



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

**ΔΟΙΚΗΤΙΚΟ
ΣΥΜΒΟΥΛΙΟ:**

Μ. Καπαρού (πρόεδρος),
Α. Οικονόμου (αντιπρόεδρος),
Ε. Κουλουμπή (γενική
γραμματέας),
Μ. Παπαγεωργίου (ταμίας),
Ε. Φιλιππάκη (μέλος),
Ι. Μπασιάκος (μέλος),
Γ. Φακορέλλης (μέλος)

Πληροφορίες:

Γ. Φακορέλλης (σύνταξη,
επιλογή ύλης)
E-mail: yfacorel@uniwa.gr

Scientific Association, Year
of Establishment 1982,
Headquarters: Kaniggos 27,
106 82 Athens (Association
of Greek Chemists)
<http://archaeometry.org.gr>

BOARD:

Μ. Kaparou (president),
Α. Oikonomou (vice-
president),
Ε. Kouloumbi (general
secretary),
Μ. Papageorgiou (treasurer),
Ε. Philippaki (member),
Ι. Bassiakos (member),
Υ. Facorellis (member)

Information:

Υ. Facorellis (editor)
E-mail: yfacorel@uniwa.gr

Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Νοέμβριος 2024 -

**He who steals a little, steals with the same wish as
he who steals much, but with less power. (Plato)**

Newsletter of the Hellenic Society of Archaeometry

- November 2024 -

Nr. 284

ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ – TABLE OF CONTENTS

ΣΥΝΕΔΡΙΑ – CONFERENCES/WORKSHOPS

Half a Century of Archaeological Science in Greece: Past, Present, & Future –
Celebrating 50 Years, The Marc and Ismene Fitch Laboratory for
Archaeological Science, 29 November - 1 December, Athens **page 4**

TECHNART 2025, the European Conference on Analytical Techniques for
Heritage Studies and Conservation, 6th to 9th May 2025, Perugia, Italy **page 6**

CAA 2025 “Digital Horizons: Embracing heritage in an evolving world”,
Athens, Greece, 5 – 9 May 2025, Conference venue of the University of West
Attica **page 7**

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ – JOB VACANCIES/FELLOWSHIPS

The Cyprus American Archaeological Research Institute (CAARI) fellowships **page 9**

Research Assistant position (MOWAA Archaeology Project), British Museum **page 10**

ANNOUNCEMENT OF THE AMERICAN CENTER OF RESEARCH
FELLOWSHIPS 2025–2026 **page 11**

The Malcolm H. Wiener Laboratory for Archaeological Science Funding
Opportunities and Summer Programs **page 16**

British School at Athens Centenary Bursary Awards 2025-2026 **page 18**

Ph. D/Postdoctoral Fellow Positions in University of Science and Technology
of China (USTC) **page 20**

INSTAP Study Center for East Crete fellowships / internships for 2025 **page 22**

Scientist Position: Metropolitan Museum of Art, Associate Research Scientist . **page 23**

Scientist Position: Metropolitan Museum of Art, Research Associate **page 24**

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

Online resource, Conservation Science Education Online (CSEO) **page 25**

2025 - Geoarchaeological courses offered by Wiener Lab **page 26**

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

Physico-chemical characterisation and light stability of dyes and pigments
found in cultural heritage objects: Insights from microfading testing for
assessing light fastness, by Julio M. del Hoyo-Meléndez **page 30**

Where did the herds go? Combining zooarchaeological and isotopic data to
examine animal management in ancient Thessaly (Greece), by Dimitris

Filioglou, Silvia Valenzuela-Lamas, William P. Patterson, Leopoldo D. Pena, Samantha Presslee, Sandra Timsic, Antonio Delgado Huertas, Wietske Prummel and Canan Çakırlar **page 31**

Climate-driven versus anthropogenic induced erosion of the last 3000 years from an ancient lake in the Southern Phokis Plain (Desfina), Greece, by Georgios S. Polymeris, Maria Geraga, George Papatheodorou, Ioannis Iliopoulos, Tomáš Pluháček, Karel Lemr, Zhen Qin, Spyros Sergiou, Xenophon Dimas and Ioannis Liritzis **page 32**

Mediterranean Early Iron Age chronology: assessing radiocarbon dates from a stratified Geometric period deposit at Zagora (Andros), Greece, by Rudolph Alagich, Lorena Becerra-Valdivia, Margaret C. Miller, Katerina Trantalidou³ & Colin Smith **page 34**

ΕΙΔΗΣΕΙΣ - NEWS RELEASE

Mystery of the World's Oldest Map on a Nearly 3,000-year-old Babylonian Tablet Finally Solved **page 35**

Archaeologists Discover Breathtaking Wall Paintings Frozen in Time Inside a Modest Home in Ancient Pompeii, by Sonja Anderson **page 37**

Remains of one of the oldest churches in the world discovered in Armenia, by Gavriel Fiske **page 39**

Secret tomb found under 'Indiana Jones' filming location in Petra, by Taylor Nicioli **page 42**

Tunisian snail remains provide insights on a possible 7700-year-old local food tradition, by Sandee Oster **page 44**

ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

HALF A CENTURY OF ARCHAEOLOGICAL SCIENCE IN GREECE: PAST, PRESENT, & FUTURE - CELEBRATING 50 YEARS, THE MARC AND ISMENE FITCH LABORATORY FOR ARCHAEOLOGICAL SCIENCE, 29 NOVEMBER - 1 DECEMBER, ATHENS

On November 29th, 2024, the Fitch Laboratory at the British School at Athens (BSA) will celebrate its 50th anniversary. Since its inception in 1974, the Fitch has grown from a small experiment into an international hub for archaeological science. As the first laboratory of its kind in Greece—and among only a few globally—the Fitch Laboratory's history traces the development of the field globally, as well as in Greece.

On this occasion the Fitch Laboratory team welcomes the opportunity to reflect and celebrate Half a Century of Archaeological Science in Greece. We have organised an international conference where leading experts in the field will explore how archaeological science has contributed to our understanding of the human past in Greece, focusing on three main topics: **Movement and Mobility, Everyday Life, Landscape Histories and Environment**.

Please find below the preliminary programme and registration links for in person and online attendance.

Preliminary programme:



Registration required:

To help us accommodate as many people as possible, please only register for in-person attendance if you are certain you can attend. Space is limited, so it's important that everyone who registers is able to participate.

When registering, you can choose to attend specific days. If you only plan to attend one or two days, please select those days in the registration form. If you plan to attend the entire conference, make sure to register for all three days.

We have also set up a Zoom link for the Friday, Saturday and Sunday, so if you are not able to make it you will be able to attend online.

[Online Registration](#) (viewing only)

[In person registration](#)

Fitch Lab 50th Anniversary

When: 29 November @ 3:00 pm - 1 December @ 6:30 pm EET

TECHNART 2025, THE EUROPEAN
CONFERENCE ON ANALYTICAL
TECHNIQUES FOR HERITAGE STUDIES
AND CONSERVATION, 6TH TO 9TH MAY
2025, PERUGIA, ITALY

Dear Colleagues,

We are thrilled to invite you to **TECHNART 2025, the European Conference on Analytical Techniques for Heritage Studies and Conservation**, which will take place in Perugia, Italy, from 6th to 9th May 2025. The event is being co-organized by CNR-SCITEC, CNR-ISPC, and the Centre SMAArt of the University of Perugia.

Over 4 days, the conference will feature 7 plenary talks, 6 keynote lectures, and approximately 130 oral presentations across three parallel sessions. Within the 2 foreseen poster sessions, around 250 posters will be also presented. The talks, lectures, communications, and posters will delve into the latest research and innovative approaches in Heritage Science, focusing on diagnostic methods and scientific methodologies for analyzing the nature, properties, and transformations of heritage materials. Special attention will also be given to digital technologies, computational tools, and data analytics.

We expect around 400-450 participants, providing an excellent opportunity for networking with colleagues, researchers, and professionals from around the world. Exhibitor stands from sponsors will be set up in the central lounge, where coffee breaks will also take place, fostering informal exchanges and discussions.

Whether you are presenting your research or simply interested in the latest developments of the field, we encourage you to join us. For general information on the Conference and its venue, please visit the website at the following link: <https://technart2025.com/>.

More detailed information about registration, accommodation, and program, will be available soon.

Save the date and stay tuned for every update!
We wish to see you in Perugia!

