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# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Οκτώβριος 2015 -**

**My best friend is the man who in wishing me well wishes it  
for my sake.**  
*(Aristotle)*

## Newsletter of the Hellenic Society of Archaeometry

**- October 2015 -**

**Nr. 175**

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**ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS**  
**MULTIDISCIPLINARY SYMPOSIUM ON THE**  
**IDENTIFICATION OF ANCIENT MATERIALS**  
**“NON-DESTRUCTIVE AND DESTRUCTIVE**  
**METHODS TO IDENTIFY**  
**ARCHAEOLOGICAL FINDS AND THEIR**  
**HOST DEPOSITS”, BRUSSELS, ROYAL**  
**BELGIAN INSTITUTE OF NATURAL**  
**SCIENCES, 15-16 MARCH 2016**

First announcement and call for papers and posters for a multidisciplinary symposium on the identification of ancient materials “Non-destructive and Destructive Methods to Identify Archaeological Finds and their Host Deposits”

Brussels, Royal Belgian Institute of Natural Sciences  
15-16 March 2016

Archaeological investigations require the collaboration of a wide diversity of disciplines. Therefore, in the framework of the international research network “Greater Mesopotamia: Reconstruction of its Environment and History”, the Royal Belgian Institute of Natural Sciences and the Royal Museums of Art and History in Brussels will organize a symposium that brings together different methodologies.

The symposium for researchers and students in Geo- & Archaeo- Sciences aims at a multidisciplinary discussion about non-destructive and destructive methods used in support of archaeology in the ancient Near East or other arid and semi-arid areas. The objective is to address issues relating to the identification of materials and their composition. Topics include, but are not limited to, petrography, clay mineralogy, soil science, gemmology, construction materials,...

Keynotes introducing methodological approaches will be presented by:

Prof. Dr. Georges Stoops, University of Gent, ‘The use of micromorphology in archaeology’;

Prof. Dr. Patrick Degryse, Katholieke Universiteit Leuven, ‘Ancient glass and geochemistry’;

Prof. Dr. Dennis Braekmans, TU Delft & Leiden University, ‘Ceramics and technology’.

Participants are invited to submit their proposals for oral or poster presentations (in English, max. 500 words) related to methodology in support of archaeology in the ancient Near East and other arid and semi-arid areas.

The abstract includes contact details, presenter and (co-)author information, and the preferred presentation type. Please send the abstract to: [frieda.bogemans@naturalsciences.be](mailto:frieda.bogemans@naturalsciences.be)

A confirmation mail will be sent to the provided e-mail address whether the abstract is accepted or not.

Registration is free, but mandatory for all participants. Posters and papers will only be scheduled if the presenting author has registered.

**Timing and Deadlines:**

- 15 September 2015 - 15 February 2016 Registration –mandatory for all participants (registration form will be made available on the project's website [www.greatermesopotamia.be](http://www.greatermesopotamia.be))
- 1 November 2015 Submission deadline for abstracts
- 15 December 2015 Notification of accepted abstracts

The final program and practical information will be announced in the 2nd circular on 15 February 2016.

**For more information on the research project, see: [www.greatermesopotamia.be](http://www.greatermesopotamia.be)**

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**THE 6<sup>TH</sup> EAST ASIA ACCELERATOR MASS  
SPECTROMETRY SYMPOSIUM (EA-AMS 6),  
NATIONAL TAIWAN UNIVERSITY, TAIPEI,  
TAIWAN, OCTOBER 05-08, 2015, 3<sup>RD</sup>**  
**CIRCULAR OF EA-AMS6**

**Preface**

Accelerator Mass Spectrometry(AMS) has been used for analysis of many radioisotopes (such as  $^{14}\text{C}$ ,  $^{10}\text{Be}$ ,  $^{26}\text{Al}$ ,  $^{36}\text{Cl}$ ,  $^{129}\text{I}$ ) in natural materials since 1970s. Development of AMS is not only the essential for several dating methods (e.g.,  $^{14}\text{C}$  dating and  $^{10}\text{Be}/^{26}\text{Al}$  dating), but also becomes a foundation for scientific research and technological improvement. Therefore, exchanging AMS information and their outputs in many research fields such as earth science, environmental science, archaeology, material science, life science and also nuclear safeguard, can benefit us at large.

The first East Asia AMS Symposium (EA-AMS) started in 2006 at Tsukuba University, Japan. Then, EA-AMS 2 was in 2007 (Korea); EA-AMS 3 was in 2009 (China); EA-AMS 4 was in 2011 (Japan); and EA-AMS 5 was in 2013 (Korea). Now, the EA-AMS 6 symposium will be held in the Department of Geosciences at the National Taiwan University, Taipei, Taiwan, from October 05 to 08, 2015. It is our pleasure to invite all colleagues working on AMS related fields. All subjects on AMS and its applications are welcome to be presented in the symposium. Several specific sessions described below are being considered provisionally. However, you are welcome to suggest a subject not listed below. We hope all of you come and enjoy the symposium with exciting lectures and fruitful discussions.

Looking forward to seeing you in Taipei.

Sincerely yours,

On behalf of the Organizing Committee of EA-AMS 6

Prof. Hong-Chun Li  
Director of the NTUAMS Lab  
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Dr. George Burr, Arizona, USA  
Prof. Min-Te Chen, NTU, Taiwan  
Prof. Wan Hong, KIGAM, Korea  
Prof. Mineo Imamura, Japan  
Dr. Shan Jiang, Beijing, China  
Prof. Jong-Chan Kim, Korea  
Prof. Hong-Chun Li, NTU, Taiwan  
Prof. Hiroyuki Matsuzaki, Japan  
Prof. Toshio Nakamura, Japan  
Prof. Liping Zhou, Beijing, China

Prof. Weijian Zhou, Xian, China  
Dr. Xiaomei Xu, UCI, USA

### Session Topics

1. Status report and technical development
2. Carbon-14 dating and its applications: Earth and environmental sciences
3. Analysis and Application of  $^{10}\text{Be}$  and heavy isotopes such as  $^{26}\text{Al}$ ,  $^{129}\text{I}$ ,  $^{36}\text{Cl}$ ,  $^{41}\text{Ca}$ ,  $^{60}\text{Fe}$ ,  $^{99}\text{Tc}$  and  $^{236}\text{U}$
4. Archaeology and general application

### Important dates

Before Feb. 28, 2015 1st announcement  
May 31-June 30, 2015 Abstract submission  
Before June 30, 2015 2nd announcement  
May 31-July 31, 2015 Early registration  
August 31, 2015 Final announcement and program  
October 05-07, 2015 EA-AMS 6 symposium  
October 08-10, 2008 Post-conference excursion

### Agenda

#### 10/04/2015 (Sunday)

14:00 ~18:00 Registration in the lobby of Department of Geosciences at NTU

#### 10/05/2015 (Monday)

#### Morning Session, Chairperson: Prof. Hong-Chun Li (Dept. of Geosciences, NTU)

8:00~9:00 Registration in the lobby of the conference hall

9:00~9:10 Welcome Speech by **Prof. Pan-Chyr Yang** (President of NTU)

9:10~9:20 Welcome Speech by **Prof. Yue-Gau Chen** (Director, Natural Science Division of The MOST)

9:20~9:30 Welcome Speech by **Prof. Shih-Tzung Liu** (Dean, College of Science, NTU)

9:30~9:40 Welcome Speech by **Prof. Shie-Ming Peng** (Academician of Academia Sinica, Director of the NTU-MOST instrumentation center)

9:40~9:50 Group photo

9:50~10:20 Coffee and Teatime (Cookies and beverages are provided)

#### Keynote speech Session, Chairperson: Prof. Wei-Jian Zhou (IEES, CAS)

10:20~11:10 **Prof. Tim Jull** (U. of Arizona), *Some environmental applications of AMS using  $^{14}\text{C}$  and  $^{129}\text{I}$ .*

11:10~12:00 **Dr. Xiaomei Xu** (UCIrvine), *Bomb-radiocarbon in atmosphere: current status and its application in fossil fuel  $\text{CO}_2$  emission.*



12:00~13:00 Lunch(Lunch boxes are provided)

**Oral session 1** (20 min for each presentation including 15 min talk and 5 min discussion)

**AMS  $^{14}\text{C}$  dating and Application, Chairpersons: Dr. George Burr (University of Arizona) and Prof. Tim Jull (University of Arizona)**

13:00~13:20 **Prof. Wan Hong**(KIGAM), *Relation of marine reservoir effect and sea level in Holocene* (Invited talk).

13:20~13:40 **Dr. George Burr**(U of Arizona), *A history of the Aral Sea (Central Asia) since the Late Pleistocene* (Invited talk).

13:40~14:00 **Dr. Minoru Sakamoto**(National Museum of Japanese History), *AMS Radiocarbon dating of Main Hall of Hojobo Hinata Yakushi by  $^{14}\text{C}$ -wiggle matching in relation to calibration curves.*

14:00~14:20 **Dr. Liang-Chi Wang**(National Taiwan Museum), *Late Holocene hydroclimate variability in NE Taiwan-the evidences of pollen and diatom records from two sediment cores.*

14:20~14:40 **Prof. Huei-Fen Chen**(National Taiwan Ocean University), *The sedimentary rate in Taiwan's lakes.*

14:40~15:00 **Dr. Min Zhao**(Institute of Geochemistry, CAS; also at NTU), *Carbon cycles in a karst springwater system in central Guizhou:  $\delta^{14}\text{C}$ ,  $\delta^{13}\text{C}$  and geochemical indicators.*

15:00~15:40 Coffee and Teatime (Cookies and beverages are provided)

**Oral session 2** (20 min for each presentation including 15 min talk and 5 min discussion)

**Status report and technical development, Chairpersons: Prof. Wan Hong (KIGAM) and Prof. Shan Jiang (China Institute of Atomic Energy)**

15:40~16:00 **Prof. Hiroyuki Matsuzaki**(MALT, The University of Tokyo), *The MALT status in 2015*(Invited talk).

16:00~16:20 **Prof. Toshio Nakamura**(Center for Chronological Research, Nagoya University), *Present status of  $^{14}\text{C}$  AMS system at Nagoya University (2014/15)*(Invited talk).

16:20~16:40 **Prof. Shan Jiang** (China Institute of Atomic Energy), *The scientific and technical problems in smaller-size of AMS system*(Invited talk).

16:40~17:00 **Dr. Ming He** (China Institute of Atomic Energy), *A home-made  $^{14}\text{C}$  AMS facility at CIAE.*

17:00~17:20 **Dr. John Eliades**(KIST), *The effective ion energy in a radio-frequency ion guide*

17:20~17:40 **Prof. Hong-Chun Li**(NTU), *Status report of the NTUAMS Lab.*

**10/06/2015(Tuesday)**

**Oral session 3** (20 min for each presentation including 15 min talk and 5 min discussion)

**Analysis and Application of  $^{10}\text{Be}$  and heavy isotopes, Chairpersons: Prof. Toshio Nakamura(Nagoya University) and Zhongping Lai (China University of Geosciences)**

8:00~8:20 **Prof. Wei-Jian Zhou** (IEES, CAS),  *$^{10}\text{Be}$  evidence for Brunhes-Matuyama magnetic polarity reversal in Chinese loess*(Invited talk).

8:20~8:40 **Prof. Xiao-Lin Hou**(IEES, CAS), *Speciation analysis of  $^{129}\text{I}$  in atmosphere by AMS and its applications for studies of environmental processes.*

8:40~9:00 **Dr. Maki Honda**(University of Tsukuba), *Developments of analytical methods for  $^{36}\text{Cl}$ ,  $^{129}\text{I}$ ,  $^{99}\text{Tc}$  in soil samples.*

9:00~9:20 **Dr. Haruka Kusuno** (MALT, The University of Museum, The University of Tokyo), *Relationship of  $^{129}\text{I}/^{127}\text{I}$  ratio between fish and seawater samples.*

9:20~9:40 **Dr. Aya Sakaguchi** (University of Tsukuba), *Reconstruction of anthropogenic  $^{236}\text{U}$  input to the North West Pacific.*

9:40~10:00 **Dr. Qi Liu** (IEES, CAS), *Preliminary investigation on the rapid and direct AMS measurement of  $^{129}\text{I}$  in environmental samples without chemical separation.*

10:00~10:30 Coffee and Teatime (Cookies and beverages are provided)

**Oral session 4** (20 min for each presentation including 15 min talk and 5 min discussion)  
**AMS  $^{14}\text{C}$  dating and Application, Chairperson: Dr. Xiaomei Xu (UCI) and Dr. Shouyeh Gong (National Museum of Natural Science)**

10:30~10:50 **Prof. Junghun Park** (KIGAM), *Discussions extracted from  $\Delta^{14}\text{C}$  from 2010 to 2014 year in Korea.*

10:50~11:10 **Prof. Zhongping Lai** (China University of Geosciences), *Radiocarbon and luminescence dating comparison for lacustrine and aeolian sediments in arid China.*

11:10~11:30 **Dr. Shouyeh Gong** (National Museum of Natural Science), *AMS  $^{14}\text{C}$  age dating of Holocene microbial carbonates of reef environment, the Philippines.*

11:30~11:50 **Prof. Ludvig Löwemark** (NTU), *The influence of bioturbation and trace fossils on radiocarbon dates of foraminifera.*

