and Sicily and elsewhere as they sowed the seeds of Hellenism to the rest of southern Europe. In addition, by the Late Roman period Lechaion, while still linked with Corinth, had developed her own identity as a town and religious centre. In the 6th century AD the town showcased one of the largest Christian churches of the time, the 180-m-long Leonidas Basilica.

Please visit the site: <http://humanities.ku.dk/news/2016/archaeologists-connect-ancient-corinths-inner-and-outer-harbours/>

NEW TECHNOLOGIES BRING MARINE ARCHAEOLOGY TREASURES TO LIGHT ROBOTIC SUBMARINES AND 'INTERNET OF UNDERWATER THINGS' TO TRANSFORM HUNT FOR SUNKEN CITIES AND ANCIENT SHIPWRECKS

No one knows what happened at Atlit-Yam. The ancient village appeared to be thriving until 7000BC. The locals kept cattle, caught fish and stored grain. They had wells for fresh water, stone houses with paved courtyards. Community life played out around an impressive monument: seven half-tonne stones that stood in a semicircular embrace around a spring where people came to drink. Then one day, life ended.

The village that once sat on the Mediterranean coast now lies 10 metres beneath the waves off Israel's shore. It was inundated when sea levels rose at the end of the last ice age. But Atlit-Yam was destroyed before then, and swiftly, perhaps by a tsunami. Buried under sand at the bottom of the sea, it now ranks as the largest and best preserved prehistoric settlement ever found on the seafloor. Human skeletons still lie there in graves, undisturbed.

For marine archaeologists, Atlit-Yam is a trove from the Neolithic world. Research on the buildings, tools and the remains of past lives has revealed how the bustling village once worked. "It looks as though it was inhabited until the day it was submerged," said Benedetto Allotta, head of industrial engineering at the University of Florence. But for all the secrets the site has shared, it is only one window into a lost world. For a fuller picture, researchers need more sunken settlements. The hard part is finding them.

In January, work will start on a new project to transform the search for sunken cities, ancient shipwrecks and other subsea curiosities. Led by Italian researchers, Archeosub will build a new generation of robotic submarines, or autonomous underwater vehicles (AUVs), for marine archaeologists. "You can find plenty of human settlements not far from the coast," Allotta said. "In the Mediterranean there will be a lot more Atlit-Yams waiting to be explored and studied."

The goal of Archeosub is to put sophisticated AUVs in the hands of cash-strapped researchers. That, in part, means turning the costly, heavy technology of the military and oil industries into far cheaper and lighter robots. They must be affordable for archaeological organisations and light enough to launch by hand from a small boat, or even the shore, rather than from a winch on a large research vessel.

Slashing the cost and weight is only the start. The team behind Archeosub has begun to make the AUVs smarter too. When thrown overboard, the submarines can become part of an "internet of underwater things" which brings the power of wifi to the deep. Once hooked up, the AUVs can talk to each other and, for example, work out the most efficient way to survey a site, or find particular objects on the seabed.

Field tests show the approach can work. When cargo ships near Porto in northern Portugal lose containers overboard, AUVs can be deployed to find the missing goods. And in a trial last year, Allotta's group sent three AUVs to search for wrecks at Marzamemi, off the Sicilian coast. The site is the final resting place of a Roman ship, known as the "church wreck", which sank while ferrying pre-formed parts of marble and breccia for an early Christian church in the 6th century AD. "We used the AUVs to pass through and look for new ruins," Allotta said. "We could do a reconstruction of the area, where old Roman ships sank while bringing marble columns to Italy," he said.