Best regards,
Bruno Brunetti* and Costanza Miliani**

Co-Chairs of TECHNART 2025

(*) INSTM, University of Perugia & CNR-SCITEC

(**) Institute of Heritage Science - National Research Council of Italy (CNR-ISPC)

CAA 2025 “DIGITAL HORIZONS: EMBRACING HERITAGE IN AN EVOLVING WORLD”, ATHENS, GREECE, 5 – 9 MAY 2025, CONFERENCE VENUE OF THE UNIVERSITY OF WEST ATTICA

The Athena Research Center, the Hellenic Open University, the Ephorate of Antiquities of East Attica, and the University of West Attica look forward to welcoming you to the 52nd CAA International Conference in Athens, Greece, 5 – 9 May 2025, at the conference venue of the University of West Attica.

Announcements

[Announcement: Call for Papers & Workshops Extension](#)

After numerous requests, a strong interest from our community, and some issues in the submission system, we are pleased to announce an extension to the submission deadline for the Call for Papers and Workshops. We have received several emails expressing the need for additional time, and we are committed to accommodating the needs of our [...]

Calls

[Announcement: Call for Papers & Workshops Extension](#)

After numerous requests, a strong interest from our community, and some issues in the submission system, we are pleased to announce an extension to the submission deadline for the Call for Papers and Workshops. We have received several emails expressing the need for additional time, and we are committed to accommodating the needs of our [...]

[Announcement: Call for Sessions Extension](#)

Due to numerous requests and a strong interest from our community, we are pleased to announce an extension to the submission deadline for the Call for Sessions. We have received several emails expressing the need for additional time, and we are committed to accommodating the needs of our contributors. New Deadline: 12 September 2024 This [...]

Location

University of West Attica, Athens, Greece

Key dates

Call for sessions

Closes 8 September 2024.

Extended to 12 September 2024.

*** Closed ***

Call for papers

Opens on 3 October and closes on 29 October 2024.

Extended to November 24th.

Conference dates

5-9 May 2025

Organizers

Athena Research Center,
The Hellenic Open University,
The Ephorate of Antiquities of East Attica, and
The University of West Attica

Please visit the site: <https://2025.caaconference.org/#>

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

THE CYPRUS AMERICAN
ARCHAEOLOGICAL RESEARCH INSTITUTE
(CAARI) FELLOWSHIPS

The application portal for 2025 fellowships from the Cyprus American Archaeological Research Institute (CAARI) is now open. Please share widely with students and colleagues who might benefit from these opportunities. The current fellowships include:

Graduate Student Fellowships

Danielle Parks Memorial Fellowship
The Helena Wylde Swiny and Stuart Swiny Fellowship
The Anita Cecil O'Donovan Fellowship

Post-Doctoral Fellowships

The Edgar J. Peltenburg Postdoctoral Research Fellowship in Cypriot Prehistory
CAARI Scholar In Residence

Visit www.caari.org/fellowships for more information about the specifics of each funding opportunity. Applications should be submitted through the CAARC grant application portal at <https://orcfellowships.smapply.org/>.

The deadlines for the CAARI-sponsored graduate student fellowships is December 6, 2024. The deadline for post-doctoral fellowships is January 6, 2025.

Contact CAARI Fellowships Committee Chair (Kate Grossman, kmgrossman@ncsu.edu) or CAARI directly (admin@caari.com.cy) with any questions.

RESEARCH ASSISTANT POSITION (MOWAA ARCHAEOLOGY PROJECT), BRITISH MUSEUM

Dear colleagues,

We are currently advertising an exciting opportunity to join our department at the British Museum as part of the MOWAA Archaeology Project.

We are looking for a Research Assistant to join the Department of Scientific Research for one year to conduct a pilot study on metallurgical remains and metalwork as part of the post-excavation phase of the MOWAA Archaeology Project (Benin City, Nigeria). The project aims to improve understanding of the history of the Kingdom of Benin and includes the study of the Kingdom's historic arts traditions, urban growth and cultural development, using the latest archaeological and scientific technology and approaches.

Further details regarding the role available at: https://bmrecruit.ciphr-irecruit.com/templates/CIPHR/jobdetail_7634.aspx

Please feel free to circulate this with colleagues and graduates who might be interested. The application deadline is 15 November 2024.

Best wishes,

Frederik

ir. Frederik Rademakers, PhD | Department of Scientific Research
The British Museum | Great Russell Street | London WC1B 3DG | UK
frademakers@britishmuseum.org | (+44) 0207 323 8338 | www.britishmuseum.org
Associate Editor, *Journal of Archaeological Science: Reports*
Visiting Researcher, KU Leuven, Department of Earth and Environmental Sciences
Research profiles: [Academia](#) | [ResearchGate](#) | [GoogleScholar](#) | [ORCID](#) | [LinkedIn](#)

ANNOUNCEMENT OF THE AMERICAN CENTER OF RESEARCH FELLOWSHIPS 2025–2026

Deadline for the following fellowships is February 15, 2025.

ACOR-CAORC Postdoctoral Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.acorjordan.org%2Fcaorc-fellowships%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947175646%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Iik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=2uqQbm nDsVfR3RdGGPzRyPSZdN2Bn6XQVpcm4qv9nFQ%3D&reserved=0>

Two or more two- to six-month fellowships for postdoctoral scholars and scholars with another terminal degree in their field, pursuing research or publication projects in the natural and social sciences, humanities, and associated disciplines relating to the Middle East. U.S. citizenship is required. Maximum award is \$34,200. Awards must be used between June 1, 2025, and May 31, 2026, and fellows must reside at the American Center of Research. Funding for this fellowship is provided by the U.S. Department of State's Bureau of Educational and Cultural Affairs.

ACOR-CAORC Graduate Student Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.acorjordan.org%2Fcaorc-fellowships%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947175646%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Iik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=sWTSNU B%2B9oXbKJXlrmAM%2FeBex%2FwliMHZzIExbXIe2N0%3D&reserved=0>

Two or more two- to six-month fellowships for master's and doctoral students. Fields of study include all areas of the humanities and the natural and social sciences. Topics should contribute to scholarship in Middle East studies. U.S. citizenship required. Maximum award is \$27,600. Awards must be used between June 1, 2025, and May 31, 2026, and fellows must reside at the American Center of Research. Funding for this fellowship is provided by the U.S. Department of State's Bureau of Educational and Cultural Affairs.

Bert and Sally de Vries Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.acorjordan.org%2Fnamed-fellowships%2Fde-vries-fellowship%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947175646%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Iik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=90UXC MJgYMPQLyeZEAamXQqycs%2BobOeC4P9F2Wqbxxk%3D&reserved=0>

One award of \$2,500 to support a student for participation on an archaeological project or research in Jordan. Senior project staff members whose expenses are being borne largely by the project are ineligible. Open to enrolled undergraduate or graduate students of any nationality except Jordanian citizens.

Burton MacDonald and Rosemarie Sampson Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.acorjordan.org%2Fnamed-fellowships%2Fmacdonald-sampson-fellowship%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947175646%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ikl1haWwiLCJXVCi6Mn0%3D%7C0%7C%7C%7C&sdata=JbIUaZYvlyYdetl4ZQzTQKWrrDDx7KqJpXZoI9p0UX6E%3D&reserved=0>

One award either for a four-week residency at the American Center of Research for research in the fields of ancient Near Eastern languages and history, archaeology, biblical studies, or comparative religion, or for a travel grant to assist with participation in an archaeological field project in Jordan. The residency fellowship option includes room and board at the American Center of Research in Amman and a stipend of \$1,500. The travel-grant option provides a single stipend of \$2,500 to help with any project-related expenses. Both options are open to enrolled undergraduate or graduate students of Canadian citizenship or landed immigrant status.

Donald O. Henry Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.acorjordan.org%2Fnamed-fellowships%2Fdonald-o-henry-fellowship%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947175646%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ikl1haWwiLCJXVCi6Mn0%3D%7C0%7C%7C%7C&sdata=4cGTx0F5S0loa6EvNqDu2pO%2BJ8rs4Ldil43GmzYnET0%3D&reserved=0>

One award of \$500 for a field project, publication, or related event in support of archaeological research in or about Jordan. The fellowship has a preference for the support of archaeological efforts related to prehistory and/or work in southern Jordan, but proposals involving all periods and locations are eligible, welcome, and encouraged. The most compelling proposal will receive the award. Undergraduate students, graduate students, and postdoctoral researchers of all nationalities are eligible to apply.