11:50~12:10 **Ms. Shing-lin Wang** (NTU), *Tracing the sources of carbon in clay minerals: an example from western Taiwan.*

12:20~19:00 pm Box lunch. Field trip to Yehliu Geopark  
(<http://www.ylgeopark.org.tw/>) and Tatum Volcanic mountains  
(<http://www.ymsn.gov.tw/>)

**10/07/2015(Wednesday)**

**Oral session 5** (20 min for each presentation including 15 min talk and 5 min discussion)  
**Status report and technical development, Chairpersons: Prof. Hiroyuki Matsuzaki (MALT, The University of Tokyo) and Prof. Kimikazu Sasa (The University of Tsukuba)**

8:00~8:20 **Mr. Yasuto Miyake**(Dept.of NEM, University of Tokyo), *Development of a negative ion cooler for isobar suppression on AMS at MALT.*

8:20~8:40 **Dr. Kazuhiro Nakashoji** (Dept.of NEM, University of Tokyo), *Development of  $^{236}\text{U}$ -AMS in MALT.*

8:40~9:00 **Dr. Minoru Yoneda** (The University Museum, The University of Tokyo), *A new AMS facility in an exhibition hall of UMUT.*

9:00~9:20 **Prof. Kimikazu Sasa** (The University of Tsukuba), *Construction of the 6 MV tandem accelerator for multi-nuclide AMS at the University of Tsukuba (Invited talk).*

9:20~9:40 **Prof. Hong-Tao Shen** (Guangxi Normal University), *Study on  $^{41}\text{Ca}$ -AMS as an approach to assess the curative effect of the drugs for bone disease.*

9:40~10:00 **Prof. Hong-Chun Li** (NTU), *AMS  $^{14}\text{C}$  dating on speleothems.*

10:00~10:30 Coffee and Teatime(Cookies and beverages are provided)

**Oral session 6** (20 min for each presentation including 15 min talk and 5 min discussion)

**Archaeology and general application, Chairpersons: Prof. Mineo Imamura (National Museum of Japanese History) and Prof. Kuang-Ti Li (Academia Sinica)**

10:30~10:50 **Prof. Mineo Imamura** (National Museum of Japanese History), *Social developments in Yayoi period (10c. BC to 3c. AD) as revealed by AMS-<sup>14</sup>C dating -A review* (Invited talk).

10:50~11:10 **Prof. Hung-Lin Chiu** (Institute of Anthropology, National Tsing Hua University), *A new perspective to the earliest human fossil "Zuozhen Man" found in Tainan, Taiwan.*

11:10~11:30 **Prof. Kuang-Ti Li** (Institute of History and Philology, Academia Sinica), *Radiocarbon chronology of the Nankuanli and Nankuanli East sites at Tainan Science Park, Southwestern Taiwan.*

11:30~11:50 **Prof. Meng-Long Hsieh** (National Chung Cheng University), *The applications of radiocarbon dating in the active mountains of Taiwan: an overview.*

11:50~12:10 **Dr. Jun-Yun Li** (Southwest University of China, also at NTU), *Tracing carbon source and mixing in Furong Cave system through AMS <sup>14</sup>C dating on modern speleothem deposits.*

12:00~13:00 Lunch (Lunch boxes are provided)

**Oral session 7** (20 min for each presentation including 15 min talk and 5 min discussion)  
**Analysis and Application of <sup>10</sup>Be and heavy isotopes, Chairpersons: vDr. Xiao-Lin Hou (IEES, CAS) and Dr. Kyeong Ja Kim (KIGAM)**

13:00~13:20 **Dr. Kyeong Ja Kim** (KIGAM), *Investigation on paleoclimate change of the Western Arctic Ocean using beryllium isotopes* (Invited talk).

13:20~13:40 **Prof. Guan-Jun Shen** (Nanjing Normal University), *Application of <sup>26</sup>Al/<sup>10</sup>Be burial dating to early hominin sites in China.*

13:40~14:00 **Dr. Norikazu Kinoshita** (Shimizu Corporation), *Search for supernova signature of <sup>60</sup>Fe from manganese crust.*

14:00~14:20 **Dr. Wataru Kijima** (the University of Tokyo), *Simulation of iodine dynamics in soil.*

14:20~14:40 **Dr. Tetsuya Matsunaka** (University of Tsukuba), *Iodine isotopic ratio in crater lake and geothermal area at Zao volcano, Japan.*

14:40~15:00 **Dr. Erika Tanaka** (The University of Tokyo), *The speciation analysis of <sup>127</sup>I and <sup>129</sup>I in seawater.*

15:00~15:20 **Mr. Angel Bautista VII** (The University of Tokyo), *Iodine-129 in two coral cores from the Philippines as a tracer of anthropogenic nuclear activities and atmosphere-ocean transport.*

15:20~15:50 Coffee and Teatime (Cookies and beverages are provided)

15:50~17:00 **Poster session (including coffee time), Chairpersons: Dr. Min Zhao and Dr. Jun-Yun Li**

**Kang, Sucheng** *The AMS <sup>14</sup>C dating results on inter-comparison samples in the NTUAMS Lab.*

**Lo, Fanglin** *Chronology and seasonality of Szekou Formation: new AMS <sup>14</sup>C dates and stable isotopes on shells.*

**Zhao, Min** *Chronology and growth rate of stalagmites in Yamen Cave determined by AMS <sup>14</sup>C dating: Climate and environmental significance.*

**Zhao, Min** *Test of a new graphite reduction system at the NTUAMS Lab.*

**Li, Jun-Yun** *AMS <sup>14</sup>C dating on stalagmites from Xinya Cave in east Chongqing.*

**Lien, Wanyin** *The chronological reconstruction of stalagmite record in Jinlun Cave by AMS  $^{14}\text{C}$  dating.*

**Dong, Kejun** *Methodological study on AMS measurement of ultra-trace Pu isotope ratios at CIAE.*

**He, Ming** *Study on calcium absorptivity of rats by  $^{41}\text{Ca}$  labeling endogenous calcium.*

**Li, Kangning** *Construction control system of compact  $^{14}\text{C}$  accelerator mass spectrometry.*

**You, Qubo** *Performance of the AMS system at CIAE.*

**Su, Shengyong** *Development of a compact  $^{14}\text{C}$  AMS system at CIAE.*

**Zhu, Yi-Zhi** *Environmental change and the archaeological culture sequences in the Dong Long Shan area of Shaanxi Province.*

**Wang, Meijuan** *Rapidity bin multiplicity correlation from a multi-phase transport model.*

**Li, Zi-Ye** *AMS  $^{14}\text{C}$  dating controlled records of monsoon and Indonesian throughflow variability from the eastern Indian Ocean of the past 32,000 years.*

**Lei, Guoliang** *Climate variations over the late Holocene inferred from peat record, Southeast China.*

**Zhou, Aifeng** *Changes in the radiocarbon reservoir age in Lake Xingyun, southwestern China during the Holocene.*

**Liu, Shengfa** *Records of the paleoclimate during the fast transgression period (13 ka BP-8 ka BP) from the mud area on the inner shelf of the East China Sea.*

**Liu, Jihua** *AMS  $^{14}\text{C}$  age model building in the mud deposits from the inner shelf of East China Sea.*

**Bautista, Angel** *Establishing a method for  $^{129}\text{I}/^{127}\text{I}$  measurement in coral samples.*

**Kokubu, Yoko** *Present status of JAEA-AMS-TONO.*

**Mao, Wei** *Studies on distribution of  $^{131}\text{I}$  in the soil around Fukushima Daiichi Nuclear Power Plant accident region.*

**Matsumura, Masumi** *Environmental impact of the Fukushima accident on iodine-129 levels in meteoric water.*

**Okuno, Mitsuru** *A preliminary result of AMS  $^{14}\text{C}$  dating on wood trunks from crater wall of Pinatubo volcano, Luzon Island, Philippines.*

**Satou, Yukihiko** *Sample preparation for strontium-90 AMS using solid phase extraction.*

**Takahashi, Hiroshi** *Carbon isotopic change of DIC in water after sampling: A pre-test for RICE-W program.*

**Tokanai, Fuyuki** *Present status of YU-AMS system.*

**Kim, Joon-Kon** *Data manipulation for the radiocarbon age-dating at KIST AMS laboratory*

**Lee, Gwan-Ho** *Microdose Clinical Study for Human Using KIST AMS.*

**Oh, Min-Seok** *Microdose study for in vivo Toxicokinetics of Tryptophan Using AMS: New Strategy to Food Toxicology.*

**Sung, Kilho** *The expansion of a hydrolysis treatment system for carbonate samples for radiocarbon measurement.*

**Chiu, Pin Yao** *Radiocarbon dating on Arctic deep marine sediment to refine the usage of Mn pattern.*

**Chuang, Chih-Kai** *AMS  $^{14}\text{C}$  dates and stable isotopes of foraminifera shells in Szekou Formation in South Taiwan: Tectonic and environmental implications.*

**Lin, Dacheng** *AMS  $^{14}\text{C}$  dating-controlled hydrographic variability in the northern South China Sea over the past 45,000 years.*

**Pan, Huijuan** *Assessing age uncertainty and sensitivity of AMS carbon dating inferred by CALIB and OXCAL radiocarbon calibrations on Core MD178-103264.*

**Tsai, Hung-Lin** *AMS <sup>14</sup>C dating using benthic foraminifer shells from an East China Sea shelf core MZ01: the progress on reducing the uncertainties.*

**Chang, Shu-Han** *Foraminiferal Radiocarbon Dating and the Inferred Intermediate Water Ventilation Changes of the Western Pacific.*

Poster size is 150cm high and 90cm wide (see R2A model below)

17:00~18:00 Business meeting, Summary statement and discussion for the next Symposium Closing of EA-AMS 6, **Chairperson: Prof. Hong-Chun Li**

### **10/08~10/10/2015(Thursday to Saturday)**

8:00 am Post conference excursion to Hualien (花蓮) and Taitung (台東) for field trips. In Hualien, we will visit the geological sites along the gorge in the Taroko National Park (<http://www.taroko.gov.tw/English/>). In Taitung, we will visit National Museum of Prehistory (<http://www.nm.gov.tw/>). For more information of this area, please check (<http://www.eastcoast-nsa.gov.tw/en-us>).

#### **Sites to be visited on 10/8/2015**

Taroko National Park, <http://www.taroko.gov.tw/English/>

#### **Sites to be visited on 10/9/2015**

Qixingtang Scenic Area, <http://tour-hualien.hl.gov.tw/en/Attraction/Information.aspx?zone=2>

East Rift valley, <http://tour-hualien.hl.gov.tw/en/Attraction/AttractionMa.aspx#content>

Tropic of Cancer Marker, <http://www.eastcoast-nsa.gov.tw/en-us/Attractions/Detail/69>

National Museum of Prehistory, <http://www.nm.gov.tw/>

Liji Badlands, <http://tour.taitung.gov.tw/zh-tw/Travel/ScenicSpot/281/>

#### **Sites to be visited on 10/10/2015**

Shitiping, <http://www.eastcoast-nsa.gov.tw/en-us/Attractions/Detail/64>

We are preparing the guidebook for the field trip.

#### **Registration and fees**

The registration fee is NT\$9000 (or US\$300)/person. The registration fee will cover meeting materials, lunches, cookies and beverages during coffee times for 10/5 to 10/7/2015, and bus transportation and admission tickets in the afternoon of 10/06/2015 to Yeliu and Tatun Geoparks. The rental fees for the conference hall and posters are quite expensive.

Fees for the Post conference excursion to Hualien and Taitung are NT\$6000/person that includes bus transportation, park entrance fee, insurance and accommodation (hotels and meals) for 10/08 and 10/09/2015, and meals for 10/10/2015. We will return to Taipei on the night of 10/10/2015, and you will be responsible for your living place in Taipei on that night.

Please wire-transfer your registration fee and field trip fee of Post conference excursion to the account below. After you have done the transfer, please e-mail the proof (匯款證明) to Ms. Lin (my assistant) at [lin1981@ntu.edu.tw](mailto:lin1981@ntu.edu.tw). We do not accept credit cards. The registration fee can be paid in CASH (NT\$9000 (or US\$300)/person) on site.

#### APPOINTED OFFICES HANDLING INTERNATIONAL BUSINESS

Bank name (華南銀行): Hua Nan Commercial Bank

Bank BranchCode(分行代號): 154

Account name (帳戶名稱): National Taiwan University

Account number (帳號): 154360000028

Branch Name(分行名稱): TAITA BRANCH(台大分行)

Address: 1, Sec.4, Roosevelt Rd., Taipei, Taiwan, R.O.C.

TEL/FAX: Tel: (02) 23631478 Fax: (02) 23639657

Country Code:886

SWIFT CODE: HNBKWTWP154

#### Symposium Venue and Hotel

10/5~10/7/2015, The symposium will be held in the International Conference Hall, College of Sciences, National Taiwan University (台灣大學理學院思亮館國際會議廳), <http://www.science.ntu.edu.tw/sitereservation.php>

For living places, the following places are around the university and have contract with our university so that the rate is better than the normal prices. These houses and hotels are rated 3-star or higher. All the prices listed here need to go through our reservations. In many cases, double room means that two persons live on one queen-size (or full-or king-size) bed. Therefore, when you make reservation, please indicate whether you need two beds or one bed for two persons. Refund policy is following each hotel's requirement. Please check it on-line of each hotel provided below. You may book your hotel through other ways.