Creating an internet beneath the waves is no breeze. Slip under the surface and the electromagnetic waves used in wifi networks travel only centimetres. Instead, a more complex mix of technologies is called for. Acoustic waves, which are affected by depth, temperature, salinity and surface wind, are used to communicate over long distances underwater. At close range, AUVs can share data over light beams. But more creative solutions are also envisaged, where an AUV working on the seabed offloads data to a second which then surfaces and beams it home by satellite link. Work is underway on AUVs that can beam pictures from the seabed over acoustic waves, and dock with others that charge them up. Surface buoys that receive GPS signals tell the AUVs where they are. "If you want to build an internet of underwater things, you cannot use the technology we have developed for the terrestrial world," said Chiara Petrioli, a computer engineer who leads the work under the Sunrise project at Rome University. "You have to be smarter."

David Lane, a professor of autonomous engineering at Heriot-Watt University in Edinburgh, has created a marine version of Dropbox for the underwater internet of things. It allows AUVs to share information from seafloor scans and other data. So if an AUV on a first pass survey spies an intriguing object on the seabed, it can share the coordinates with a nearby AUV that carries better cameras and sonar, and arrange for a closer inspection once it has left the area. "The use of these vehicles has huge potential for marine archaeology," Lane said. "There's a lot of history wrapped up in what's lying on the seabed."

One site where Allotta plans to deploy the new AUVs is the Gulf of Baratti off the coast of Tuscany. In 1974, a remarkable shipwreck was discovered there in 18 metres of water. More than a merchant ship, the 2000-year-old vessel was a travelling medical emporium. More than 100 wooden vials were found on board, along with other ancient medical supplies, including tin containers of tablets that may have been dissolved and used as eyewash. Other Roman ships went down in the waters, shedding cargoes of olive oil and wine held in huge terracotta pots called dolia. Often it is only the dolia that remain, the wooden ships lost, or at least buried, under silt.

Allotta hopes to have the first test results from the Archeosub project in the summer. "Right now, we don't have the right technology to give to archaeologists," he said. "But we are close."

Please visit the site: <https://www.theguardian.com/science/2016/dec/29/new-technologies-bring-marine-archaeology-treasures-to-light>

EUROPE'S OLDEST CITY MINOAN CIVILIZATION CAPITAL KNOSSOS REVEALS EVEN MORE PRICELESS TREASURES

The latest discoveries on Crete at the site of the ancient city of Knossos suggest that the capital of Minoan Civilization was far larger and more impacting than experts believed.

Scientists already knew that Knossos was Europe's oldest city and ruled over the massive trade empire during the Bronze age, nevertheless, new evidence suggests that the Minoans may have actually survived into the Iron Age. Europe's oldest city, the majestic site of the Greek Bronze Age, was the seat of power of the mythological King Minos and the home of the enigmatic labyrinth. Also linked to far reaching legends like Daedalus and son Icarus, the Minoan palace and the Minoans were also considered to be the sons and daughters of Atlantis by the ancients. This civilization is widely acclaimed as the birthplace for all western civilization and, when the mainland Greeks came out of the Stone Age, the Minoans managed a maritime empire across the entire Mediterranean basin and beyond. When Rome was not even so much as an idea, Minoans built the first paved roads.

Even though the ancient city was previously thought to have perished around 1200 B.C. after the volcanic eruption of Thera on Santorini, new artifacts discovered by a team led by a University of Cincinnati assistant professor of classics, Antonis Kotsonas, suggest that it was much larger and richer than was previously thought. According to a press release on Kotsonas' work, "recent fieldwork at the ancient city of Knossos on the Greek island of Crete finds that during the early Iron Age (1100 to 600 BC), the city was rich in imports and was nearly three times larger than what was believed from earlier excavations.

San Francisco meeting

The discovery suggests that not only did this spectacular site in the Greek Bronze Age (between 3500 and 1100 BC) recover from the collapse of the socio-political system around 1200 BC, but also rapidly grew and thrived as a cosmopolitan hub of the Aegean and Mediterranean regions. Antonis Kotsonas, a University of Cincinnati assistant professor of classics, will highlight his field research with the Knossos Urban Landscape Project at the 117th annual meeting of the Archaeological Institute of America and Society for Classical Studies. The meeting takes place Jan. 7-10 in San Francisco.