Frederick-Wenger Memorial Endowment:

<https://nam04.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.acorjordan.org%2Fnamed-fellowships%2Ffrederick-wenger-memorial-endowment%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947331896%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ikl1haWwiLCJXVCi6Mn0%3D%7C0%7C%7C%7C&sdata=RftQB Y9joDYl9obiY3r9anzf4crJNHrIL716GC3HOpQ%3D&reserved=0>

Two awards of \$2,000 to assist a Jordanian student with the cost of their education. Eligibility is not limited to a specific field of study, but preference will be given to study related to Jordan's cultural heritage. Candidates must be Jordanian citizens and currently enrolled as undergraduate or graduate students in a Jordanian university.

Harrell Family Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.acorjordan.org%2Fnamed-fellowships%2Fharrell-fellowship%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947331896%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=w3u0ePx2VV3WjlAmLR8xFMPD88%2Fe0PcIP%2BrZxw%2BRwEI%3D&reserved=0>

One award of \$2,500 to support a graduate student for participation on an archaeological project or for research in Jordan. Senior project staff members whose expenses are being borne largely by the project are ineligible. Open to enrolled graduate students of any nationality except Jordanian citizens.

James A. Sauer Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.acorjordan.org%2Fnamed-fellowships%2Fsauer-fellowship-2019-20%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947331896%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=9iEWMFyYf1DrWJ%2FdZUfdF2oU%2FFBC0lSKSlxavwkhAr8%3D&reserved=0>

One award of \$1,500 for educational assistance for a Jordanian graduate student enrolled in an archaeology or cultural heritage degree program in any country. For the 2025–2026 cycle, the Sauer Fellowship is open only to enrolled graduate students of Jordanian nationality.

Jennifer C. Groot Memorial Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.acorjordan.org%2Fnamed-fellowships%2Fgroot-memorial-fellowship%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947331896%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=aOmHrJ7VarV8n5zdL8oNih1ECqNJJaFrBE9uX9TT%2FTs%3D&reserved=0>

Two awards of \$3,000 each to support beginners in archaeological fieldwork who have been accepted as team members on archaeological projects in Jordan. The fellowship is intended to help defray the costs of participation in excavations. Open to undergraduate or graduate students of U.S. or Canadian citizenship, with a preference for individuals who graduated in the past 12 months (i.e., January to December 2024) and/or have been accepted to a graduate program for fall 2025.

Jordanian Graduate Student Scholarship:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.acorjordan.org%2Ffellowships-master-page%2Fjgss%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947331896%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=1%2FCesJKClyTzJKRX9NKVY%2B8kUmit3y1lxItAwcBAGA%3D&reserved=0>

One award of \$3,000 to assist a Jordanian graduate student with the annual costs of their

academic programs during the period June 1, 2025, through May 31, 2026. Candidates must be Jordanian citizens and currently enrolled in either a master's or doctoral program in a Jordanian university. Eligibility is limited to students in programs related to Jordan's cultural heritage (for example: archaeology, anthropology, linguistics/epigraphy, history, conservation, museum studies, and fields related to cultural resource management).

Kenneth W. Russell Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.acorjordan.org%2Fnamed-fellowships%2Frussell-fellowship%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947488147%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6I6I1haWwiLCJXVCi6Mn0%3D%7C0%7C%7C%7C&sdata=aG4Qvt54A%2F70TdyVhDQAzgUlatpQ3nROQJIXwhTE5Ws%3D&reserved=0>

One award of \$2,500 to support a graduate student participating in an ACOR-approved archaeological fieldwork or research project in Jordan. For the 2025–2026 cycle, the Russell Fellowship is open to enrolled graduate students of any nationality except Jordanian.

Lawrence T. Geraty Travel Scholarship:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Facorjordan.org%2Fnamed-fellowships%2Flawrence-t-geraty-travel-scholarship%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947488147%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6I6I1haWwiLCJXVCi6Mn0%3D%7C0%7C%7C%7C&sdata=u7P2zT4IU4v8i8aR6zB9ecTbKz2jP8fvyYlbg7QF7RQ%3D&reserved=0>

One award of \$1,250 for an undergraduate or graduate student from an accredited institution to conduct in Jordan excavation and/or research approved by ASOR's Committee on Archaeological Research and Policy (CAP). The award is intended to assist in travel costs and/or accommodation at the American Center of Research, based on need. Funding may be combined with other fellowships and must be spent within a calendar year.

Pierre and Patricia Bikai Fellowship:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Facorjordan.org%2Fnamed-fellowships%2Fbikai-fellowship%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947488147%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6I6I1haWwiLCJXVCi6Mn0%3D%7C0%7C%7C%7C&sdata=sE%2FuLvDbhiY7b%2BqFGRucp7mGK%2BHenv1PcLbAYeIMxxo%3D&reserved=0>

Two awards for one month each, or one two-month award, for residency at the American Center of Research in Amman. The fellowship is open to enrolled graduate students of any nationality, except Jordanian citizens, participating in an archaeological project or conducting archaeological work in Jordan. The fellowship includes room and board at the American Center of Research and a monthly stipend of \$800.

S. Thomas Parker Memorial Fund:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Facorjordan.org%2Fthe-s-thomas-parker-memorial-fund%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947488147%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=Fk5OCdedLoHDg8R3IFqFTK7osJnGkSwYSf%2BCfHq8FV0%3D&reserved=0>

One award of \$1,750 for an undergraduate student, graduate student, or postdoctoral researcher of any nationality. Proposals are accepted for support for fellowships, field projects, and events. Preference is given to archaeological fieldwork or publication efforts, but proposals in all areas of academic inquiry are welcome and encouraged. The most compelling proposal will receive the award.

Conference Travel Award for Jordanians:

<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Facorjordan.org%2Fjordanian-fellowships%2F%231474446467972-4858973f-a67f&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947488147%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=eOXUCf%2FWUC5sl4PMWEk3AAlp1B%2B1NdJfqTHdaYsHv4%3D&reserved=0>

This award is intended to assist Jordanians resident in Jordan participating in and delivering a scholarly paper at an international conference held in the United States or Canada. One award of \$3,500 will be made for an in-person paper presentation and one award for a paper presentation in a virtual conference (i.e., conference registration, membership when required) will be available annually. Awards are eligible in any field of study related to ACOR's mission. Poster presentations are not eligible.

Applications should be submitted online at orc.fellowships.smapply.org/.

Inquiries should be directed to fellowships@acorjordan.org.

International conflict, Covid-19/variants, and similar matters should be taken into consideration by all applicants. ACOR's covid-19 procedures (e.g., <https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Facorjordan.org%2Foverview%2F&data=05%7C02%7Cagade%40list.vanderbilt.edu%7C0eff56497e7646e47fa108dcf7b2e6a9%7Cba5a7f39e3be4ab3b45067fa80faecad%7C0%7C0%7C638657594947644403%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=O4Y8yKBDKJvLASEaQZMs3%2FMzYEKqRz6tt3ptafXcjYs%3D&reserved=0>) change from time-to-time depending on the caseload and regulations in Jordan, and as advised by the U.S. CDC and others. While ACOR makes diligent efforts in regard to such external factors, fellows and awardees assume all the risks and liabilities inherent in taking up these fellowships (e.g., international travel, conducting research, working with subjects, etc.).

THE MALCOLM H. WIENER LABORATORY **FOR ARCHAEOLOGICAL SCIENCE** **FUNDING OPPORTUNITIES AND SUMMER** **PROGRAMS**

The Malcolm H. Wiener Laboratory for Archaeological Science of the American School of Classical Studies at Athens offers fellowship funding for study at the laboratory, as well as week-long summer courses on specific topics. Applicants from any college or university worldwide, as well as independent scholars, are welcome to apply.

Fellowships priority will be given to question-driven research projects that address substantive problems through the application of interdisciplinary methods in the archaeological sciences. Wiener Laboratory facilities are especially well-equipped to support the study of human skeletal biology, archaeobiological remains (faunal and botanical), environmental studies, geoarchaeology (particularly studies in human-landscape interactions and the study of site formation processes), and ancient materials studies.

Fellowship Opportunities for the Malcolm H. Wiener Laboratory:

M. H. Wiener Annual Fellowship for 2025-2026

Current competition begins in fall 2024 for the 2025-2026 academic year (January 15, 2025 deadline for applications); Term variable, up to 9 months.

Eligibility limited to individuals actively enrolled in a graduate program and individuals with a higher-level degree in a relevant discipline.

Stipend: variable up to \$7,000

Pre-Doctoral Fellowship for 2025-2027

Competition will begin in fall 2024 for the 2025-2027 term (January 15, 2025 deadline for applications); 2-year term.

Eligibility limited to individuals actively enrolled in a graduate program who have passed all qualifying exams and have an approved Ph.D. proposal.