1. 台大修齊會館 (NTU Hsiu Chi House), Price: NT\$1550/single, NT\$2000/Double, no breakfast.

台北市中正區思源街16-1號 (No.16-1, Siyuan St., Zhongzheng Dist., Taipei City), [http://ntudorm.prince.com.tw/Institute\\_List.aspx](http://ntudorm.prince.com.tw/Institute_List.aspx)

2. 儷園飯店 (Liyuan Hotel), Price: NT\$2600/room for two persons, breakfast is included. 台北市羅斯福路三段98號 (No.98, Sec. 3, Roosevelt Rd., Zhongzheng Dist., Taipei City 100), <http://www.liyuan.tw/>

3. 捷絲旅-臺大尊賢館 (Just Sleep@NTU), Price: NT\$2900/room for two persons, breakfast is included.

台北市羅斯福路四段83號 (No. 83, Sec. 4, Roosevelt Rd., Taipei 10673, Tel: 886 2 7735 5088), <http://www.justslee.com.tw/NTU/zh/index>

4. 福華文教會館 (Howard Civil Service International House), Price: NT\$2000/single, NT\$3420/double, breakfast is included.

台北市新生南路三段30號 (No. 30, Section 3, Xinsheng S Rd, Da'an District, Taipei City, Taiwan 106), <http://intl-house.howard-hotels.com.tw/>

#### Abstract submission

Abstract format should be in English, Time New Roman font and size 12. The maximum length of the abstract is 3 pages, so that you may insert key figures and tables. Set up the margin of 2.5 cm for all sides. The submission deadline is June 30, 2015. Please complete your abstract as early as possible and email it to [hcli1960@ntu.edu.tw](mailto:hcli1960@ntu.edu.tw) and [lin1981@ntu.edu.tw](mailto:lin1981@ntu.edu.tw). A template abstract form is attached with the circular.

#### Contact information

The NTUAMS Lab will help you as much as we can. Our team members are:  
Prof. Hong-Chun Li, [hcli1960@ntu.edu.tw](mailto:hcli1960@ntu.edu.tw), ++886-2-33662929  
Dr. Min Zhao, [minzhao@ntu.edu.tw](mailto:minzhao@ntu.edu.tw), ++886-2-33661598  
Dr. Jun-Yun Li, [lijunyun@ntu.edu.tw](mailto:lijunyun@ntu.edu.tw), ++886-2-33661598  
Ms. Chia-Yuan Lin, [lin1981@ntu.edu.tw](mailto:lin1981@ntu.edu.tw), ++886-2-33662929  
Mrs. Su-Chen Kang, [suckang@ntu.edu.tw](mailto:suckang@ntu.edu.tw), ++886-2-33669402  
Ms. Chun-Yan Chou, [cychou@ntu.edu.tw](mailto:cychou@ntu.edu.tw), ++886-2-33669402  
Ms. Fang-Lin Lo, [fanglinlo@ntu.edu.tw](mailto:fanglinlo@ntu.edu.tw), ++886-2-33669402

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## SÉMINAIRE "COLOR AND SPACE IN CULTURAL HERITAGE" - 13 OCTOBRE 2015 - NEUCHÂTEL



Madame, Monsieur,

Nous avons le plaisir de vous informer de la tenue les 12-14 octobre 2015 de la réunion des groupes de travail de l'Action COST COSCH ([Colour and Space in Cultural Heritage](#)) au Campus HE-Arc à Neuchâtel.

Ce projet européen qui a démarré en 2012 et qui se poursuivra jusqu'en 2016 a pour but de mettre en réseau les experts en imageries spatiale et spectrale et les professionnels de la conservation-restauration.

Vous êtes convié(e) à participer au séminaire « grand public » qui aura lieu le **mardi 13 octobre** et qui vous permettra d'en savoir plus sur cette action et les travaux développés autour de différentes études de cas.

La participation est gratuite, une pause-café vous sera offerte en milieu de matinée et d'après-midi, les participants prennent en charge leur repas de midi.

Madame Chiara Stefani, de la société Archeotech, présentera un tour d'horizon de l'application de ces techniques en Suisse en guise d'ouverture du séminaire.

Vous trouvez en annexe à ce message le programme détaillé de ces journées, y compris pour le lundi et le mercredi qui sont des journées davantage destinées aux membres de l'action COST. Nous joignons également le Flyer sur lequel vous trouvez les informations pratiques (contact, accès, etc.).

Inscription en répondant à ce mail, en indiquant les informations suivantes :

Nom et prénom :

Institution :

Matin/après-midi ou journée :

**Délai d'inscription : 01.10.2015**



A disposition pour toutes questions, nous vous présentons nos cordiales salutations.

**Isabelle Rérat**

Secrétaire de direction

**Haute Ecole Arc**

Tél. +41 32 930 19 19

**Conservation-restauration**

Tél. direct +41 32 930 19 21 (lu, ma et je)

Espace de l'Europe 11

Fax +41 32 930 19 20

CH-2000 Neuchâtel

Internet [www.he-arc.ch](http://www.he-arc.ch)

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**IRUG 12 CONFERENCE, ORMYLIA**  
**FOUNDATION - ART DIAGNOSIS CENTRE,**  
**ORMYLIA CHALKIDIKI, GREECE, MAY 23-**  
**25, 2016, 2<sup>ND</sup> ANNOUNCEMENT AND CALL**  
**FOR PAPERS**

Date: **May 23-25, 2016**

Venue: **Ormylia Foundation - Art Diagnosis Centre, Ormylia Chalkidiki, Greece**  
[www.ormyliafoundation.gr](http://www.ormyliafoundation.gr)

The international scientific committee and the local organizers of the IRUG 12 Conference to be held in Ormylia Chalkidiki, Greece, May 23-25, 2016 are inviting you to submit a paper. Abstract Submission (500 words) is now open with deadline the 15th of December 2015.

The conference will include oral and poster presentations addressing all aspects of the application of IR and Raman spectroscopies for the study, documentation and protection of the world's cultural heritage.

A special topic that will be addressed within the conference sessions is the Advancements in Infrared and Raman Spectroscopies Applied in Archaeological Science.

Important dates:

Abstract Submission (500 words): **September 20 – December 15, 2015**

Notification of Acceptance: **January 15, 2016**

Final Program: **February 15, 2016**

Registration: **September 20, 2015 – April 30, 2016 (Normal 250 €, Student 150 €)**

Conference: **May 23-25, 2016**

Further information for abstract submission and online registration procedures, social events, accommodations and transportation is published at the Conference Website:  
[www.IRUG12-ormylia.gr](http://www.IRUG12-ormylia.gr)

The official conference language is English.

Looking forward to your abstract submission and to seeing you in May 2016.

Welcome to Ormylia, Greece!

On behalf of the Organizing Committee,

Sophia Sotiropoulou, Chair of the IRUG 12

IRUG is a not-for-profit 501(C)3 organization that encourages the development and sharing of IR and Raman reference data and information for cultural heritage studies:  
<http://www.irug.org>.

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**HMS RESEARCH IN PROGRESS MEETING**  
**2015, BRUNEL UNIVERSITY, 13<sup>TH</sup> OF**  
**NOVEMBER 2015**

Dear colleagues,

The programme and abstracts for the HMS Research in Progress to be held at Brunel University the 13<sup>th</sup> of November 2015 is now available on our website: <http://hist-met.org/meetings/rip.html>. The registration fee is £15 and online bookings are being taken.

For more information please contact Lorna Anguilano at [Lorna.Anguilano@BRUNEL.AC.UK](mailto:Lorna.Anguilano@BRUNEL.AC.UK)

Best Wishes  
Eleanor Blakelock  
HMS Events officer

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**Art2016, INTERNATIONAL CONFERENCE**  
**ON INNOVATION IN ART RESEARCH AND**  
**TECHNOLOGY, GHENT, BELGIUM, 21-25**  
**MARCH 2016**

Dear Colleagues,

We are pleased to invite you at the in Art2016, INTERNATIONAL CONFERENCE ON INNOVATION IN ART RESEARCH AND TECHNOLOGY, that will take place in GHENT, BELGIUM AT 21-25 MARCH 2016.

The main AIM of the conference is to merge humanities with cutting-edge scientific research. The TOPICS to be addressed within the conference sessions are: new technological developments, in vitro experimental set-ups and degradation mechanisms, in situ experiments and mobile instrumentation, the need on non-invasive and non-destructive analysis, imaging techniques, environmental issues on the preservation of art and archaeological objects, etc.

More details on the conference can be found on the conference website:

<http://www.inart2016.ugent.be/> [1]

Here, you are also able to sign in on our mailing list (pre-registration).

You can also join us on facebook via <https://www.facebook.com/inart2016> [2]

We hope to welcome you in Ghent!

On behalf of the Organizing Committee,

Peter Vandenaabeele,  
Chair of the inArt2016.

[www.inart2016.ugent.be](http://www.inart2016.ugent.be) [3]

[www.facebook.com/inart2016](http://www.facebook.com/inart2016) [4]

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Links:

[1] <http://www.inart2016.ugent.be/>

[2] <https://www.facebook.com/inart2016>

[3] <http://www.inart2016.ugent.be>

[4] <http://www.facebook.com/inart2016>

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**ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –**  
**JOB VACANCIES/FELLOWSHIPS**  
**BIOARCHAEOLOGY AT CORNELL**  
**UNIVERSITY**

The Department of Anthropology at Cornell University invites applications for a tenure-track faculty position focused in bioarchaeology. We construe bioarchaeology broadly to include a range of approaches to understanding the human body in its material setting both historically and theoretically. The ideal candidate will help to strengthen links among departmental research interests in archaeology, biological anthropology, and medical anthropology. We seek candidates who ground their biological interests in archaeological field work and whose research involves a concern with archaeological context, innovative approaches to theoretical interpretation, and sensitivity to the ethics of practice. Although we have a particular interest in applications from candidates conducting research in Latin America (including the Caribbean) and Asia, geographic area of expertise is open. The appointment will be made at the Assistant Professor level.

Candidates should be prepared to teach a range of courses at the undergraduate and graduate level that contribute to the overall mission of the department and develop their own area of specialty. They should also be committed to mentoring graduate students. Candidates must hold a Ph.D. at the time of appointment.

Applications should include:

- a detailed letter describing current and planned research activities, teaching qualifications and interests at both graduate and undergraduate levels;
- a full curriculum vitae;
- the names and addresses (including telephone and e-mail) of three academic referees.

**Applications should be submitted online at: <http://academicjobsonline.org/6067>**

Or by mail to:

Recruitment Committee Chair  
Department of Anthropology  
Cornell University  
261 McGraw Hall  
Ithaca, NY 14853

Review of applications will begin November 1, 2015 and continue until a candidate has been hired.

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## **AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS NEH FELLOWSHIPS**

Deadline: October 31

Founded in 1881, the American School of Classical Studies at Athens (ASCSA) is the most significant resource in Greece for American scholars in the fields of Greek language, literature, history, archaeology, philosophy, and art, from pre-Hellenic times to the present. It offers two major research libraries: the Blegen, with over 100,000 volumes dedicated to the ancient Mediterranean world; and the Gennadius, with over 125,000 volumes and archives devoted to post-classical Hellenic civilization and, more broadly, the Balkans and the eastern Mediterranean. The School also sponsors excavations and provides centers for advanced research in archaeological and related topics at its excavations in the Athenian Agora and Corinth, and it houses an archaeological laboratory at the main building complex in Athens. By agreement with the Greek government, the ASCSA is authorized to serve as liaison with the Hellenic Ministry of Culture and Tourism on behalf of American students and scholars for the acquisition of permits to conduct archaeological work and to study museum collections.

Since its inception in 1994, the National Endowment for the Humanities (NEH) Fellowship program at the ASCSA has demonstrated its effectiveness by supporting projects for 47 scholars with distinguished research and teaching careers in the humanities.

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

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

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

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

<http://www.ascsa.edu.gr/index.php/admission-membership/student-associate-membership>.

The following items should be attached to the Associate Member application submitted online on the ASCSA web site:

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

The following criteria will be used by the Selection Committee when considering applications.

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

NEH Fellowships  
American School of Classical Studies at Athens  
6-8 Charlton Street  
Princeton, NJ 08540-5232

Web site: <http://www.ascsa.edu.gr> or  
<http://www.ascsa.edu.gr/index.php/admission-membership/grants>  
E-mail: [application@ascsa.org](mailto:application@ascsa.org)

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

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

\*\*\*\*\*

Ms. Mary Darlington  
Executive Associate



American School of Classical Studies at Athens  
6-8 Charlton Street  
Princeton, NJ 08540  
[med@ascsa.org](mailto:med@ascsa.org)  
TEL 609-454-6811 - direct dial  
FAX 609-924-0578

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## **AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS, POSITION AVAILABLE, DIRECTOR OF THE SCHOOL**

**Deadline: December 1**

The American School of Classical Studies at Athens seeks a distinguished scholar and experienced administrator having close familiarity with the School for the position of Director of the School. The Director works with the School's Managing Committee and Trustees in developing and implementing the academic and fiscal policy of the School and reports to the Managing Committee through its Chair. The Director leads the School's mission in Greece and oversees the School's activities, including its academic program, excavations, and other research. The Director is expected to participate actively in the design of academic programs and the instruction of students at the School. All department heads, including those of the Blegen and Gennadius libraries, the Archives, the Athenian Agora and Ancient Corinth excavations, and the Wiener Laboratory, report to the Director. The Director also oversees relations between the School and the host country, especially with the Hellenic Ministry of Culture and Sports, and is active in seeking funding opportunities for the School in Greece and in the E.U. Good command of Modern Greek is essential. Candidates must demonstrate strong qualities of leadership and articulate clearly their vision for the future of the School.