The Knossos Urban Landscape Project over the past decade has recovered a large collection of ceramics and artifacts dating back to the Iron Age. The relics were spread over an extensive area that was previously unexplored. Kotsonas says that this exploration revealed considerable growth in the size of the settlement during the early Iron Age and also growth in the quantity and quality of its imports coming from mainland Greece, Cyprus, the Near East, Egypt, Italy, Sardinia and the western Mediterranean.

No other site in the Aegean period has such a range of imports,” Kotsonas says. The imports include bronze and other metals – jewelry and adornments, as well as pottery. He adds that the majority of the materials, recovered from tombs, provide a glimpse of the wealth in the community, because status symbols were buried with the dead during this period. The antiquities were collected from fields covering the remains of dwellings and cemeteries. “Distinguishing between domestic and burial contexts is essential for determining the size of the settlement and understanding the demographic, socio-political and economic development of the local community,” explains Kotsonas. “Even at this early stage in detailed analysis, it appears that this was a nucleated, rather densely occupied settlement extending over the core of the Knossos valley, from at least the east slopes of the acropolis hill on the west to the Kairatos River, and from the Vlychia stream on the south until roughly midway between the Minoan palace and the Kephala hill.”

Research partnership Kotsonas’ Jan. 9 presentation is part of a colloquium themed, “Long-Term Urban Dynamics at Knossos: The Knossos Urban Landscape Project, 2005-2015.” Kotsonas serves as a consultant on the project, which is dedicated to intensively surveying the Knossos valley and documenting the development of the site from 7000 BC, to the early 20th century. The project is a research partnership between the Greek Archaeological Service and the British School at Athens. Kotsonas has served as a collaborator on the project since 2009. Funding for the University of Cincinnati research was supported by the UC Department of Classics Louise Taft Semple Fund. Kotsonas underlines that because the site also is a popular tourist attraction, there is a strong interest in development around the site. The Knossos Urban Landscape Project works to inform the community about the importance of preserving the area that has history yet to be uncovered, history that could be lost if future development destroyed unexplored parts of the site. The AIA and SCS Joint Annual Meeting brings together professional and vocational archaeologists and classicists from around the world to share the latest developments from the field. The conference is the largest and oldest established meeting of classical scholars and archaeologists in North America.

UC’s Classics Department in the McMicken College of Arts and Sciences is one of the most active centers for the study of the Greek and Roman Antiquity in the United States. UC excavations have been led at two Bronze Age palatial centers, Knossos in Crete, and Pylos in the Peloponnese, a site first discovered by UC archaeologist Carl W. Blegen in 1939.

Please visit the site: <http://www.tornosnews.gr/en/greek-news/21698-minoan-civilization-capital-knossos-to-reveal-more-treasures.html>

EXCAVATIONS TO REVEAL HISTORY OF ISTANBUL'S EARTHQUAKES

Excavations that have been going on for six years at the ancient city of Bathonea in Istanbul's Küçükçekmece district promise to give estimations about historical earthquakes that hit the city

The excavation of ancient Bathonea, conducted in collaboration with the Culture and Tourism Ministry and Kocaeli University, has been ongoing near Küçükçekmece Lake in the Istanbul district of Avcılar for six years, providing more and more insight into the history of earthquakes in Istanbul.

According to archaeologists, the site dates back to 2,000 B.C. and is now helping scientists fill in the blanks regarding the geologic history of one of the most ancient cities in the region. Traces of earthquakes that hit the ancient city of Bathonea are being examined by a team of scientists led by Professor Şerif Barış, general manager of Kocaeli University's Earth and Space Sciences Research and Application Center.