Stipend: \$20,000 per annum

Post-Doctoral Fellowship for 2026-2029

Competition begins in fall 2025 for the 2026-2029 term (January 15, 2026 deadline for applications); 3-year term.

Eligibility limited to individuals who have received their Ph.D. within the last seven (7) years.

Stipend: \$35,000 per annum

Post-Doctoral Fellowship for 2027-2030

Current competition begins in fall 2026 for the 2027-2030 term (January 15, 2027 deadline for applications); 3-year term.

Eligibility limited to individuals who have received their Ph.D. within the last seven (7) years.

Stipend: \$35,000 per annum

Archaeological Science Summer Programs for Summer 2025:

[Archaeological Soil and Sediment Micromorphology Course](#)

[Field School on Site Formation, Stratigraphy, and Geoarchaeology in the Athenian Agora](#)

[Bioarchaeological Course](#)

For more information and how to apply: <https://www.ascsa.edu.gr/research/wiener-laboratory>.

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

American School of Classical Studies at Athens

321 Wall Street

Princeton, NJ 08540-1515

Email: programs@ascsa.org

Website: <https://www.ascsa.edu.gr>

Connect with the ASCSA

facebook.com/ASCSAthens/ • twitter.com/ASCSAthens • instagram.com/ascsathens/



BRITISH SCHOOL AT ATHENS CENTENARY BURSARY AWARDS 2025-2026

Applications are invited from university graduates of Greek or Cypriot nationality for awards to cover the expenses of a stay in the United Kingdom (U.K.) of short duration for a specific project of study or research in any field in which the British School is active. This comprises all areas of Hellenic studies, including Greek and Cypriot archaeology, art, history, language, literature, religion, philosophy, ethnography, anthropology, geography and all branches of archaeological science. The project must be clearly defined. It must be a project which would be greatly enhanced from access to material in libraries, museums or universities and from scholarship which is to be found in the U.K. but not in Greece or Cyprus.

Awards are not normally offered to those carrying out or intending to qualify for postgraduate study in the U.K. They are not normally awarded to those carrying out full time postgraduate study in Greece. A well-defined project may, however, justify an exception. The award will be no less than £1300 per month plus the cost of a round-trip air ticket not to exceed £300. Preference will normally be given to applicants at an early stage in their career. Preference may be given to those who do not have extensive experience of study in the UK.

The School expects to offer at least two awards: no award will exceed three months. Award recipients should preferably be attached for the period of their award to a British university, museum or other appropriate institution. An advisor may be appointed. On their return from the U.K., recipients will be expected to submit a written report to the British School on their work as holders of the award. Applications from previous bursary holders will not normally be considered within 5 years of the previous award.

Before applying for an award, applicants must make at least preliminary contact with the British institution(s) where they intend to work and the scholar(s) with whom they would like to study.

Applications must be written in English and submitted through an online portal at <https://www.bsa.ac.uk/awards/bursaries/centenary-bursary/>

The following information should be included:

1. A Curriculum Vitae, including record of publications, if any.
2. A statement in no more than 500 words of the research or study proposed, which must include specific reasons for studying in the U.K. and the proposed period and place of study.
3. The names and email addresses of two referees who have agreed to provide confidential academic references. Referees will receive an automated email asking them to upload their references no later than 2nd December 2024.
4. Address and phone number of applicant.

Applications should be submitted by 5pm, 2nd December, 2024. Selected candidates will be invited for an interview by mid-February 2025. The interviews will be conducted in

English. Candidates will be notified of the results by the end of February 2025. The awards must be taken up during the academic year October 2025 - September 2026.

Further information may be obtained from the Administrator of the British School at Athens: Tel.: 211 10 22 800 (Monday - Friday, 11am - 1pm).

PH. D/POSTDOCTORAL FELLOW **POSITIONS IN UNIVERSITY OF SCIENCE** **AND TECHNOLOGY OF CHINA (USTC)**

Ph.D and postdoctoral research fellow positions (2-3 years) are available in Prof. Xiao Ma's Group at Department of History of Science and Scientific Archaeology in USTC, focusing on the following research topics:

1. Development of new materials for conservation (e.g., consolidation, grouting, cleaning materials)
2. Deterioration mechanisms of cultural heritage materials (e.g., pigments, building materials)
3. Archaeological science (with an emphasis on ancient building materials)

If your research interests lie outside these areas, please inquire with Prof. Xiao Ma prior to application.

For potential Ph.D students:

See en.ustc.edu.cn/Admission.htm

For postdoctoral fellows:

Eligibility:

1. Candidates must be under 35 and possess a Ph.D. (or be expected to obtain one before the position starts) in materials science, chemistry, physics, civil engineering, or related fields in cultural heritage conservation, obtained within the last three years.
2. Strong English written and verbal communication skills are essential.
3. A proven record of research and writing ability is required.
4. Familiarity with scientific instrumentation (e.g., FTIR, Raman, optical microscopy, SEM) is preferred.
5. A keen interest in conservation science and prior experience in this field are desirable.
6. Willingness to learn Chinese if it is not the applicant's mother tongue.

Job Responsibilities

1. Conduct relevant scientific research projects.
2. Assist in applying for research grants, developing research projects, supervising undergraduate and graduate students, and participating in laboratory management.

Package:

1. 200,000 - 350,000 RMB per year for 2-3 years, with a two-bedroom apartment, the same educational facilities for children as USTC employees, and opportunity to apply for tenure-track positions etc.
2. Support in applying for national, provincial, and municipal postdoctoral talent projects.
3. Opportunities for collaborative research with the National Synchrotron Radiation Laboratory and Hefei National Laboratory for Physical Sciences at the Microscale, as well as with various domestic and international research institutes.

Application Procedure

A complete application consists of:

- A current curriculum vitae (including a list of publications and detailed contact information);
- A statement of research interests;
- Reprints in PDF format of publications (representative work, no more than 3);
- Transcripts of undergraduate and graduate course studies (unofficial copies are okay)
- The names and contact information for two references

All application documents should be sent as PDFs, labeled with the last name first, followed by the document title, to xiaomaustc@ustc.edu.cn.

Please include "Postdoctoral/Ph.D Application + Your Name" in the email subject line.

The recruitment is open on a long-term basis, qualified applicants will be contacted for an interview after preliminary selection. Inquiries may be directed to Prof. Xiao Ma.

Xiao Ma

Professor, Department of History of Science and Scientific Archaeology

University of Science and Technology of China, Hefei, China.

hsta.ustc.edu.cn/2024/0920/c2770a654132/pagem.htm (In Chinese)

www.researchgate.net/profile/Xiao-Ma-maxiao/research (Research gate)

About USTC:

The University of Science and Technology of China (USTC) is one of the most prestigious universities in China and the only institution jointly supported by both the Chinese Academy of Sciences (CAS) and the Ministry of Education (MOE). Renowned for its culture of talent development and academic excellence, USTC provides a vibrant environment conducive to groundbreaking research and innovation. Scholars at USTC enjoy significant freedom to pursue their research aspirations and achieve international visibility, while USTC students are recognized for their deep passion for science and independent thinking. Numerous alumni have become world-renowned scientists and entrepreneurs.

USTC prides itself on its collegial, interactive, and supportive research environment. The university provides numerous opportunities for students to develop a global perspective and cultural sensitivity, and it has built an international reputation by collaborating with over 210 leading universities and research organizations worldwide. In the Nature Index 2024, USTC ranked among the top three globally and second in China for academic performance; in the U.S. News Rankings 2024, it placed sixth among the best global universities in mainland China.

See more information:

en.ustc.edu.cn/About.htm

livingcost.org/cost/china/hefei

employment.ustc.edu.cn/en/...

INSTAP STUDY CENTER FOR EAST CRETE FELLOWSHIPS / INTERNSHIPS FOR 2025

The INSTAP Study Center for East Crete is pleased to announce the availability of the following fellowships / internships for 2025

- Richard Seager fellowship: It is intended for scholars in the field of the Aegean Bronze Age/Early Iron Age who are working to complete their Ph.D. dissertations.
- Harriet Boyd Hawes fellowship: It aims at the investigation of the role of women or gender studies in Bronze Age Crete. The fellowship is intended for scholars in the field of the Aegean Bronze Age/Early Iron Age who have either completed their Ph.D. dissertations or who are working to complete their dissertations.
- Petrography internship: It is open to graduate and postgraduate students of archaeology, geology, conservation, and related fields. Preference will be given to interns with some experience in ceramic petrography.
- Conservation internship: Applicants must be currently enrolled in, or recently graduated from, a graduate-level or equivalent conservation program. The intern will participate fully in the work of the lab including examination and analysis of artifacts, cleaning and reconstruction, and full documentation and photography.
- Librarian fellowship: It is intended for librarians or library students, or for scholars in the field of the Aegean Bronze Age/Early Iron Age. Candidates with course work in Library Science or library work experience are preferred.