The term is flexible, two to five years. It begins on July 1, 2017, and is renewable. Salary and benefits commensurate with rank and experience, housing in the Director's residence, travel and entertainment budgets provided. The incumbent is not seeking a second term.

The deadline for applications and all supporting materials is December 1, 2015. Candidates should apply online, uploading a curriculum vitae and a statement explaining their interest in the position and their vision for it (max. 750 words), at: <https://ascsa.wufoo.com/forms/director-of-the-school-application>. Candidates should ask three people familiar with their work to send a letter of support as a Word or PDF file to [application@ascsa.org](mailto:application@ascsa.org) or mail a hard copy to Professor Peter Krentz, Chair, Committee on Personnel, American School of Classical Studies at Athens, 6 - 8 Charlton Street, Princeton, NJ 08540-5232.

ASCSA is an EO/AA employer

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American School of Classical Studies at Athens  
6-8 Charlton Street  
Princeton NJ 08540  
[www.ascsa.gr.edu](http://www.ascsa.gr.edu)

**Link to bulletin:** <http://www.ascsa.edu.gr/index.php/about/position>

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

\*\*\*\*\*

Ms. Mary Darlington  
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TEL 609-454-6811 - direct dial  
FAX 609-924-0578

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## **ASSISTANT PROFESSORS AT THE CYPRUS INSTITUTE IN THE SCIENCE AND TECHNOLOGY IN ARCHAEOLOGY RESEARCH CENTER (STARC)**

**Closing date: 29<sup>th</sup> October 2015**

The Cyprus Institute ([www.cyi.ac.cy](http://www.cyi.ac.cy)) invites applications for tenure-track faculty positions at the level of Assistant Professor with research interests aligned with the Science and Technology in Archaeology Research Center (STARC) research agenda.

STARC aims to contribute to the field of archaeology and the study of history and cultural heritage through the development of rigorous, broad and scholarly research questions that enhance our knowledge of the past through cross-disciplinary collaborations with the natural, material, digital and social sciences. The Center is dedicated to the advancement of scientific applications and technologies through their meaningful and scholarly use. The research of STARC is assisted by partnerships and joint activities with leading regional and international institutions. Strong relationships also exist with the Institute's other research centers; namely, the Energy Environment Water Research Centre (EEWRC) and the Computation-based Science and Technology Research Centre (CASTORC).

Research topics are broad and varied, allowing for interdisciplinary exchange and scholarly discourse. They include:

- Natural and Material Sciences applied to Archaeology and Cultural Heritage;
- Provenance and dating techniques, technologies and methodology
- Archaeological Sciences, Bioarchaeology and Palaeoenvironmental research
- Characterization and Diagnostics for heritage conservation, such as chemical and physical analyses for the preservation of heritage items;
- Digital Heritage, digital documentation, databases and semantics, scientific visualization;
- Innovative approaches to architecture and built heritage; virtual historic environments

### **Description of the Position**

The new faculty members will advance the research agenda of STARC in close collaboration with the group leaders in the center, the Vice President for Research and other senior staff in the Cyprus Institute. The successful candidates must have the ability to develop and publish research that contributes significantly to the fields of archaeology and cultural heritage and to the scientific and technological applications in such domains. They will be able to formulate well-developed research inquiries and to communicate effectively with experts in other fields to generate research projects within the archaeological discourse and across disciplinary boundaries. A demonstrated ability to collaborate with local, regional and international research communities is an important requirement. As faculty members, an aptitude and/or experience in mentoring and teaching students is necessary as the successful candidates will be expected to actively contribute to the Cyprus Institute's graduate program.

The new faculty members will work in Cyprus. They will be offered tenure-track faculty positions at the rank of Assistant Professor with an attractive salary and benefits package.

### **Responsibilities**

The successful candidates will be responsible for helping to shape and advance the Cyprus Institute's and STARC's research agenda by:

- developing and implementing strategies appropriate to the Institute's mission;
- securing financial and other resources from national and international sources;
- teaching, mentoring, advising, educating and providing research guidance to graduate students in CyI's doctoral programs (particularly in the Digital Cultural Heritage program);
- delivering relevant courses & seminars and courses to CyI graduate students;
- initiating and sustaining high-level collaborative projects with leading research institutions that conduct research in areas related to their respective fields;
- communicating the results and implications of research conducted at STARC and the CyI at all levels, including the academic community, the public at large and political and economical decision makers.

### **Profile**

The successful candidates are expected to be scholars of international standing with a minimum of four years of research experience in fields relevant to STARC's research agenda. The candidates should have an extensive publication record and previous teaching experience. They will have demonstrated leadership skills and ability to work independently. They should have communicated research results to a broad public and have a proven track record in project funding and management. The selected candidates must have excellent interpersonal skills aimed at maintaining contacts in academic, business and governmental circles. Proficiency in spoken and written English is a prerequisite. Knowledge of the Greek language will be considered an advantage.

### **Application**

Applicants should submit: (i) a curriculum vitae including a list of publications and a compilation of research grants obtained (ii) a vision statement that outlines the candidate's research agenda in relation to the mission of STARC and the Cyprus Institute's interdisciplinary research scope, (iii) a list of four references (including contact information). Applications received prior to **29<sup>th</sup> October 2015** via e-mail to [HR\[at\]cyi.ac.cy](mailto:HR[at]cyi.ac.cy) showing the following reference in the subject heading: **STARC\_AP\_15\_04**, are guaranteed to be reviewed. The application and the requested documentation should be in English. Recruitment will continue and applications will be accepted until the position is filled. For further information please contact CyI's Human Resources Department.

*Please note that incomplete applications and those without the proper reference number in the subject heading will not be considered.*

### **Additional Info**

- Center: STARC
- Closing Date: Thursday, 29 October 2015

Please visit the site: <https://www.cyi.ac.cy/jobs/item/1083-assistant-professors-at-the-cyprus-institute-in-the-science-and-technology-in-archaeology-research-center-starc.html>

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## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

### **MAT - GRANTS TO ASSIST PUBLICATION**

### **2016**

The Mediterranean Archaeological Trust, set up in 1959 for the promotion of the study of archaeology, invites applications for grants, made on a competitive basis, for expenses in 2016-17, in the preparation for final **publication** of material from archaeological **excavation or fieldwork** in the Mediterranean world, **excluding** subventions to publishers or publication of material not from a specific excavation, or in symposia. Within the terms of the Trust, priority may be given to publication of Bronze Age sites. Grants for any amount, however small, will be considered, provided they expedite **publication**. The grants do not normally exceed GBP 2000.

Applicants should complete the application form (downloadable from the MAT web-site: <https://sites.google.com/site/medarchtrust/grants>), which should be sent no later than **31 January 2016** by **e-mail attachment**, to [please note **new contact address**]:

Dr Jai Clifford-Holmes: [medarchtr@gmail.com](mailto:medarchtr@gmail.com) (in case of difficulty, please contact him on: [jai.clifford.holmes@gmail.com](mailto:jai.clifford.holmes@gmail.com))

Please follow the instructions on the form, taking care to indicate the importance of the site, your qualifications, other sources of support, and the present or planned status and place of publication. Apply **in good time** to ensure that your case can be fully considered. The references (which are **essential**) should be sent directly by the referees **to the same e-mail address** and must meet the deadline of 31 January. Successful applicants will be informed in April 2016, when they will be asked to provide full bank details for payment. A report on the use of the grant must be submitted by Dec. 1, 2016. Failure to do so is likely to mean future grant applications from you will not be considered.

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## **POST GRADUATE MSc COURSE - CULTURAL HERITAGE MATERIALS AND TECHNOLOGIES - CULTTECH**

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\*\*\*\*\*

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### **THE MANAR AL-ATHAR OPEN-ACCESS PHOTO-ARCHIVE**

The Manar al-Athar open-access photo-archive (based at the University of Oxford) aims to provide high resolution, searchable images, freely-downloadable for teaching, research, heritage projects, and publication. It covers buildings and art in the areas of the former Roman empire which later came under Islamic rule (e.g. Syro-Palestine/the Levant, Arabia, Egypt, and North Africa), from ca. 300 BC to the present, but especially Roman, late antique, and early Islamic art, architecture, and sacred sites.

Many of the monuments are now inaccessible to the West making this archive an important long-term resource for research, with downloadable high resolution images which are not watermarked. The records of monuments which are damaged or destroyed will also play a vital role in future restoration. Low resolution copies of these photographs for Powerpoint make them readily suitable for classroom use and demonstrating the shared heritage of the regions covered and the West. The images download with the caption, etc. and credit line in the metadata.

The archive has over 17,000 images already online, as of September 2015. Material is labelled in both English and Arabic to facilitate regional use, with the main instructions also available in some other languages.

Judith McKenzie, Director of Manar al-Athar, University of Oxford

Please visit the site: <http://www.manar-al-athar.ox.ac.uk>

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## **ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS**

# **BRONZE AGE SAILORS IN THE LIBYAN SEA: RECONSIDERING THE CAPACITY FOR NORTHWARD VOYAGES BETWEEN CRETE AND NORTH AFRICA, BY MICHELLE CREISHER**

Master's Thesis, Brandeis University, 2015

**Abstract:** This thesis re-examines the factors which would have allowed for the possibility of a direct northward trade route between the North African coastal ports and Crete during the Bronze Age. The subject has been the topic of much scholarly debate over the years with various features being hailed as sticking points for any model of a two-way trade system in the Libyan Sea in the second millennium B.C. This paper offers a systematic discussion of each of the three major factors which have been purported by scholars as prohibiting northward voyages: the patterns and characteristics of the winds in the Mediterranean Sea, Bronze Age ship technology and the sailing techniques and practices of the time and finally, the physical evidence, both literary and archaeological, which supports a bi-directional theory.

Through the discussion laid out in this paper, one can see that in fact, the ship technology would have allowed for sailing northward from the North African coast to Crete both with the aid of an opportune southern wind and without. There are written records of such voyages having taken place, as well as a small amount of archaeological evidence which supports the model of two-way trade between Egypt and Crete. Especially during the Late Bronze Age, it is clear that certain ships would have opted for the shorter, more direct route of sailing northward in the Libyan Sea towards Crete rather than taking the longer route up along the Levantine coast towards Syria-Palestine and around.

For centuries it has been the accepted view that maritime trade in the ancient world was carried out in a counterclockwise direction around the coast of the eastern Mediterranean. According to the common views on the trade routes, sailors would set out from their home port and sail along the Mediterranean coastline in a counterclockwise direction and eventually, due to the circular nature of the eastern portion of the sea, arrive back at their home port; e.g. from the Aegean, ships would sail southward to Crete, down along the coast of North Africa to Egypt, then up along the Syrian coast, through the Cyclades, and ultimately back to Greek ports. Thus, for the most part, maritime trade routes in the Bronze Age Mediterranean are thought to resemble a modern traffic rotary. This view is supported, to a large extent, by archaeological material from both coastal sites and ancient shipwrecks around the Mediterranean. While it is well known that the Egyptians and Cretans maintained strong communications during these times and even earlier, as witnessed by the quantity of Minoan artifacts found in Egypt, the many references made to the Keftiu in Egyptian records, and the iconographic evidence of Minoan/Egyptian contact seen in the Theban tomb paintings, most of the evidence has seemed to point towards one-directional (southward) communications. Recent excavations, however, at

the site of Kommos in southern Crete have unearthed numerous Near Eastern, specifically Egyptian, pottery fragments which, by their sheer numbers, would seem to suggest possible two-directional trade between the two regions in the Late Bronze Age. Thus, it appears as though the small section of the trade rotary known as the Libyan Sea might actually have been an area of twoway, rather than one-way, traffic.

[Click here to read this thesis from Brandeis University](#)

Please visit the site: <http://www.historyoftheancientworld.com/2015/09/bronze-age-sailors-in-the-libyan-sea-reconsidering-the-capacity-for-northward-voyages-between-crete-and-north-africa/>

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# **ARCHAEODIET IN THE GREEK WORLD: DIETARY RECONSTRUCTION FROM STABLE ISOTOPE ANALYSIS**

edited by Anastasia Papathanasiou, Michael P. Richards, and Sherry C. Fox

Hesperia Suppl. 49; Occasional Wiener Lab. Series 2

224 pp, 52 b/w figs, 31 tables

Paper, 8.5" x 11"

ISBN: 978-0-87661-549-2

The analysis of stable isotope ratios of carbon and nitrogen in bone collagen provides a powerful tool for reconstructing past diets, since it provides the only direct evidence of the foods that were actually consumed. The chapters that comprise this volume describe the application of this methodology to the archaeology of Greece, a country whose archaeobotanical remains have been isotopically studied more extensively than any other place in the world. The archaeological issues that can be addressed using stable isotope methods include the importance of fishing; the possible early introduction of millet; the nature of childrearing including weaning age and weaning foods; temporal shifts in protein consumption; differential access to certain foods associated with social status as well as gender and age; and cultural differences in dietary patterns. Additionally, diet is strongly correlated with health or stress markers in the teeth and bones. Knowing what people ate has vital implications for our understanding of past environments and economies, subsistence strategies, and nutrition.