Excavations to reveal history of Istanbul's earthquakes

Speaking to an Anadolu Agency (AA) correspondent, Professor Barış asserted that scientists are examining remnants of ancient homes, roads, buildings and infrastructure of this ancient city, using advanced geophysical techniques. The professor noted the importance of gathering geophysical seismic data in collaboration with archaeological findings to gain crucial information on historic seismic activity. The techniques used have gained momentum around the world since being used by Turkish archaeologists in 2008. Barış said: "Collaborating with Associate Professor Şengül Aydınğün, the head of the Bathonea excavation, at an important archaeological site in Küçükçekmece will set a key precedent for the study of archaeology and geophysics. Unfortunately, few excavations have been completed using this combined approach in Turkey. Therefore, the Bathonea excavations are a pivotal development, and both teams are working very hard. Partnering with German scientists as well, I am sure that positive developments and key findings will result."

Professor Barış said they are using these techniques to determine the extent of the damage caused by earthquakes in the ancient city. Previously in 2012, a team of archaeologists discovered a church at the site that showed traces of structural damage consistent with earthquake activity, as well as loss of life, providing important insight on seismic activity in ancient Bathonea.

Barış and his team also came across numerous buildings that were structurally damaged, pointing to seismic activity. He said: "Previously, our archaeologists discovered three skeletons and a coin under remains from the Justinian era. These findings also coincide with an earthquake that hit Istanbul in 557, which caused extensive damage to Hagia Sophia. This discovery indicates that all historic buildings in Küçükçekmece were destroyed from their foundations," Barış said.

The professor claimed that they will be able to report the seismic history of Istanbul more accurately as a result of new archeological findings, noting: "Some of the largest buildings and thickest walls have major damage and huge cracks. We need to put an exact date on the damage using carbon dating, namely the Carbon 14 method, in combination with geophysical techniques. The archaeological and geophysical works are still being conducted. However, we are certain that earthquakes during the 6th, 10th and 11th centuries caused extensive damage to the ancient city of Bathonea."

Barış added that a major earthquake, also known as the "Small Apocalypse," hit Istanbul in 1509, the largest earthquake to ever hit the Marmara region. The professor said scientists are working to date the fault lines under the basin of Küçükçekmece Lake to learn the extent of the damage.

"If our carbon tests give us the exact date of two or three earthquakes that hit the ancient city, we will gain more insight into the cause of the damage. However, with the information we have so far, we can estimate that the earthquake in 557 caused massive damage in Bathonea. We continue to work on pinpointing the dates of other earthquakes that have hit the ancient city. There are a total of eight earthquakes that hit Istanbul in the 6th and 11th centuries. Hence, we need to determine which earthquake caused the most damage, and we are searching for the additional effects these earthquakes had on the region. There is a debate about the epicenters and the scales of the earthquakes that hit Istanbul before the 16th century. If the buildings are unearthed, and we can determine the damage, we will be able to learn how much damage the earthquake caused via earthquake simulations and earthquake scenarios."

Stressing that the Küçükçekmece Lake basin is an important "laboratory" for understanding the history of Istanbul, Barış said they would be able to put an end to debates about ancient earthquakes that hit Istanbul if they can pinpoint the dates and seismic traces of these earthquakes.

"There is a rule of nature: If a natural disaster occurs, the same disaster will surely happen again. The time interval of these earthquakes is set. If a 7.5-scale earthquake occurs at the same location every 400 years, that earthquake is likely to hit the same spot again 400 years later. The Marmara region was hit by four different earthquakes in the same century before. If we do not know which earthquakes hit where, we will not be able to predict the epicenter and scale of future earthquakes to come," concluded Barış.

Please visit the site: <http://www.dailysabah.com/history/2016/12/15/excavations-to-reveal-history-of-istanbul-earthquakes>

9,500-YEAR-OLD PLASTERED SKULLS **WERE FROM VAST MIDDLE EAST** **ANCESTOR CULT, ARCHAEOLOGISTS SAY,** **BY ARIEL DAVID**

Skulls fleshed out with plaster 9,500 years ago, found from Israel to Turkey, are among the oldest portraits known and are now believed to be linked to the rise of civilization.