For further information and application guidelines

https://instapstudycenter.net/about/membership-and-fellowships/?fbclid=IwY2xjawF9hOVleHRuA2FlbQIxMQABHcxBD3SIvAMAXGvvaJ6QmJy3wymavtSbLc_7Xj9HSJ4tsW0m78LKiYRfwA_aem_-P5h7cE9qaV_bTCj4nOOMQ

SCIENTIST POSITION: METROPOLITAN MUSEUM OF ART, ASSOCIATE RESEARCH SCIENTIST

A full description of the position and application process can be found at this link [HERE](#).

GENERAL STATEMENT OF RESPONSIBILITIES & DUTIES:

As the Associate Research Scientist, you will conduct analysis, research, and documentation to improve the Museum and wider preventative conservation field's understanding of how indoor temperatures and humidity parameters affect works of art. Working within the Preventative Conservation Science Laboratory, you will develop a detailed report on the field's current state of knowledge. You will help identify gaps, risks, potential impacts and propose further research opportunities to advise the museum on gallery condition best practices.

This is a position with an established end-date or time frame: 1 Year

Applications will be accepted until the position is filled, though our goal is to review the first round of applications in the first weeks of November.

REQUIREMENTS & QUALIFICATIONS:

Ph.D. in analytical chemistry, materials science, related disciplines, or equivalent experience (required)

2-4 years of experience in air quality testing, building environment monitoring, materials degradation studies, or preventive conservation research (required).

a full list of requirements is available at the above link.

COMPENSATION RANGE:

Pay Range: \$105,000.00 - \$110,000.00 / Annually

Contact Eric Breitung (breite@metmuseum.org) if you have questions regarding this opportunity.

Eric Breitung

Research Scientist

Metropolitan Museum of Art, Department of Scientific Research

New York NY

SCIENTIST POSITION: METROPOLITAN MUSEUM OF ART, RESEARCH ASSOCIATE

Full details of the position and application process can be found at this link [HERE](#).

GENERAL STATEMENT OF RESPONSIBILITIES & DUTIES:

As the Research Associate, you will conduct research using advanced analytical scientific instruments, techniques and literature to identify and quantify reactive volatile components in collections related materials. You will develop benchmarking material testing methods used in the cultural heritage field for the display, transport and storage of collections. Under the supervision of the Environmental Research Scientist, you will collaborate with internal and external colleagues in the documentation, research, and publication of the project.

This is a position with an established end-date or time frame to begin upon hire: 1 Year
Applications will be accepted until the position is hired, though our goal is to review resumes during the first weeks of November.

REQUIREMENTS & QUALIFICATIONS:

Ph.D. in analytical chemistry, materials science, related disciplines, or equivalent experience.

1-3 years of experience in quantification of volatile unknowns, air quality testing, or chromatography-based testing and analysis.

Demonstrated expertise in advanced liquid or gas chromatography and mass spectrometry techniques such as GC/MS, HPLC, or ion chromatography (required).

Experience developing and implementing testing methods and protocols for volatiles analysis, ideally the identification and quantification of unknowns (required).

Experience quantifying the concentration of volatiles in complex mixtures (preferred).

COMPENSATION RANGE:

Pay Range: \$68,000.00 - \$70,000.00 / Annually

Contact Eric Breitung (breite@metmuseum.org) if you have questions about this opportunity.

Eric Breitung
Research Scientist
Metropolitan Museum of Art, Department of Scientific Research
New York NY

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

ONLINE RESOURCE, CONSERVATION SCIENCE EDUCATION ONLINE (CSEO)

Dear Colleagues,

We have launched a new online resource, Conservation Science Education Online (CSEO). CSEO focuses on science education in cultural heritage and is based on modules written by colleagues, both scientists and conservators, who have expertise in various areas. The resource provides well-developed teaching strategies, case studies, laboratories and problem-based learning examples tailored for the cultural heritage community. Images, videos and anecdotal methods proven to be valuable in teaching are highlighted. There are six modules in the resource now and we will be adding more over time.

<https://ecampusontario.pressbooks.pub/cseo/>

A link to the suggested format of modules is below, but the exact format and length can be modified according to the subject and content. We welcome module content in languages other than English and also modules in multiple languages.

<https://ecampusontario.pressbooks.pub/cseo/chapter/how-to-submit-a-module-for-this-resource/>

If you are interested in learning more about CSEO, hearing about new modules, or contributing, please write to CSEO@queensu.ca. We look forward to hearing from you.

All the best,

Alison Murray, Rebecca Ploeger, Aaron Shugar and Kyna Biggs
Conservation Science Education Online

2025 - GEOARCHAEOLOGICAL COURSES **OFFERED BY WIENER LAB**

Dear Colleagues,

The Malcolm H. Wiener Laboratory for Archaeological Science at the American School of Classical Studies at Athens is offering two independent programs in training in geoarchaeology. Dr. Panagiotis (Takis) Karkanas, Director of the Wiener Laboratory, and Dr. Paul Goldberg, Senior Visiting Professor, Institut für Naturwissenschaftliche Archäologie (INA), University of Tübingen will lead both courses.

For Summer 2025, the two courses are:

- **Archaeological Soil and Sediment Micromorphology Course (May 19–23, 2025)**
- **International Field School on Site Formation, Stratigraphy, and Geoarchaeology in the Athenian Agora (May 31–June 7, 2025)**

See attached call and relevant flyers for more details.

For further information or questions, please contact Dr. Panagiotis (Takis) Karkanas at tkarkanas@ascsa.edu.gr.

Best wishes

Paul and Takis

Dr. Panagiotis (Takis) Karkanas
Director, The Malcolm H. Wiener Laboratory for Archaeological Science
54 Souidias Street
Athens, Greece GR 106 76
Telephone: (+30) 213 000 2400 X 224
Email: tkarkanas@ascsa.edu.gr
Website: <https://www.ascsa.edu.gr/>

The Malcolm H. Wiener Laboratory for Archaeological Science at the American School of Classical Studies at Athens is offering two independent programs in training in geoarchaeology. Dr. Panagiotis (Takis) Karkanas, Director of the Wiener Laboratory, and Dr. Paul Goldberg, Senior Visiting Professor, Institut für Naturwissenschaftliche Archäologie (INA), University of Tübingen will lead both courses.

For Summer 2024, the two courses are: Archaeological Soil and Sediment Micromorphology Course (May 19 – 23)

The program will primarily focus on deciphering site formation processes and micro-stratigraphy. Students will receive instruction in optical mineralogy, description, and interpretation of micromorphological thin sections based on analysis of soil fabrics and sedimentary microstructures.

Training will include the study of:

Soils and pedogenic processes; Natural processes in archaeological sites (e.g. water and debris flows, wind-blown sediment, standing water sediment); Biological sediments (e.g., dung, coprolites, guano); Anthropogenic processes (e.g., burning, stabling, living and constructed floors, dumping and filling, trampling, raking, building materials); Post-depositional alterations (e.g., chemical diagenesis, bioturbation).

A maximum of 9 students will be accepted for the course. Preference is given to advanced students with a background in geoarchaeology, and preferably some exposure to optical mineralogy as well. Training fee is 500 euros for the entire week. Accommodation is not provided, but we will offer recommendations and assistance to course participants in order to arrange accommodation themselves. The course will take place from May 19-23, 2025. Applications should be submitted via the online application form. International Field School on Site Formation, Stratigraphy, and Geoarchaeology in the Athenian Agora (May 31 – June 7)

Registered students will be involved in interdisciplinary field research in the Athenian Agora primarily focused on archaeological context, geoarchaeology, and material sciences. Through field observations, laboratory analysis, and lectures, students will receive instruction in the study and analysis of archaeological sediments and deposits, as well as gain experience in the recording of stratigraphy and the understanding of site formation processes.

A maximum of 12 students will be accepted for the course. Preference is given to advanced students and post-docs with a background in archaeology, and preferably some exposure to the natural sciences.

Training fee is 450 euros for the entire week. Accommodation is not provided, but we will offer recommendations and assistance to course participants in order to arrange accommodation themselves. The course will take place from May 31 – June 7, 2025. Applications should be submitted via the online application form.