## **Contents:**

Chapter 1: "Introduction," by Anastasia Papathanasiou and Sherry C. Fox

Chapter 2: "Stable Isotope Analysis of Bone and Teeth as a Means for Reconstructing Past Human Diets in Greece," by Michael P. Richards

Chapter 3: "Stable Isotope Analyses in Neolithic and Bronze Age Greece: An Overview," by Anastasia Papathanasiou

Chapter 4: "Stable Isotope Analysis of Skeletal Assemblages from Prehistoric Northern Greece," by Sevasti Triantaphyllou

Chapter 5: "Variations in Diet in Prehistoric Thebes: The Case of the Bronze Age Mass Burial," by Efrossini Vika

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Chapter 7: "Dietary Reconstruction at the Geometric-Period Burial Site of Ayios Dimitrios," by Eleni Panagiotopoulou and Anastasia Papathanasiou

Chapter 8: "Diet and the Polis: An Isotopic Study of Diet in Athens and Laurion during the Classical, Hellenistic, and Imperial Roman Periods," by Anna Lagia

Chapter 9: "Stable Isotope Evidence for Infant Feeding Practices in the Greek Colony of Apollonia Pontica," by Cynthia S. Kwok and Anne Keenleyside

Chapter 10: "Bread, Oil, Wine, and Milk: Feeding Infants and Adults in Byzantine Greece," by Chryssi Bourbou and Sandra Garvie-Lok

Chapter 11: "Summary: Patterns in the Carbon and Nitrogen Isotope Data through Time," by Anastasia Papathanasiou and Michael P. Richards

Archaeodiet in the Greek World: Dietary Reconstruction from Stable Isotope Analysis can be purchased from our distribution partners: click here for information on how to order from [Casemate Academic](#) (in North America) or from [Oxbow Books](#) (outside North America).

Linn Schenck, Director of Publications

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## **THE POWER OF TECHNOLOGY IN THE BRONZE AGE EASTERN MEDITERRANEAN THE CASE OF THE PAINTED PLASTER**

Ann Brysbaert, University of Leiden PB £30 / \$47.95

This book is an extremely important piece of research that opens up new vistas in the study of painted plaster in the ancient Aegean and its influence and appearance throughout the eastern Mediterranean Bronze Age.

American Journal of Archaeology

The originality of the book relies on its subtitle, the 'painted plaster', where the author has to offer first-hand observations.

Bryn Mawr Classical Review

To read more about the book and to order using the discount code PT to receive 25% off the retail price valid until the end of October 2015 please visit the book page:

<https://www.equinoxpub.com/home/power-technology-bronze-age-eastern-mediterranean/>

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## **JOURNAL OF ANCIENT EGYPTIAN INTERCONNECTIONS FASCICLE (7.3)**

The Editors of the Journal of Ancient Egyptian Interconnections are pleased to announce the publication of the most recent fascicle (7.3). This special issue was prepared in honor of Professor Nanno Marinatos and her significant contributions to understanding interconnections in the ancient Mediterranean world.

The fascicle is available in two formats (content and pagination are identical):

-in print as an edited volume titled Ancient Mediterranean Interconnections: Papers in Honor of Nanno Marinatos, which is available via Amazon.com and many of its international extensions, (e.g., Amazon.co.uk, .de, .fr, .it...) and numerous booksellers.

-online via the journal itself

In print: <http://www.amazon.com/Ancient-Mediterranean-Interconnections-Marinatos-Egyptian/dp/0989815226/>

Online: <https://journals.uair.arizona.edu/index.php/jaei/index>

Contributions include:

Nanno Marinatos: A Tribute

The Editors

Nanno Marinatos: List of Academic Publications The Editors

Herodotus Aigyptiophrōn: Conversing With the Learned Egyptians A. Sebastian Anderson

Egyptian Influence and Aegean Transformation at Akrotiri, Thera: The Jug no. 8960 With a Libation Scene Emilia Banou

Comments on Minoan Beetle Images  
Phillip P. Betancourt, James D. Muhly

Was the "Minoan Genius" a God? An Essay on Near Eastern Deities and Demons in Aegean Bronze Age Iconography Fritz Blakolmer

A Mycenaean Open-Air Cult Place in Iklaina Michael B. Cosmopoulos

Why is No One Eating? The Iconography of Feasting in the Ancient World Lyvia Morgan

Skylines: Borders of Materiality, Thresholds to Heaven Clair Palyvou

Sacred Prostitution in Minoan Crete? A New Interpretation of Some Old Archaeological Findings Lefteris Platon

The Hidden Ruler: Art and Politics in Minoan Crete Helène Whittaker

Turned Weapons in Egyptian Iconography – The Decorum of Dominance Richard H. Wilkinson

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# **THE ARCHAEOLOGY OF FOOD AND WARFARE - FOOD INSECURITY IN PREHISTORY**

Editors: VanDerwarker, Amber M., Wilson, Gregory D. (Eds.) ISBN 978-3-319-18506-4  
Hardcover  
145,59 €

- Takes a novel approach to warfare by explicitly making the connection to food

The archaeologies of food and warfare have independently developed over the past several decades. This volume aims to provide concrete linkages between these research topics through the examination of case studies worldwide. Topics considered within the book include: the impacts of warfare on the daily food quest, warfare and nutritional health, ritual foodways and violence, the provisioning of warriors and armies, status-based changes in diet during times of war, logistical constraints on military campaigns, and violent competition over subsistence resources. The diversity of perspectives included in this volume may be a product of new ways of conceptualizing violence—not simply as an isolated component of a society, nor as an attribute of a particular societal type—but instead as a transformative process that is lived and irrevocably alters social, economic, and political organization and relationships. This book highlights this transformative process by presenting a cross-cultural perspective on the connection between war and food through the inclusion of case studies from several continents.

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**Please visit the site:**

[http://www.springer.com/gp/book/9783319185057?wt\\_mc=Alerts.NBA.Aug-15\\_EAST\\_20487595](http://www.springer.com/gp/book/9783319185057?wt_mc=Alerts.NBA.Aug-15_EAST_20487595)

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**PROCEEDINGS OF THE CONFERENCE**  
**"RADIOCARBON AND DIET: AQUATIC**  
**FOOD RESOURCES AND RESERVOIR**  
**EFFECTS ONLINE**

Hello all,

The proceedings of last year's conference "Radiocarbon and Diet: Aquatic Food Resources and Reservoir Effects" are now available **open access** at the journal site:

<https://journals.uair.arizona.edu/index.php/radiocarbon/issue/view/1216>

We want to thank the conference organizers, who also edited this volume, and all the participants and authors from the meeting. We are pleased that the series will continue, with a second meeting planned in Aarhus, Denmark, in 2017.

Enjoy this interesting collection of papers and hope to see you in Aarhus in 2017!

Best,

Radiocarbon journal

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## **EΙΔΗΣΕΙΣ - NEWS RELEASE**

# **BIG SHIGIR IDOL: RUSSIAN WOODEN STATUE IS OLDER THAN PYRAMIDS AND ENGRAVED WITH CODES NO ONE CAN CRACK, BY JILL ARCE**

The Big Shigir Idol is actually 1,500 years older than previously thought.

A new discovery revealed that a famous Russian monument is almost a couple thousand years more ancient than previously thought. The codes engraved on the wooden statue, however, remain a mystery up to now.

Originally 5.3 meters tall, the Big Shigir Idol lost about two meters of its height during the political turmoil of 20th century Russia. It still currently stands tall at about 2.8 meters, and is enclosed in a controlled glass box for viewing at the Sverdlovsk Regional History Museum in Russia.

The Big Shigir has an actual face, complete with eyes, a nose and mouth. Its flat body is covered with geometrical motifs whose meanings are up to now unknown. The Big Shigir Idol is believed to have existed thousands of years even before the pyramids of Egypt and the Stonehenge. The massive wooden monument fell into a peat bog in western Siberia, and remained there for thousands of years, until it was discovered in 1894.

In 1997, scientists used radiocarbon dating in an initial analysis and found the wooden statue to date back to approximately 9,500 years. Just this year, researchers used a different method and found that the Idol is much older, roughly 11,000 years old. German scientists took a few wooden samples from the statue and placed them inside an accelerated mass meter. The seven small samples revealed that the Big Shigir Idol is actually about 1.5 thousand years older than previously believed.

"The results exceeded our expectations," said Thomas Terberger, a professor at the Department of Cultural Heritage of Lower Saxony, who also took part in the new analysis that dated the statue.

"This is an extremely important data for the international scientific community," he added, highlighting developments of civilization and Eurasian art.

"We can say that in those times, 11,000 years ago, the hunters, fishermen and gatherers of the Urals were no less developed than the farmers of the Middle East."

While the scientists brag of this new discovery on the Idol's age, the codes engraved on it remain an unsolved puzzle. According to Svetlana Savchenko, Shigir's chief keeper at the museum, a straight line could represent land, or probably horizon. It could denote the boundary between the sky and earth or water, or the "borderline between worlds." A wavy line, on the other hand, represented water, a snake, a lizard or a certain border. A

zigzag line was also a representation of danger, say, a pike. Shapes like the circle, square, rhombus or cross depicted the sun or fire.

Experts, however, cannot really say for now what exactly those codes mean. While they figure out what message the Big Shigir Idol's creators were trying to send out through the statue, scientists emphasize how people at the time had intellectually advanced in a 'complicated spiritual world.'

**Please visit the site: <http://www.techtimes.com/articles/80587/20150901/big-shigir-idol-russian-wooden-statue-is-older-than-pyramids-and-engraved-with-codes-no-one-can-crack.htm>**

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## **MASSIVE ANCIENT GREEK CITY DISCOVERED SUBMERGED IN AEGEAN SEA, BY HANNAH OSBORNE**

An ancient Greek city has been discovered sunken beneath the Aegean Sea. The settlement dates back around 4,500 years (2,500 BC) and was the size of around 10 football fields, covering an area of 12 acres. Archaeologists from the Ephorate of Underwater Antiquities, University of Geneva and the Swiss School of Archaeology found the fortified Bronze Age settlement in Khilada Bay, in the Argolic Gulf. They found at least three huge horseshoe-shaped foundations attached to the wall line – which they say was possibly part of towers used to defend the settlement.

Defensive structures of this kind have never been found before from this time period in Greece, thd University of Geneva's Julien Beck said. [He told Spero Forum](#): "The importance of our discovery is partly due to the large size. There must have been a brick superstructure above a stone foundation. The chances of finding such walls under water are extremely low. The full size of the facility is not yet known. We do not know why it is surrounded by fortifications."

The find was announced by the Hellenic Ministry of Culture, Education and Religious Affairs. The team had been looking for traces of prehistoric human activity on the eastern side of the Argolic Gulf. The city was submerged between one and three metres beneath the surface and consisted of a multitude of stone buildings of differing shapes, including rectangular, circular and arcs. They found paved surfaces, which they believe to be streets.

Researchers also pulled up pottery, stone tools and blades from the site that was typical from the period of the third millennium BC. The find adds to the network of Bronze Age coastal settlements in the Argolic Gulf from the period and researchers hope they will learn more about trade, shipping and day to day life from the period.

The city is thought to be typical layout of the time, with small buildings surrounded by fortified walls. Beck said another one was found in the nearby town of Lerna, which is mentioned in Greek mythology when Hercules had to battle the Hydra. The aquatic beast had its lair in the lake of Lerna and was supposed to be an entrance to the underworld, with Hydra serving as a guard.

Beck said if they compare the latest discovery will likely lead to a re-think of Lerna's prominence: "That city is considered a reference point in architectural terms and ceramics which have been found there. Now, if we compare our discovery to that important city [its status will need to be re-examined]."

Please visit the site: <http://www.ibtimes.co.uk/massive-ancient-greek-city-discovered-submerged-aegean-sea-photos-1517615>

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## **DISCOVERY OF ANCIENT CAVE PAINTINGS IN PETRA STUNS ART SCHOLARS - EXQUISITE ARTWORKS HIDDEN UNDER 2,000 YEARS OF SOOT AND GRIME IN A JORDANIAN CAVE HAVE BEEN RESTORED BY EXPERTS FROM THE COURTAULD INSTITUTE IN LONDON**

Discovery of ancient cave paintings in Petra stuns art scholars Exquisite artworks hidden under 2,000 years of soot and grime in a Jordanian cave have been restored by experts from the Courtauld Institute in London winged child Dalya Alberge

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

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

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

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

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

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

Three different vines, grape, ivy and bindweed - all associated with Dionysus, the ancient Greek god of wine - have been identified, while the birds include a demoiselle crane and a Palestine sunbird with luscious colours. The scenes are populated by putti-like figures,

one winged child playing a flute while seated in a vine-scroll, others picking fruit and fighting off birds pecking at the grapes. The paintings are exceptional in their sophistication, extensive palette and luxurious materials, including gold leaf.