Dozens of skulls fleshed out with plaster nearly 10,000 years ago in an area from Israel to southern Turkey, are among the oldest human portraits known. Their purpose remains a mystery, but researchers now argue that they were part of a vast ancestor cult, that contributed to the successful rise of the first complex societies in the Neolithic period.

Since last week, visitors at the British Museum in London have been able to look upon the face of a man who lived some 9,500 years ago in Jericho, one of the world's earliest known cities.

What scientists do today using micro-CT scans and 3D-printed models to reproduce the visage of the dearly departed was already being done at the dawn of civilization with much simpler means.

More than fifty Neolithic plastered skulls dating between 9,500 to 8,000 years ago have been found by archaeologists in an area ranging from the Negev desert in Israel to Anatolia in Turkey. Seven, including the one on display at the British Museum, were dug up in Jericho in 1953 by British archaeologist Kathleen Kenyon.

Why the skulls weren't war trophies

While the British Museum's study has revealed new details of the life story of this individual as well as about the technique used to create plastered skulls, it has not provided a definitive answer to the question of why these enigmatic and grotesque-looking portraits were created in the first place.

Making a plaster skull entailed significant effort. The body was first buried under the plastered floor of the family's house, a common practice for all burials during the period. After allowing time for the flesh to decompose, possibly one or two years, the head was exhumed, the teeth and mandible removed (probably because they were too mobile and would have made the artifact less durable) and the plaster applied. The skull was then decorated, with the eyes represented by shells from the sea, which often was dozens or hundreds of kilometers away, further underscoring the importance of the artifacts to their prehistoric makers.

The archaeological evidence combined with anthropological research on similar, modern phenomena have offered different explanations. The skulls have been variably interpreted as memorials to the dead, artifacts used in magical rituals, or charms to ward off evil spirits.

Kenyon speculated they might be the heads of vanquished enemies, but this seems unlikely, since archaeologists have since found headless skeletons buried under the floors of Neolithic homes, suggesting that the skulls belonged to close relatives rather than enemies.

Today, researchers interviewed by Haaretz mostly agree that the plastered skulls were tied to a form of ancestor cult, and may have played an important role in the rise of civilization as we know it.

The first farmers

The plastered skulls appeared at a key point in prehistory, when humans in Jericho and other sites around the Middle East began to abandon their hunter-gathering lifestyle and created the first sedentary, agricultural societies.

"For three million years, people lived in small groups of hunter-gatherers of maybe 25 to 30 members," says Israel Hershkovitz, a professor of anatomy and physical anthropology at Tel Aviv University who has studied several plastered skulls discovered in Israel.

"Suddenly everything changes, people start living in large communities, producing their own food, building villages and cities with social stratification and division of labor," Hershkovitz says. "Just 10,000 years later we went to the moon, achieving things we didn't do in millions of years of evolution."

This sudden shift toward larger, more complex societies, would not have occurred spontaneously, says Alexandra Fletcher, curator of prehistory of the Middle East at the British Museum and one of the scholars in charge of the Jericho skull study.

"Jericho is one of the largest sites we found from that period. A lot of people were living in the same area," Fletcher says.

"Anthropological studies tell us that groups would reach that size and split due to social tensions or competition over resources," she explains. "That didn't happen in Jericho, they stayed together and continued to grow, so there must have been something that helped them overcome the tendency to split."

Please visit the site: <http://www.haaretz.com/archaeology/.premium-1.760597?=&ts=1482619133053> [Go there for pix]

TWO UNIQUE 8 THOUSAND YEARS OLD FIGURINES DISCOVERED BY POLISH ARCHAEOLOGISTS IN TURKEY

Two very well preserved, 8 thousand years old stone figurines depicting naked women were discovered by Polish archaeologists during this year's excavations in one of the oldest cities in the world - Çatalhöyük in Turkey.