Application: Applicants will complete an online application for their desired course(s) by the deadline, January 15, 2025. Applications will include a brief cover letter outlining the

candidate's background and interest in participating in the course, a CV, and names and email addresses of two referees. Referees might be contacted for references after the application deadline, if necessary. Applications for the International Field School will also submit a list of grades (unofficial transcript) as part of the application. Applicants will be notified before the end of February. Participants who successfully complete a course of instruction will receive a certificate detailing the content of the course.

For more information on the courses and links to apply, view the website at <https://www.ascsa.edu.gr/programs> or email application@ascsa.org.

International Field School on Site Formation, Stratigraphy, & Geoarchaeology in the Athenian Agora

The Malcolm H. Wiener Laboratory for Archaeological Science in collaboration with the ASCSA Excavation at the Athenian Agora offers a full week-long Field School on Site Formation, Stratigraphy, and Geoarchaeology in the Athenian Agora. Dr. Panagiotis (Takis) Karkanas, Director of the Wiener Laboratory, and Dr. Paul Goldberg, Senior Visiting Professor, Institut für Naturwissenschaftliche Archäologie (INA), University of Tübingen will supervise the intensive field school.

A maximum of 12 students will be accepted for the course.

Preference is given to advanced students and post-docs with a background in archaeology, and preferably some exposure to the natural sciences.

* We will provide guidance and support to course participants to help them independently arrange their accommodation.

Registered students will be involved in interdisciplinary field research in the Athenian Agora primarily focused on archaeological context, geoarchaeology, and material sciences. Through field observations, laboratory analysis, and lectures, students will receive instruction in the study and analysis of archaeological sediments and deposits, as well as gain experience in the recording of stratigraphy and the understanding of site formation processes.

DATES: May 31–June 7, 2025
TRAINING FEE: 450 euros for the entire week (accommodations not included)
LEARN MORE: <https://www.ascsa.edu.gr/programs/summer-archaeological-science-courses/geoarchaeology-field-school>
CONTACT: Dr. Karkanas at tkarkanas@ascsa.edu.gr

Archaeological Soil & Sediment Micromorphology

The Malcolm H. Wiener Laboratory for Archaeological Science is offering an intensive week-long course in Archaeological Micromorphology. Dr. Panagiotis (Takis) Karkanas,

Director of the Wiener Laboratory, and Dr. Paul Goldberg, Senior Visiting Professor, Institut für Naturwissenschaftliche Archäologie (INA), University of Tübingen will lead the course.

The program will primarily focus on deciphering site formation processes and micro-stratigraphy. Students will receive instruction in optical mineralogy, description, and interpretation of micromorphological thin sections based on analysis of soil fabrics and sedimentary microstructures.

A maximum of 9 students will be accepted for the course.

Preference is given to advanced students with a background in geoarchaeology, and preferably some exposure to optical mineralogy as well.

Training will include the study of:

- Soils and pedogenic processes;
- Natural processes in archaeological sites (e.g. water and debris flows, wind-blown sediment, standing water sediment);
- Biological sediments (e.g., dung, coprolites, guano);
- Anthropogenic processes (e.g., burning, stabling, living and constructed floors, dumping and filling, trampling, raking, building materials);
- Post-depositional alterations (e.g., chemical diagenesis, bioturbation).

DATES: May 19–23, 2025

TRAINING FEE: 500 euros for the entire week

LEARN MORE: <https://www.ascsa.edu.gr/programs/summer-archaeological-science-courses/wl-micromorphology-summer-course>

CONTACT: Dr. Karkanis at tkarkanis@ascsa.edu.gr

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

PHYSICO-CHEMICAL CHARACTERISATION AND LIGHT STABILITY OF DYES AND PIGMENTS FOUND IN CULTURAL HERITAGE OBJECTS: INSIGHTS FROM MICROFADING TESTING FOR ASSESSING LIGHT FASTNESS, BY JULIO M. DEL HOYO-MELÉNDEZ

Abstract

Understanding the chemistry of dyes and pigments found in cultural heritage objects and their permanence is central for their preservation. Heritage science research has generally focused on either identification of materials present on actual objects or accelerated and natural ageing of mock-up samples prepared using historically accurate methods to simulate the materiality of cultural heritage objects. A more recent strategy is the integration of these two research areas, which provides a holistic approach to assess both the chemical composition and stability of materials. Over the last 30 years, microfading testing (MFT) has notably contributed to understanding materials' responsiveness to light, minimising damage to objects from museum lighting and revealing insights into molecular structures of dyes and pigments, when employed in conjunction with other techniques. By combining MFT with diverse analytical methods, including imaging, spectroscopy, microscopy and chromatography, a more comprehensive approach is achieved. This joined-up strategy contributes to improved decision-making processes in the conservation and preservation of cultural heritage objects.

Please visit the site: <https://onlinelibrary.wiley.com/doi/abs/10.1111/cote.12788>

**WHERE DID THE HERDS GO? COMBINING
ZOOARCHAEOLOGICAL AND ISOTOPIC
DATA TO EXAMINE ANIMAL
MANAGEMENT IN ANCIENT THESSALY
(GREECE), BY DIMITRIS FILIOGLOU,
SILVIA VALENZUELA-LAMAS, WILLIAM P.
PATTERSON, LEOPOLDO D. PENA,
SAMANTHA PRESSLEE, SANDRA TIMSIC,
ANTONIO DELGADO HUERTAS, WIETSKE
PRUMMEL AND CANAN ÇAKIRLAR**

PLoS ONE 19(10): e0299788

<https://doi.org/10.1371/journal.pone.0299788>

Abstract

Historians and archaeologists have been debating the scale of animal husbandry in ancient Greece for decades. This study contributes to the debate by examining Classical and Hellenistic faunal assemblages from Magoula Plataniotki, New Halos, and Pherae through non-destructive zooarchaeological methods and a multi-isotopic ($^{87}\text{Sr}/^{86}\text{Sr}$, $\delta^{13}\text{C}$, and $\delta^{18}\text{O}$) approach. Zooarchaeological data suggest that small-scale sedentary animal husbandry focused on caprine production in Magoula Plataniotiki and New Halos, and small-scale and semi-specialised animal husbandry was practised in Pherae. Isotopic data show both sedentary and mobile management of livestock in all sites, indicating different levels of production intensity and variety of goals. Based on our results, we propose an economic model whereby semi-specialised and small-scale animal husbandry co-existed, confirming mixed husbandry models for ancient Greece.

Please visit the site:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0299788>

CLIMATE-DRIVEN VERSUS
ANTHROPOGENIC INDUCED EROSION OF
THE LAST 3000 YEARS FROM AN ANCIENT
LAKE IN THE SOUTHERN PHOKIS PLAIN
(DESFINA), GREECE, BY GEORGIOS S.
POLYMERIS, MARIA GERAGA, GEORGE
PAPATHEODOROU, IOANNIS ILIOPOULOS,
TOMÁŠ PLUHÁČEK, KAREL LEMR, ZHEN
QIN, SPYROS SERGIOU, XENOPHON DIMAS
AND IOANNIS LIRITZIS

The Holocene 1–15, 2024

DOI: 10.1177/09596836241275024 journals.sagepub.com/home/hol

Abstract

The timing and causes for erosional events at the Kastrouli (Greece) archeological site – a Late Mycenaean with reuse in later periods – are presented. Two borehole sediment cores (max 6 m depth), collected from the footsteps of the settlement hill plain, were studied. Sedimentary analysis and luminescence dating techniques investigate and identify periods of soil aggradation in this record. Moreover, optically stimulated luminescence (OSL) dating confirmed the concept of an ancient lake during Kastrouli settlement times. Macroscopic overview of the stratigraphic structure for each core, included lithological and textural evaluation of the core sediments, assessments of grain size, and determination of the geochemical and mineralogical composition of the sediments. X-ray powder diffraction (XRPD), X-ray fluorescence (XRF), and Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) techniques were applied for the mineralogical and geochemical analysis. OSL ages from seven sediment horizons spanned from the Ottoman period to archaic times. All lithological findings correlate with the results of the electrical tomography survey conducted in same area. Extrapolation of the Logarithmic fitting of the data back in time of prehistoric Late Mycenaean era of Kastrouli verifies a lake deeper than 10 m, with a considerable enhancement in soil aggradation of 1.2 cm/year. Attempts to dry out the area are evidenced by the hydraulic works found in two engineering sinkholes. Sedimentation changes had occurred in the local environment over the last 2500 years, and soil aggradation underwent significant fluctuations in the two studied cores. The Roman period (a wet period) and the Byzantine period experienced high aggradation rates. By contrast, soil aggradation rates in southern Phokis (Kastrouli region) have remained exceedingly low from the Ottoman era (circa 13th century) to the present. In the context of the Phokis case study, it appears that the sedimentation rates, driven by climate, have strengthened anthropogenic activities.