Petra - the Greek word for "rock" - is one of the world's most famous archaeological sites, where ancient eastern traditions combine with Hellenistic architecture, with monumental buildings sculpted out of the solid red sandstone. A Unesco world heritage site since 1985, it was the Nabataeans' capital city, flourishing as an economic and religious centre from the third century BC for some 400 years. Its site, in the Shera mountains, was an important crossroads for Arabia, Egypt and Syria-Phoenicia.

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

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

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

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

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

**Please visit the site: <http://www.theguardian.com/science/2010/aug/22/hellenistic-wall-paintings-petra> [Go there for pix]**

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## **1,800 YEAR-OLD SARCOPHAGUS DISCOVERED IN ISRAEL**

An 1,800 year-old sarcophagus was discovered at a construction site in southern Israel's coastal town of Ashkelon, Israel's Antiquities Authority (IAA) announced on Thursday.

The 1,800 year-old sarcophagus, which the IAA described as "rare and impressive", was discovered by construction workers who unearthed it without notifying the IAA. They also actively tried hiding it from authorities, IAA said in a statement, adding that authorities will take legal action against them, Xinhua news agency reported.

In an overnight operation between Tuesday and Wednesday, inspectors of the IAA's Unit for Prevention of Antiquities Robbery along with Israeli police officers, followed an anonymous tip and reached the site of the sarcophagus, which according to experts is a rare discovery in Israel.

Authorities believe the contractors dug out the artifact themselves during last week.

The Sarcophagus is fashioned out of limestone, weighing two tonnes at two and a half metres long, with a life-sized human figure carved on its lid. Some of its stones and decorations were damaged.

Gabi Mazor, an IAA retired archaeologist and an expert on classical periods, said the image of the human on the lid looks Roman.

"Wreaths and images of bull's heads, naked Cupids, the head of the monstrous female Medusa figure all decorate the sarcophagus. The female Medusa figure was believed by Romans to protect the deceased," Mazor explained.

"Such sarcophagi were typically placed in or next to a family mausoleum. The high level of decoration attests to the family's affluence, which judging by the depicted motifs, is not Jewish," he added.

Please visit the site: <https://in.news.yahoo.com//1-800-old-sarcophagus-discovered-israel-134004632.html>

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## **WHY THE ANCIENT EGYPTIANS BRED BIRDS OF PREY PEEKING INTO THE STOMACH OF A MUMMIFIED BIRD PROVIDES A GLIMPSE INTO HISTORY, BY LUCY GOODCHILD VAN HILTEN**

Millions of mummified cats, dogs, birds and other animals fill up museum displays and archives, having been recovered from tombs in ancient Egypt. Analyzing their contents helps researchers understand better their role in ancient Egyptian society as religious offerings. It also provides insight into how people perceived and worked with animals.

One question researchers have pondered is, "How did the Egyptians capture so many birds of prey to mummify as offerings to the gods?"

New research that involved 3D imaging of a mummified kestrel suggests for the first time that they may have bred raptors for this purpose. The study, published in the Journal of Archaeological Science, shows that a mummified kestrel died due to forced overeating. Digital CT imaging revealed that the kestrel was force-fed its last meal - a mouse - suggesting it was kept in captivity.

"The idea of birds of prey being bred to the extent of being kept and force-fed is new," said Dr. Salima Ikram, Professor of Egyptology at The American University in Cairo and lead author of the study. "Until now, the sheer number of raptor mummies had been a mystery - did they catch or trap them and kill them, raid nests or find them dead? Our results explain why they had so many: we now think it was because of active breeding."

This is the first evidence to point to mass breeding of raptors as offerings to gods. The researchers behind the study, from The American University in Cairo, Stellenbosch University and the Stellenbosch Institute for Advanced Study in South Africa, say their findings also have implications for the use of birds of prey in falconry for hunting.

### **Analyzing the mummy's last meal**

Animal mummies were common in ancient Egypt and used in religious ceremonies, often as offerings. Millions of mummified animals have been found, most dating from around 600 BC to AD 250. Ancient Egyptians believed in many gods and associated different animals with them; raptors like kestrels were connected to the sun god Ra.

In ancient Egypt, birds used as votive offerings were prepared by being gutted and dried, then dipped into molten resin and wrapped. However, sometimes the birds were not gutted, giving the researchers a chance to take a glimpse into one particular bird's life before it died.

The researchers carried out a virtual autopsy on a bird mummy from Iziko Museums of South Africa in Cape Town. The bird mummy, SACHM 2575, was scanned using CT imaging and the team created 3D images of the bird. Based on morphology, limb

measurements and beak shape, they established it was a European kestrel (*Falco tinnunculus*).

Since the bird had not been gutted prior to mummification, they could also look into its digestive tract to see what its last meal had been. They found the tail of a young house mouse (*Mus musculus*), which appears to have caused the kestrel to choke to death. Looking further into the gizzard and stomach, they found other mouse fragments, including 27 loose teeth, suggesting that the kestrel had eaten more than one mouse earlier in the day. They also found parts of a small sparrow.

### **Breeding raptors for falconry**

Dr. Ikram said the implications of this discovery were fascinating and far-reaching. "This was one of the most entertaining and exciting bits of research to do," she said. "When we saw how much the kestrel ate and how it choked, we suddenly had an idea about how the ancient Egyptians managed to mummify so many raptor and the implications about wild animal husbandry and the possibility of falconry being practiced in ancient Egypt."

Falconry is a method of hunting that involves training a bird of prey to catch animals. There is evidence of falconry practice scattered throughout history; images in Mongolia that date to about 3,000 years ago suggest it was a relatively common practice. There has also been suggestion of its practice in ancient Egypt, but little evidence to support the theory.

"We know raptors were religiously important, but it's interesting to think about the role they may have had in falconry," said Dr. Ikram. "It's also interesting that Egyptians were exerting so much thought and control over nature and that their aptitude with wild animals is considerable."

The findings open the door to further work to distinguish the different breeding groups by analyzing the DNA of the raptors and determining their sex. The researchers say this will provide a deeper understanding of the role of raptors in ancient Egypt and explain how the Egyptians saw nature and their role in it.

### **Reconstructing mummified remains**

Tens of thousands of mummified remains - animal and human - can give us insights into ancient Egyptian society. But ethically it is important not to destroy the mummies in order to see what's inside. New imaging techniques, such as those used to investigate the kestrel, enable researchers to assess wrapped mummified remains without destroying them. However, it can be tricky to identify a mummy's contents using imaging alone.

Now, a team of researchers from the University of Manchester in the UK has taken imaging to the next step, reconstructing the contents using 3D printing. In a paper published in the *Journal of Archaeological Science: Reports*, research associate Dr. Lidija McKnight and colleagues describe how they studied a mummified bundle and modeled a bone they identified inside.

In ancient Egypt, animal and human remains were often bundled together and mummified; the remains of more than one individual can be found in a single bundle.

Analyzing these bundles is challenging, as it can be difficult to identify the species present using imaging alone. The team used radiography to scan a mummy bundle and modeled the contents using computed tomography to produce a 3D image. They then used 3D laser printing to construct a replica of the fragments in the bundle.

The team identified three skeletal fragments that had been positioned to support the structure of the bundle. The researchers were unable to identify the fragments using radiography alone, but reconstructing them using 3D printing enabled the researchers to compare them directly with skeletal reference collections, showing the bones were human.

Please visit the site: <http://www.elsevier.com/connect/why-the-ancient-egyptians-bred-birds-of-prey> [Go there for 3D image of the mummified kestrel]

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## **NEW SPECIES OF HUMAN DISCOVERED IN SOUTH AFRICA, BY JUSTINE ALFORD**

Brace yourself: this discovery is huge. So huge that its profound implications will shake up our very own family tree. The [University of Witwatersrand](#), in collaboration with [National Geographic](#), is proud to announce a remarkable story of human heritage. The discovery of an early human ancestor that sits beautifully within our own genus of *Homo*. I ecstatically present to you, *Homo naledi*.

This incredible fossil find comes from the richest single hominin assemblage so far discovered in Africa. A gift that keeps on giving, the species not only enlightens us on the origins and diversity of man, but also seems to display a behavior long believed to be unique to humans, even perhaps a defining feature of our species: deliberately disposing of its dead in an isolated chamber. The discovery has been [published](#) in two [papers](#) in the open access journal [eLife](#).

A textbook-worthy accident, *H. naledi* was first stumbled upon two years ago by amateur cavers during an exploration of a cave system known as Rising Star, located within South Africa's famous Cradle of Humankind World Heritage Site. From this, the Rising Star Expedition was born, starting in November 2013 with a 21 day exploration involving a team of 60 scientists and volunteer cavers. Expecting to recover a single skeleton, just three days in they realized they had much more than that, "something different and extraordinary," research leader Lee Berger said at a press event IFLScience attended.

That something different turned out to be not several, but 15 individuals from a single hominin species, represented by more than 1,500 fossil elements found within a single chamber in total darkness some 90 meters (295 feet) from the entrance. Named in tribute to the chamber, naledi means "star" in the South African language Sesotho. And sure, 1,500 sounds like a lot, *is* a lot, but the team believes that there are thousands and thousands of remains still untouched. "The floor is practically made of bones of these individuals," Berger added.

In fact, so many have been recovered that almost every skeletal element of the body is represented multiple times throughout different age groups, from infants to teens, to young adults and the elderly. And the species seems to be a wonderful pick and mix of both primitive and human-like features. An exceptionally tall hominid, the bipedal *H. naledi* stood at around 150 centimeters (5 feet) and was distinctively slender, with powerful, well-muscled joints. Its skinny human proportions and long legs likely relate to the fact that it didn't have to support much bodyweight, weighing in at around 45 kilograms (100 pounds).

Tall this species may have been, but members had an astonishingly tiny head. So tiny that their brains were as small as that of the smallest australopith – a group of extinct early hominins – with the females' brains only being slightly larger than a chimpanzee's at around 450-550 cubic centimeters (27-34 cubic inches). There was only a very small discrepancy between males and females, not just in terms of brain size but throughout the entire body. In fact, all of the individuals were remarkably similar, more so than if you

were looking at sets of identical human twins, Berger said. Consequently, it is believed the individuals were likely closely related, perhaps a multi-generational family.

What is also remarkable is how the species seems to transition in its features, from primitive to modern, as you move down the limbs. The top of the limbs – the pelvis and shoulders – are primitive, like its cone-shaped core, but they culminate in astonishingly human-like extremities. The hand is almost entirely human-like, except for the highly curved fingers: perfect if they're trying to grip things. But their shoulders were able to rotate more than ours, suggesting they engaged in climbing. And the feet were virtually indistinguishable from ours, making contact with the ground in a similar way.

So how did this collection of individuals arrive in this dark, isolated and extremely difficult to access cave? And difficult is not an understatement: one of the narrowest cracks was a mere 17.5 centimeters wide, and as far as the group can tell, there were no other entrances to the tiny chamber. So unwelcoming that no other species were found here, aside from a few rodent and bird bones.

After ruling all of the probable scenarios, such as mass death, transport by water and predation, the team was left with the improbable: this species was deliberately, repeatedly disposing of its dead in a protected area, away from the external environment. Before now, we thought that was a characteristic specific to modern humans. “What does that mean for us?” ponders Berger. “Did we inherit it, has it always been there in our lineage, or did they invent it?” And for a species with such a tiny brain, the latter possibility is mind-boggling.

Of course, the questions do not end there. The chamber was in total darkness. How did the individuals navigate their way round these slender, jagged tunnels with death-drops around multiple corners?

“Is it a coincidence that the earliest evidence of controlled fire is only 800 meters away?” asked Berger, referring to the nearby National Heritage Site of [Swartkrans](#). “It’s speculation... But animals don’t go into the dark.”

Aside from the evidence of ritualistic burial, what else do we know about their behavior? “Nothing,” Berger chuckled to IFLScience. “We can infer from their bodies that they are long-distance walkers, again that’s something almost unique to humans. And it’s pretty clear from those fingers that they’re climbing, but we don’t know what they’re climbing. That’s not a tree climbing hand.”

As it stands, we don’t know how old the fossils are, nor do we know for how long the species existed. But we know it’s a minimum of 2 million years old, perhaps even close to 3 million, and at the very least a candidate for the base of our genus, says Berger. And if you want to see and encounter this historic find for yourself, the fossils will be on display for an entire month in the Cradle of Humankind's official visitor center, Maropeng.

**Please visit the site: <http://www.iflscience.com/editors-blog/newly-discovered-human-ancestor-likely-ritualistically-disposed-its-dead>**

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## **2,800-YEAR-OLD URARTU STORAGE JARS DISCOVERED IN EASTERN TURKEY**

Archeologists working in Turkey's eastern province of Van have uncovered 2,800-year-old pithos, or large ceramic storage containers, that once contained grain, oil and wine in the ruins of Çavuştepe Castle built by Urartu King Sarduri II.

“The storeroom we uncovered contains 120 pithos which can store up to 36 tons of food, grain, sesame oil and wine. Each pithos has a capacity of 300 kilograms,” said Yüzüncü Yıl University Archeology Faculty Prof. Rafet Çavuşoğlu. Buried till their necks, the pithos are covered in Urartu units of measurement in cuneiform script.