The discovery was made in one of the largest urban centres of the first farmers and one of the most famous archaeological sites in the world - Çatalhöyük, located in the southern part of the Anatolian Plateau in central Turkey. The project leader is Prof. Ian Hodder of Stanford University in the US, but a team of Polish scientists has been involved in the project for several years.

Çatalhöyük was inhabited continuously for over one thousand years between the years 7100 and 6000 BC. According to the researchers during its heyday the densely built-up settlement had by approx. 5000 residents. The site became famous thanks to the murals, which decorated the walls of houses. They depicted as human and animal figures and geometric motifs. In 2012 Çatalhöyük was added to the list of UNESCO World Heritage Sites.

"Both figurines were discovered next to each other inside a house built at the end of the settlement activity, between 63 and 61 hundred years BC. Initially, we thought that we found another piece of ceramic vessel - then it turned out to be a belly of a figure" - explained head of the Polish expedition Prof. Arkadiusz Marciniak from the Institute of Archaeology of the Adam Mickiewicz University in Poznań.

The discovery was made in the part of the tell (artificial mound formed as a result of settlement from the accumulated remains of, for example, crumbling walls of mud brick houses) that the Polish archaeologists had been studying since 2012.

The figurines were lying on a platform, bench adjacent to one of the inner walls of the house, made of mud bricks covered with white plaster.

The smaller figurine, with the height of approx. 7 cm and weighing only 55 grams, is made in a more precise manner. The larger one measures approx. 17 cm in height and weighs 1 kg. The latter is made of marble; the smaller of limestone. They depict naked, full-figured female figures.

"In the case of the smaller figurine are even the physiognomic characteristics of the face are visible, as if it were a portrait!" - Prof. Marciniak said with enthusiasm.

Hundreds of anthropomorphic figurines have been discovered in Çatalhöyük. "However, those found by our team are unique. Firstly, they are perfectly preserved. They were made of stone. Their significant sizes are also new" - said Prof. Marciniak. According to the scientist, the discoveries in the form of small size clay figurines dominated so far. Most of them had their heads broken off. This was the case with the most famous artefact

discovered in this part of the settlement - a clay figurine of mother goddess. The tradition making figurines of this shape probably dates back to the beginnings of the settlement, approx. 7.1 thousand years BC.

"It is also rare that we discovered these monuments in situ, which means they were located exactly where the ancient residents left them. Until now, similar figurines were discovered in the garbage layers, not within a particular house. This allows to better understand the intentions of their creators" - added the archaeologist.

According to Prof. Marciniak, both figures were closely linked to the two graves that were right by the platform - the then residents of Çatalhöyük buried their dead under the floor of their homes and continue to live in them.

"In this case, the situation was somewhat different. It appears that after the funeral the graves were filled and covered with an additional layer of plaster that also covered the discovered figurines. Rebuilt house remained occupied" - said the researcher.

The room, in which the discovery was made, is located in the eastern part of a large house with the area of approx. 40 sq. m. It was significantly larger than any other house known from this period.

"It was the part of the house that we call clean or ceremonial. Western and southern parts of the house were used for utilitarian purposes" - he added.

The house studied by Polish archaeologists, comes from the time in which the settlement was slowly declining after more than a thousand-year period of prosperity. This happened at the end of the seventh millennium BC. It was inhabited by fewer and fewer people. The dwellings inside were not so carefully decorated with paintings.

"The goal of our research is to understand, among other things, what led to the end of the huge settlement and how its last inhabitants lived" - concluded Prof. Marciniak.

Both figurines went to the museum storage in Konya. Scientists are hoping that next year they will manage to examine the two graves, which the figurines accompanied. For now, their contents remain a mystery for archaeologists.

**Please visit the site: <http://scienceinpoland.pap.pl/en/news/news,412457,two-unique-8-thousand-years-old-figurines-discovered-by-polish-archaeologists-in-turkey.html>
[Go there for pict]**