Keywords: aggregation, anthropogenic, borehole, climate, Kastrouli, OSL dating, sedimentation

Please visit the site:

<https://journals.sagepub.com/doi/abs/10.1177/09596836241275024>

MEDITERRANEAN EARLY IRON AGE
CHRONOLOGY: ASSESSING RADIOCARBON
DATES FROM A STRATIFIED GEOMETRIC
PERIOD DEPOSIT AT ZAGORA (ANDROS),
GREECE, BY RUDOLPH ALAGICH, LORENA
BECERRA-VALDIVIA, MARGARET C.
MILLER, KATERINA TRANTALIDOU³ &
COLIN SMITH

Antiquity 2024 page 1 of 16
<https://doi.org/10.15184/aqy.2024.16>

Abstract

In this article, the authors present an analysis of radiocarbon dates from a stratified deposit at the Greek Geometric period settlement of Zagora on the island of Andros, which are among the few absolute dates measured from the period in Greece. The dates assigned to Greek Geometric ceramics are based on historical and literary evidence and are found to contradict absolute dates from the central Mediterranean which suggest that the traditional dates are too young. The results indicate the final period at Zagora, the Late Geometric, should be seen as starting at least a century earlier than the traditional date of 760 BC.

Keywords: Mediterranean Europe, Greece, Early Iron Age, Geometric period, radiocarbon, chronology

ΕΙΔΗΣΕΙΣ - NEWS RELEASE

MYSTERY OF THE WORLD’S OLDEST MAP **ON A NEARLY 3,000-YEAR-OLD** **BABYLONIAN TABLET FINALLY SOLVED**

A recent British Museum video reveals that the “oldest map of the world in the world” on a clay tablet from Babylon was deciphered to reveal a surprisingly familiar story.

The oldest globe ever found is the Imago Mundi, a Babylonian map of the world. This map is a Babylonian clay tablet with a schematic world map and two inscriptions written in the Akkadian language. The probably seventh century BC is when this map was created. It shows a small part of the world as the ancient Babylonians knew it, and it was found in the southern Iraqi city of Abu Habba (Sippar).

The ancient artifact was acquired by the British Museum in 1882 but remained a mystery for centuries until curators found a missing part and transcribed its cuneiform.

The cuneiform tablet from the 6th century BC shows an aerial view map of Mesopotamia — the land “between the rivers” in modern-day Iraq— and what the Babylonians believed lay beyond the known world at the time.

After centuries of deciphering, the ancient tablet provides insight into the Babylonians’ beliefs about the known world at the time.

The tablet has several paragraphs of the cuneiform on its backside and above the map diagram describing the creation of the Earth and what its writer believed existed beyond it.

Researchers confirm the circle around Mesopotamia suggests that Babylonians believed the area was the center of the world. There also shows the river Euphrates cutting through ancient Mesopotamia.

The map depicts a double ring encircling Mesopotamia, which the ancient scribe called the “bitter river.” This river formed the boundaries of the Babylonians’ known world. Small circles and rectangles inside the Bitter River stand in for various Mesopotamian cities and tribes, such as Babylon, while another rectangle symbolizes the Euphrates River.

“You have encapsulated in this circular diagram the whole of the known world in which people lived, flourished, and died,” British Museum curator and cuneiform expert Dr. Irving Finkel said in the video. “However, there’s more to this map than that.”

“When it comes to operating beyond the limits of the known world into the world of imagination, [the tablet] is indispensable,” Finkel added.

Aside from mapping out what they thought existed outside of their world, the Babylonian scribe also included references to a well-known story (basically the Babylonian version of the biblical story of Noah's Ark) and mythical animals and lands.

The ancient Babylonians thought that the remains of the enormous ark that their version of Noah, named Utnapishtim, had constructed in 1800 BC at God's command were located on the backside of a mountain, the same mountain that the Bible says Noah's Ark crashed on, beyond the bitter river.

“That's quite a meaty thing, quite an interesting thing to think about because it shows that the story was the same, and of course, that one led to the other,” Finkel concluded.

The tablet also confirms the Babylonian's belief in the God of creation Marduk and other mythical monsters such as scorpion-man and a lion-headed bird called Anzu.

Cover Image Credit: Osama Shukir Muhammed Amin

Please visit the site: https://arkeonews.net/mystery-of-the-worlds-oldest-map-on-a-nearly-3000-year-old-babylonian-tablet-finally-solved/#google_vignette [Go there for pix]

ARCHAEOLOGISTS DISCOVER **BREATHTAKING WALL PAINTINGS** **FROZEN IN TIME INSIDE A MODEST HOME** **IN ANCIENT POMPEII,** **BY SONJA ANDERSON**

Despite its unusually small size, the newly unearthed House of Phaedra is covered in elaborate frescos depicting mythological scenes

A tiny house full of exquisite frescos has been discovered in the ancient city of Pompeii. While the home is modest in size, researchers say that its decorations—including erotic scenes—are equal to those of much larger nearby residences.

Found during recent excavations in the central district of the city, the painted dwelling also exemplifies a shift in Roman building styles. The small space doesn't include an atrium, which was a common feature in wealthy Pompeian homes, per a statement from the Pompeii Archaeological Park. Traditionally, grand residences featured rooms surrounding a central, open-air space that housed a basin for collecting rainwater.

“The atrium was associated with rich Romans receiving their clients and supporters and as a place to display family heirlooms,” as park director Gabriel Zuchtriegel tells the London Times’ Tom Kington.

Eventually, Roman home design evolved, and it became more acceptable to forgo the inclusion of an expensive atrium. Instead, elite families displayed their wealth in other ways.

“As Rome entered the second century C.E., many freed slaves and merchants of humble origin were achieving social status, while old money was slipping,” Zuchtriegel tells the Times. “More than an atrium, it was clothes and jewels that were beginning to show status. Having no atrium was starting to be a choice, and we see that trend emerging at Pompeii.”

The newly discovered structure is called the House of Phaedra, named for a well-preserved painting of the mythological Hippolytus and Phaedra on its wall. In Euripides’ ancient Greek tragedy Hippolytus, Phaedra, the wife of hero Theseus, falls in love with her stepson Hippolytus. In the fresco, Phaedra sits draped in cloth, while Hippolytus stands before her.

Other frescos show the sensual embrace of a satyr (a half-man, half-goat) and a nymph (a maiden goddess). Another wall painting likely depicts the goddess Venus with her beau Adonis, according to the park. One painted scene, though damaged, appears to illustrate the Judgment of Paris.

Inside the house, researchers discovered a small altar containing several ritual objects, including a ceramic container for burning incense, which still held material from its last use two millennia ago. They also found a lamp, parts of a dried fig and an iron knife.

When Mount Vesuvius erupted in 79 C.E., volcanic ash buried Pompeii and other nearby Roman towns, leaving them frozen in time. Since Pompeii's rediscovery in the late 16th century, archaeologists have been digging out its preserved ruins. Today, about a third of the site remains unexcavated.

The house was found in Pompeii's Insula dei Casti Amanti site, a cluster of buildings that opened to the public this year. Last spring, researchers discovered children's graffiti depicting a gladiator fight in a nearby house. Just a few months ago, they found a unique blue-painted shrine, also located in central Pompeii. Other excavations in recent years have uncovered a pregnant tortoise, an ancient construction site and a painting of a circular flatbread that resembles a pizza, among other finds.

As Zuchtriegel says in the statement, excavating Pompeii while keeping it open to visitors is crucial to the park's aims of transparency and education. He adds that observing the work of archaeologists and restorers helps visitors understand the importance of documenting and safeguarding the surviving traces of Pompeii's ancient residents.

Please visit the site: <https://www.smithsonianmag.com/smart-news/archaeologists-discover-breathtaking-wall-paintings-frozen-in-time-inside-a-modest-home-in-ancient-pompeii-180985337/> [Go there for pix]

REMAINS OF ONE OF THE OLDEST CHURCHES IN THE WORLD DISCOVERED IN ARMENIA, BY GAVRIEL FISKE

Octagonal-shaped structure dates from the mid-4th century CE, not long after the Kingdom of Armenia is thought to have become the first Christian kingdom

An academic team working in Armenia has discovered the remains of a church from the 4th century CE, making the structure one of the oldest churches in the world. It is the oldest yet found in ancient Armenia, considered the first kingdom to officially embrace Christianity.