Çavuşoğlu is the head of excavation at Çavuştepe Castle, located in the Gürpınar district about 20 kilometers from Van city center. The castle was built by Sarduri II, who led the Urartu Kingdom during its peak in the mid-9th century B.C.E.

The castle's walls, cisterns, the world's first sewage system, its temples and other structures stand to this day, and has become a popular destination for tourists. Turkey's Ministry of Culture and Tourism restarted the excavations at the site in 2014 after a 30-year hiatus.

Noting how Çavuştepe Castle reflected the most colorful aspects of Urartu social life, Çavuşoğlu pointed out that they also found the wine basins where grapes grown on nearby vines were turned into wine.

“This information can be found in cuneiform text around the castle as well,” he added, “Water that is brought to the castle via canals is used to grow grapes on its vines, then the grapes are crushed by feet in these basins and the resulting grape juice is then poured into the pithos and stored.”

**Please visit the site: <http://arts-entertainment.bgnnews.com/2800-year-old-urartu-storage-jars-discovered-in-eastern-turkey-haberi/9222>**

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## **ANCIENT SCRIPT SPURS RETHINKING OF HISTORIC 'BACKWATER', BY TARA ISABELLA BURTON**

GRAKLIANI, Georgia-Sophia Paataashvili, a third-year graduate student in archaeology at Ivane Javakashvili Tbilisi State University, was excavating an ancient temple at an Iron Age site called Grakliani last month when she noticed something strange: a series of marks carved into a stone slab just below the temple's collapsed altar.

Unlike inscriptions found in other temples at Grakliani, these didn't show animals or people, nor were they random decorative elements.

Instead, says Vakhtang Licheli, who heads the university's archaeology institute and has led excavations at Grakliani during the past eight years, they may be the oldest example of a native alphabet in the Caucasus-fully a thousand years older than any indigenous writing previously found in the region.

"This discovery is not just important for the history of Georgia," Licheli says, "but in the history of the development of writing."

The excavated portion of the inscription-some 31 by 3 inches-features at least five curved shapes hollowed out in deep chasms in the stone.

The script as a whole bears no relation to any other alphabet, although Licheli detects similarities to letters in ancient Greek and Aramaic.

He says there's no doubt that the carvings are part of an alphabet rather than a decorative pattern.

"In a decoration you see repetition every two, four, six times. Here there's no repetition." He notes the skill of the carver in smoothing the design. "He was very comfortable doing this-this was not his first time."

Licheli says it's reasonable to assume that the writing dates to the seventh century B.C., when the temple is believed to have been built.

These few letters upend traditional historical narratives about the native population of the region.

Shards of pottery found at the site are emblematic of that period. Their color, material, and design, Licheli says, resemble those from similar sites in Georgia, leaving little doubt as to their age.

### **No Longer A Backwater**

These few letters in stone upend traditional historical narratives about the native population of the region the Greeks and Romans called Iberia (not to be confused with the modern-day Iberian Peninsula), which bordered the Georgian coast of the Black Sea.



Archaeologists have long known that literate civilizations were present there as long ago as the fourth millennium B.C.-excavations throughout Georgia have unearthed coins, beads, and pottery from Assyria, Greece, and Persia.

Until now, though, no trace of Iberian literacy from as long ago as the Iron Age, which in the Caucasus lasted from about the late second millennium B.C. to the fifth century B.C., has been found. (The earliest known Georgian and Armenian scripts date from the fifth century A.D., shortly after these cultures converted to Christianity.)

Ancient Iberia, Licheli says, has been seen by Georgian and international archaeologists as a backwater, unworthy of study on its own terms, especially during the middle years of the first millennium B.C., when foreign conquerors (notably the Greeks and Persians) made their mark.

### **A Wealth of Objects**

Licheli's initial excavations surfaced a wealth of objects: children's toys made of carved stone, imitation Persian pottery, and a fifth-century B.C. stone temple that blended ancient Persian Zoroastrian altar architecture with ram sculptures representing Caucasian folk gods.

To Licheli, these finds suggested that Iron Age Iberians were an advanced and complex culture, in close contact with the "highly developed" societies of the age-not only Greece and Persia but also Mesopotamia and Egypt. "We even found a Egyptian scarab beetle here," he says, showing off the carving.

But one question kept nagging at him: How could the Iberians have such cultural richness-but no written language? It didn't make sense.

Licheli wasn't the first to suspect that the Iberians had writing long before the fifth century A.D. Medieval Georgian chronicles from the 11th century refer to an ancient Georgian script. In the early 1900s the Georgian historian Ivane Javakhashvili-excavating the Iron Age Armaziskhevi site just outside Tbilisi- put heart and soul into a vain attempt to prove its existence.

Another question that intrigues Licheli is why three letters carved on one corner of a stone altar in the temple, also newly discovered, seem to bear no relation to the letter on the stone slab.

"Maybe there were two languages in one temple," he conjectures-two ethnically related Iberian groups, each with its own script, living side by side. "This is very unusual, not just for Georgians but in the whole world."

### **Slow Progress**

Although Grakliani itself was first identified as a site of potential importance during the 1950s, excavations proper didn't start till 2007.

"During the Soviet era, we were very closed," Licheli says. There was little opportunity to work with other scholars or to keep up with international methodological and technological developments.

And during the chaotic early days after Georgia's independence, in 1991, it was even worse. There was no academy to train new archaeologists, and the few existing ones were overextended, unable to investigate the country's wealth of ancient sites.

Even today, Licheli says, there's a "generation gap" -Soviet-trained archaeologists in their sixties and a new young generation of eager archaeologists-in-training but no one in between.

But Licheli places his hope in the new generation-as does the nationalist Georgian government.

Two years ago then Minister for Education Giorgi Margvelashvili, now the country's president, made governmental stipends available for students studying Georgian archaeology.

These days, for the first time, Licheli says he has "more than enough" students to do the work on his agenda. Plus, he adds, "the government has doubled our research budget."

Meanwhile, a new paved pathway is being built from the highway to the Grakliani site to make it more accessible to curious visitors.

The script offers the confirmation Licheli has long sought that Georgia should be considered among the world's "highest developed societies. For Georgians," he says, "cultural knowledge is very important. Now at last they're able to ascribe that knowledge to their ancestors."

With a bigger budget, governmental support, and a wider platform for their research, Licheli reasons that more inscriptions will come to light.

"Somewhere," he grins, "we can find another." t a temple site in the Republic of Georgia, letters carved in stone could change the way we see the development of writing.

**Please visit the site: <http://news.nationalgeographic.com/2015/09/150916-caucasus-writing-republic-of-georgia-grakliani-iron-age/>**

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## **PART OF LONG-LOST PELUSIAC BRANCH OF NILE UNCOVERED IN EGYPT'S QANTARA**

The ancient water-way was a key transport link for the 26th Dynasty and was lost to silt around two millennia ago Nevine El-Aref , Monday 14 Sep 2015

Excavations by an Egyptian mission at the Tel Al-Dafna archaeological site in Qantara have uncovered a 200 metre section of the long-lost Pelusiac branch of the Nile.

The Pelusiac branch was the major navigational byway into the delta from Sinai which once divided the ancient Qantara city into east and west.

Mohamed Abdel-Maqsoud, head of the mission, told Ahram Online that the first ever complete industrial city was uncovered at Qantara. It includes a collection of kilns used to melt iron and bronze in weapon-making for Egyptian army during the 26th dynasty (664-525 AD).

He said the antiquities minister has ordered more archaeologists and excavators to work at the site in order to reveal more of the Pelusiac branch and of the industrial city.

The course of the Pelusiac branch has been traced on a deltaic plain east of the Suez Canal, between the El Baqar Canal and Tell El-Farama (ancient Pelusium). Two minor distributaries branched northward.

The critical stage in the process of the silting of the lower reaches of the Pelusiac branch, due to beach accretion, occurred around 25 AD. Ancient ruins in the area are closely associated with the waterway.

**Please visit the site:**

<http://english.ahram.org.eg/NewsContent/9/40/141504/Heritage/Ancient-Egypt/Part-of-longlost-Pelusiac-branch-of-Nile-uncovered.aspx> [Go there for pix]

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## **OLDEST, LONGEST ANCIENT EGYPTIAN LEATHER MANUSCRIPT FOUND, BY ROSSELLA LORENZI**

The oldest Egyptian leather manuscript has been found in the shelves of the Egyptian museum in Cairo, where it was stored and forgotten for more than 70 years.

Dating from the late Old Kingdom to the early Middle Kingdom (2300-2000 B.C.), the roll measures about 2.5 meters (8.2 feet) and is filled with texts and colorful drawings of the finest quality.

"Taking into account that it was written on both sides, we have more than 5 meters (16.4 feet) of texts and drawings, making this the longest leather roll from ancient Egypt," Wael Sherbiny, the Belgium-based independent scholar who made the finding, told Discovery News.

The first Egyptian to obtain his PhD in Egyptology in 2008 from the Leuven University in Belgium, Sherbiny specializes in the ancient Egyptian religious texts and is preparing the full publication of the unique leather roll.

He announced the finding at the recent International Congress of Egyptologists in Florence.

Nothing is known about the manuscript's origins. The French Institute of Oriental Archaeology in Cairo bought it from a local antiquities dealer sometime after the WWI. Later it was donated to the Cairo Museum, where it was unrolled shortly before the outbreak of the WWII.

"Since then it was stored in the museum and fell completely into oblivion," Sherbiny said.

Basically a portable religious manuscript, the more than 4,000-year-old roll, contains depictions of divine and supernatural beings which predate the famous drawings found in the Book of the Dead manuscripts and the so-called Netherworld Books from the New Kingdom onwards (1550 B.C. onwards).

Religious spells, formulated in the first person singular, also abound there.

"They were likely recited by a priest," Sherbiny said.

It is known that priests used to carry leather rolls to reference while reciting sacred texts during religious rituals.

Only six other portable manuscripts have survived from ancient Egypt and could possibly share a close date with the Cairo leather roll. All of them are papyri.

"Leather was considered a very precious writing material in ancient Egypt. It was the principal writing medium to record holy texts and great historic events as it was more practical than papyrus due to its flexibility and durability," Sherbiny said.

Such prestigious leather rolls, kept in the libraries and archives of temples, were also used as master copies from which cheaper copies were reproduced on papyrus. While papyri were preserved by Egypt's dry climate, leather objects quickly perished.

The Cairo roll was no exception: part of it was fragmented into very tiny pieces. Like in a jigsaw puzzle, Sherbiny pieced them all together.

The pieces formed a large pictorial-textual segment from the so-called Book of Two Ways, which is an illustrated composition containing temple rituals later adapted for the funerary use.

This composition is known to Egyptologists as it occurs on the floorboard of Middle Kingdom coffins (2055-1650 B.C.) from the necropolis of Hermopolis in Upper Egypt.

"Amazingly, the roll offers an even more detailed iconography than the Hermopolitan coffins in terms of texts and drawings," Sherbiny said.

According to the scholar, the roll shows that parts of this composition were already known before their appearance on the Hermopolis coffins.

"It suggests that several segments of the composition were probably not the creation of Hermopolitan theologians, but had rather longer history of transmission before they were chosen to be used as coffin decorations," Sherbiny said.

He noted the leather roll also features religious drawings which had not been seen in coffins nor in any other monument until now.

"It shows that there was a large body of both religious iconography and texts, but unfortunately they did not reach us," Sherbiny concluded.

**Please visit the site: <http://news.discovery.com/history/archaeology/oldest-and-longest-ancient-egyptian-leather-manuscript-found-150914.htm>**

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## **PRE-ROMAN TOMB UNEARTHED IN POMPEII**

A rare pre-Roman tomb has been unearthed in Pompeii, shedding new light on life at the site in the fourth century BC.

The tomb dates to the time of the Samnites, an Italic people living in south-central Italy who fought against the Romans. It was found by surprise during a dig led by a French archaeological team from the Jean Bérard centre in Naples.

The team have already made several notable discoveries - including an exceptionally well preserved pottery workshop - but this latest could outdo them all. "It is an exceptional find for Pompeii because it throws light on the pre-Roman city about which we know so very little," said Massimo Osanna, the archaeological superintendent of Pompeii.

The tomb contains the remains of an adult woman, and has survived for more than two millennia without ever being disturbed or broken into.

Seemingly, the Romans knew of the tomb's presence and did not disturb the site or build on it before life in the city was wiped out - and frozen in time - in 79 AD.

The contents of the tomb will provide useful clues for scholars about the history of the site under the Samnites.

The woman was buried with a series of clay jars, or amphora, which come from other regions of Italy revealing the extent of trade between the Samnites at Pompeii and other groups living across the Italian peninsula.

The contents of the jars will be analyzed in the weeks to come - but are thought to contain cosmetics, wine and food.

"The burial objects will show us much about the role of women in Samnite society and can provide us with a useful social insight," Osanna told reporters.

The area around the grave will now be excavated to find out if there are more tombs nearby. As Osanna explains "Tombs are not normally found alone."

However, the existence of other tombs is uncertain. During the Second World War, the area of Pompeii in which the grave was found was heavily shelled. "It's a miracle that this has survived," Osanna told reporters, "but I'm sure Pompeii has more gifts to give."

**Please visit the site: <http://www.thelocal.it/20150921/exceptional-pre-roman-tomb-unearthed-in-pompeii>**

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## **5,000-YEAR-OLD THRONE FOUND IN TURKEY, BY ROSSELLA LORENZI**

The remains of a 5,000-year-old adobe basement of a possible "throne" have been unearthed during excavations in Turkey, revealing the origins of the secularization of power and one of the first evidence of the birth of the state system.

Discovered in Aslantepe in the eastern Turkish province of Malatya, the structure consists of an adobe platform, raised by three steps above the floor, on top of which burnt wooden pieces were found.

"The burnt wooden fragments are likely the remains of a chair or throne," excavation director Marcella Frangipane of La Sapienza University in Rome, told Discovery News.

Frangipane, who has long been digging at the site, is working to bring to light a huge complex dating to the fourth millennium B.C. (3350-3100 A.C.)

"It's the world's first evidence of a real palace and it is extremely well preserved, with walls standing two meters high," Frangipane said.

The complex features two temples, storage rooms, various buildings and a large entrance corridor. Some walls are decorated with red and black motifs and with geometrical impressed patterns.

"In the past two campaigns we found a large courtyard which can be reached through the corridor. On the courtyard stands a monumental building," Frangipane said.

Within such building, the archaeologists unearthed the adobe platform. It stood in a small room which opened into the courtyard.

Frangipane believes the chief or king appeared in the throne room to give audience to the public, gathered in the large courtyard.

In front of the platform where the throne likely stood, the archaeologists also unearthed two small and low adobe platforms, probably made for people to stand on while they appeared before the king.

"This reception courtyard and building were not a temple complex, they rather appear as the heart of the palace. We do not have religious rites here, but a ceremony showing the power of the 'king' and the state," Frangipane said.

She noted the remains are the first evidence of a change in the exercise of power, which from theocratic becomes non-religious. Usually exerted in temples, power now happens in the throne room.

"The state governing system was already in progress here," Frangipane said.

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Please visit the site: <http://news.discovery.com/history/archaeology/5000-year-old-throne-found-in-turkey-150918.htm> [Go there for pix]

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## **ARCHAEOLOGISTS RECREATE 4,000-YEAR- OLD HITTITE FEAST TO BETTER UNDERSTAND THEIR HISTORY - THE CHEF CRUSHED BUCKWHEAT ON STONES AND USED NO KITCHENWARE OTHER THAN A KNIFE BY MARISSA FESSENDEN**

One way to study ancient civilizations is to find out what they ate. Cuisine tells a lot about the climate, culture and preferences of the eaters. But instead of trying to reverse engineer the food of a culture based on the effects that can be read from ancient bodies, or merely translating old recipes, some researchers decided to actually prepare ancient foods.

An article at Daily Sabah explains how Aykut Çınaroğlu, a professor of archaeology at Ankara University in Turkey teamed up with chef Ömür Akkor to prepare a meal that might have appeared on Hittite tables 4,000 years ago. Akkor explains that the meal was based on information gleaned from ancient tablets found in Alacahöyük, an important ancient settlement.

"Ancient settlers wrote that they ate cold meat, cooked onion and bread on a festival day," he says. "They did not use yeast while making bread or cook them in moist ovens. The team tried to make it with pounded wheat, not sifted flour." The tablets also included details about olive oil, honey and vegetables as well as the names of more than 100 pastries. The Hittites were an ancient people who established an empire in much of Asia Minor and parts of the northern Levant and upper Mesopotamia from roughly 1600 B.C. to 1200 B.C. They were also sophisticated cooks.

In a 2012 article from Hurriyet Daily News, Wilco van Herpen writes that "The Hittites used to record everything, including cuisine recipes, prayers, the relationships of the priests or chefs toward the gods, really just about absolutely everything."

And apparently they kept very clean kitchens. The Daily Sabah report says: [I]f a chef with a large, unmanaged beard or long, unmanaged hair cooks in the kitchen or an animal wandered into the kitchen, he or she used to receive a death penalty along with their family. The rule was valid for those who cooked without having a bath beforehand.

The article names several breads, including a sweet bread called "Ninda.ku." Also on the menu: apricot butter, happena (a casserole of meat, olive oil and honey) and beruwa with cucumber (beruwa is the name for any kind of mashed dish).

Please visit the site: <http://www.smithsonianmag.com/smart-news/archaeologists-recreate-4000-year-old-hittite-feast-better-understand-their-history-180956661/?no-ist>

## **KALEHÖYÜK HOME TO TRACES OF FIVE CIVILIZATIONS**

Traces of the Ottoman, Seljuk, Roman, Byzantine and Hellenistic civilizations have been found layer by layer during excavations in Kırşehir's Kalehöyük mound

Remains from the Ottoman, Seljuk, Roman, Byzantine and Hellenistic civilizations have been unearthed from 11 meters underground during three years of excavations in the Central Anatolian province of Kırşehir's Kalehöyük mound.

Conducted under the scientific consultancy of Ahi Evran University Archaeology Department Professor Işık Adak Adıbelli, the excavations have continued in five different layers and unearthed traces from five different civilizations. Works have reached up to the Iron Age in the fifth century, Adıbelli said, adding that the top layer was home to traces from the Ottoman era.

He said that in addition to the excavations in the southern portion of the mound, they had started digging on the northern section of the mound.

"We have reached up to 11 meters deep underground, unearthing five civilizations in five certain layers. Among them are architectural structures as well as layers of garbage pits. For example, we have mostly found garbage pits from the Roman era. The Seljuk-era structures gave damage to the Roman-era layer. This is why we can see garbage pits only. The findings from the Byzantine or the Eastern Rome eras come from the garbage pits, too."

Adıbelli said they believed that there had been large buildings in the region in the Seljuk era. "The construction of this structure gave damage to the Roman-era layer. But we started to see the Hellenistic-era layer 25 meters below underground. This layer has been protected since the foundation of this big structure did not reach there. We have seen adobe and rubble walls as well as Ottoman-era ceramic pieces and coins."

The team has begun unearthing adobe platforms from the Iron Age in the northern section and from the Hellenistic era in the southern area, Adıbelli said, while adding that they did not yet understand the function of the platforms.

The layers of the Seljuk and Hellenistic era were particularly strong, Adıbelli said.

"We have found a piece from a building cover that we believe is from the Seljuk era. This makes us think a very big and magnificent building [was here]. Also, there are very nice Hellenistic-era bead pieces that were imported from Phoenicia as well as amphora pieces with seals on them. All these were imported from some places and show us the richness and trade in this era. There are also a few skeletons. We observed that these people were very thin. This indicates a disease or maybe a famine," the professor said.

Adıbelli said small pieces from the Hellenistic era gave some clues about that era. "An expensive glass bead from Phoenicia, a sealed candle from Rome or a sealed amphora from Sinop reveal that Kırşehir was the center of both the western and the eastern trade.

We also have a Roman-era candle with the seal of a factory. This region was an active trade center in the Roman era, too."

Please visit the site: <http://www.hurriyetdailynews.com/kalehoyuk-home-to-traces-of-five-civilizations-.aspx?pageID=238&nid=88521>

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## **RIDDLE OF THE AGES SOLVED: WHERE DID THE PHILISTINES COME FROM?**

Anomalous discoveries in southern Turkey now explained: The Philistine 'Sea Peoples' didn't invade Kunulua, they lived there.

As civilization collapsed 3,200 years ago, the Sea People - of whom the Philistines were but one - arose, seemingly sweeping away all that stood before them. Now we know where they came from, and it's not what scholars thought.

Back then, the mighty Hittite kingdom spanned much of the territory known today as Turkey and Syria. Then, as the Late Bronze Age graduated into the Iron Age I, around 1177 BCE, the entire civilization of the Mediterranean and the Near East collapsed - and the "Sea Peoples," including the Philistines, ascended.

Until now, the "Sea Peoples Invasion" theory postulated that the Philistines arose and swept over the region from a base in the Aegean. But recent discoveries at a remote archaeological site in southeast Turkey indicate that the Philistines were already there as the great civilizations collapsed. Amidst the thunderous implosion around them, the Philistines somehow thrived - and supplanted the Hittite rule in that area, apparently making it their home base.

This unexpected conclusion is supported by new explanations of anomalies found at Tel Tayinat, an archaeological site in the Amuq plain, which spans the border of modern Syria and Turkey.

### **Not the Sea People we thought**

Until recently, it was assumed that the site was Hittite because of its location, and that after their empire collapsed its residents evolved into the "neo-Hittite" culture which continued using the ancient names, artistic styles and symbols of the Hittites. Who exactly the "neo-Hittites" of Kunulua were remained a mystery - until now. They were, archaeologists are starting to believe, the Philistines.

The new theory that Tel Tayinat was a Philistine capital arose from anomalous pottery findings and other oddities found in excavations headed by Prof. Timothy Harrison of the Toronto University's Department of Near and Middle Eastern Civilizations.

Bichrome pottery, typical of Philistine ware. So much was found at Tell Tayinat that it had to have been made there, not imported. Peter Hagyo-Kovacs The Philistines were one of many groups referred to in ancient records as the "Sea Peoples". As listed on the mortuary temple of Ramses III at Medinet Habu, they included the Danian, Ekwesh, Lukka, Shekelesh, Sherden, Teresh, Tjeker, Weshwesh and the "Peleset" - "Plishtim" in Hebrew, or, the Philistines.

One reason Tel Tayinat had been assumed to be Hittite is its inland location, some 25 kilometers distance from the Mediterranean shore. The Philistines, who had famously plagued the peoples around the Mediterranean basin, had been thought to mainly stick to coastal areas.

The first anomaly that in retrospect argued Kunulua was Philistine city was vast amounts of unique pottery called Late Helladic IIC ware (or Mycenaean IIC ware) - which is one of the markers of the Philistines, and is found in abundance in other Philistine sites, in Israel in particular. The original excavation of Tel Tayinat in the early 1900s had uncovered layers of this stuff, but no one knew what to make of it. Some suggested the Hittite inhabitants had imported it as a luxury good.

Other distinct Philistine markers found in large amounts in Iron Age levels at Tel Tayinat including unperforated cylindrical loom weights.

Mere "international trade" by Hittites couldn't explain the sheer amounts of these items and pottery remains found at Tel Tayinat and its surroundings. Petrographic analyses proved that this pottery was actually locally made and was used for a different way of food preparation by the locals.

### **A mysterious king and a mistake**

More than one inscription found at Tel Tayinat, written in the Luwian language used by the Hittites, referred to a mysterious "King Taita", ruler of "Walistin" or "Patin"; and an earlier find in Hamath, Syria spoke of a King Taita of "Walistin."

No one had ever heard of him. It seemed a new kingdom with a new and powerful king was being uncovered at Tel Tayinat.

A breakthrough came while excavating the temple dedicated to the storm god Adda or Hadad in Aleppo, Syria, in 2003: Kay Kohlmayer, the site's director, found a relief and dedicatory inscription to "Taita, King and hero of Patastini" and another to "Taita, conqueror of Carchemish". Taita had restored this ancient temple and had a dedicatory inscription made of his great achievements.

Based on this new discovery, the reinterpretation of one Luwian hieroglyphic sign and the amassing archaeological evidence John David Hawkins, a Luwian expert, thinks that everybody had been reading these inscriptions wrong, and that the 'W' sound should in fact be read as a 'P' making Walistin, Palistin, "Patasatini" should be read as "Palasatini" or "Palastin". That would correspond with the ancient Egyptian mention of "Peleset" as one of the ten Sea People groups.

In fact, the Hittitologist Prof. Itamar Singer had long thought the Sea Peoples - or at least some of them - came from western Anatolia. There just wasn't enough evidence to prove him right, until now.

"Around 1100 BCE, there are indications of a larger political integration of north Syria under the rule of King Taitas," says Prof. Gunnar Lehmann of Ben Gurion University, who recently conducted a major survey of coastal sites in Turkey. "The inscriptions and the monuments of this king are all written in Luwian hieroglyphs, his reliefs are neo-Hittite but the pottery is Aegeanizing," meaning shows Aegean influences "It would be very strange indeed if what we have at Tayinat wasn't [a Philistine hub]."

Rather than the "Sea Peoples Invasion" theory, Toronto's Harrison suspects that over time, Philistines migrated in small numbers to the area, and assimilated with the locals. Their arrival was a complex scenario, he says, not some Hollywood movie-type blitz.

Afterthought: Prophet Isaiah and a smoking gun Not only was the homeland of the Philistines found in Tayinat. So, possibly, was evidence of the historic veracity of the Prophet Isaiah.

In 2012, the University of Toronto team uncovered the top half of a buried life-size statue of the Hittite king Suppiluliuma. A Luwian inscription on the statue's back recounts his exploits, linking him with a 'Patinian' king who fought against the onslaught of Assyria's Shalmaneser III in 858 BCE.

It was common for Hittites to have colossal statues guarding the entrances to cities. But when the Assyrians conquered the area in 738 BCE, they would bury sacred items, such as this statue.

Scholars have long suspected that Prophet Isaiah's oracle against Assyria ("Is not Calno as Carchemish?... As my hand hath found the kingdoms of the idols," Isaiah 10:9-10) alludes to the Assyrian destruction of Kunulua. The buried statue of Suppiluliuma may actually be the physical manifestation of this historic event.

**Please visit the site: <http://www.haaretz.com/life/archaeology/1.676943> [Go there for pix and maps]**

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