The remains of the octagonal-shaped church were unearthed in Artaxata, the ancient capital of the Kingdom of Armenia, by a joint team of archaeologists from the University of Münster and Armenia's National Academy of Sciences, who have been working at the site since September, the University of Münster said in an October 11 press release.

The discovery “consists of an octagonal building with cruciform extensions” that “corresponds to early Christian memorial buildings,” the release said. The structure was “around 30 meters in diameter” and had “a simple mortar floor and terracotta tiles.” The researchers also found marble fragments indicating the structure was “lavishly decorated” with imported marble.

“In the cross-shaped extensions, the researchers discovered the remains of wooden platforms, which were radiocarbon dated to the mid-4th century CE,” the statement said.

This dating enabled the researchers to determine that the structure “is the oldest archaeologically documented church in the country — sensational evidence for early Christianity in Armenia,” Professor Achim Lichtenberger of the University of Münster said.

The now-ruined city of Artaxata, located on a hilltop in southern Armenia along the border with Turkey, was founded in 176 BCE and “developed into an important metropolis,” especially during the Hellenistic period, and ultimately served as “the capital of the Kingdom of Armenia for almost six centuries,” the researchers said.

The Artaxata hilltop, with the Khor Virap monastery on the left and Mt. Ararat in the background, in an image released on October 11, 2024. (courtesy Armenian-German Artaxata Project)

The same hilltop, which boasts a spectacular view of Mt. Ararat just across the Turkish border, houses Khor Virap, an ancient and still active monastery that is also a pilgrimage site.

“This does appear to be a significant discovery and credible claim by well-qualified archaeologists,” said Prof. Jodi Magness, a classical and biblical archaeologist and

religious historian who teaches at the University of North Carolina at Chapel Hill, in an email exchange with The Times of Israel.

“The discovery of this church makes sense since the Kingdom of Armenia was the first state to adopt Christianity as its official religion in the early fourth century,” she said, and noted that at around the same time, “Armenians established a presence in Jerusalem, which they have maintained until today.”

Although rare elsewhere, ancient “octagonal churches are not uncommon in the eastern Mediterranean, including the Church of the Kathisma [the Church of the Seat of Mary, 5th century CE], located between Jerusalem and Bethlehem, which was excavated by Rina Avner of the Israel Antiquities Authority,” Magness said.

There is another octagonal church, dating from around 500 CE, in Caesarea, and at the Church of the Nativity in Bethlehem, commissioned by Constantine in the early 4th century, “the grotto originally was enclosed within an octagon,” she said.

“In addition, the Dome of the Rock [7th century CE] is octagonal,” she noted, as is the chapel “at the heart of Charlemagne’s palace [9th century CE], at Aix-la-Chapelle [Aachen, Germany]” which “is an inner octagon surrounded by a sixteen-sided ambulatory, and still stands today.”

“I could not tell you what happened to this building type later in history,” Magness said. “There may well have been other, earlier Christian places of worship but they have not been identified in the archaeological record. Remember that Christianity was outlawed [in the Roman world] before 313 CE, so Christians had to worship in secret, for example in private houses.”

The Kingdom of Armenia, at the time a client-state of the Romans, formally became Christian in 301 CE, when, “according to legend, Gregory the Illuminator converted the Armenian king Tiridates III to Christianity in Artaxata,” the researchers noted in their press release.

This was before the Council of Nicea in 325 CE, which codified and streamlined what had been diverse Christian tenets, and also before the Roman Emperor Constantine’s 313 CE Edict of Milan, which outlawed the prosecution of Christians and made Christianity a recognized religion in the empire.

Therefore Armenia is considered the first Christian kingdom, and the Armenian Orthodox Church is one of the oldest Christian denominations. (There is also a significant number of Armenian Catholics, who have distinct traditions but owe allegiance to the Holy See in Rome.)

Armenia already boasts what some consider the world’s oldest cathedral: the Etchmiadzin Cathedral, built in 301 CE in the city of Vagharshapat, around the time of King Tiridates III’s conversion, but it is unclear which structure holds the title of the earliest church, and many locations predate the newly discovered Artaxata building.

Ancient Christian houses of prayer include the Dura-Europos house church in Syria, which is thought to have been a private home converted to a Christian house of worship

in the mid-3rd century CE. The Meggido Church in Israel, also dating from the early 3rd century and thought to have been similarly repurposed, is another early contender, as is the Aqaba Church in Jordan from the late 3rd century, thought to be the earliest purpose-built Christian house of worship yet discovered.

The German-Armenian team, which has been working at Artaxata since 2018, said they “will continue their excavations and hope to make new discoveries, including the question as to whom the church was dedicated.”

Please visit the site: <https://www.timesofisrael.com/remains-of-one-of-the-oldest-churches-in-the-world-discovered-in-armenia/> [Go there for pix]

SECRET TOMB FOUND UNDER ‘INDIANA JONES’ FILMING LOCATION IN PETRA, **BY TAYLOR NICIOLI**

At the heart of the ancient city of Petra, Jordan, carved into pink sandstone cliffs, lies an elaborate monument known as the Khaznah, or the Treasury.

And buried beneath that edifice, archaeologists recently discovered, is a tomb with at least 12 human skeletons and artifacts that are estimated to be at least 2,000 years old.

Archaeologists led by Dr. Pearce Paul Creasman, executive director of the American Center of Research, unearthed the ancient tomb. The expedition was studying the Treasury after years of speculation that two tombs found below the left side of the monument in 2003 weren't the only secret underground chambers. But that theory had not been confirmed — until now.

Creasman and his team performed ground-penetrating radar — a remote sensing technique that uses radar pulses to detect underground objects — earlier this year to see whether the physical features on the left, where the original tombs were found, matched those on the right. The detections revealed strong similarities among the two sides, and it was the proof they needed to receive permission from the Jordanian government to dig beneath the Treasury.

At this point, Creasman contacted Josh Gates, host of Discovery Channel's "Expedition Unknown." "I think we've got something," Creasman said he told the explorer over the phone.

With a film crew, the team excavated the newly uncovered tomb in August. But the real surprise was what lay within the tomb. While many tombs uncovered within Petra are found empty or disturbed, the chamber was filled with complete skeletal remains and grave goods made from bronze, iron and ceramic. The intact burial found beneath the Treasury provides rare insight into the lives of the Nabataeans, ancient Arabian nomads whose desert kingdom thrived during fourth century BC to AD 106, Creasman said.

"This is a hugely rare discovery — in the two centuries that Petra has been investigated by archaeologists, nothing like this has been found before," Gates said. "Even in front of one of the most famous buildings in the world ... there are still huge discoveries to be made."

Exploring Petra, a world wonder

Within the tomb beneath the Treasury, archaeologists found a ceramic vessel resembling the Holy Grail. Discovery's Expedition Unknown

Petra was voted as one of the New Seven Wonders of the World in the 2000s for its unique architecture and the many mysteries that still surround the city. While experts have debated the Treasury's purpose for centuries, the most popular theory is that the

monument serves as a mausoleum, although no skeletal remains have been found within the building itself, Gates said.

The Treasury receives hundreds of thousands of tourists a year, and it has also been featured in several movies, most prominently as the site of the Holy Grail in the 1989 film “Indiana Jones and the Last Crusade.”

Among the artifacts were several vessels, with one skeleton found clutching a ceramic chalice that resembled the shape of the Holy Grail. “It really was this awesome moment of history imitating art,” Gates said.

The artifacts are extremely well-preserved, Creasman said. However, the human remains, while intact, are in more delicate shape than expected. Their condition may be a result of the humidity and seasonal floods in Petra as well as the porous sandstone surrounding the tomb that has entrapped moisture, he said. Some of the skeletons were found with mold.

Only a handful of tombs uncovered in Petra in the past several decades have been found with untouched burials, Creasman said. Grave disturbances were most likely due to travelers looking for shade and protection in the desert, he added.

The two tombs uncovered beneath the left side of the Treasury two decades ago by archaeologists from the Jordan Department of Antiquities had partial skeletal remains, but the data was not published, so it’s unclear how many individuals were found, Creasman said.

Please visit the site: <https://edition.cnn.com/2024/10/12/science/petra-tomb-indiana-jones-discovery>

TUNISIAN SNAIL REMAINS PROVIDE **INSIGHTS ON A POSSIBLE 7700-YEAR-OLD** **LOCAL FOOD TRADITION,** **BY SANDEE OSTER**

A new study by Dr. Ismail Saafi from the Aix-Marseille Université provides details on the discovery of cooked snail remains at Kef Ezzahi in northern Tunisia. The snail remains, dating back approximately 7710 years, are the only known cases of snail remains in northern Africa with their epiphragms (temporary closing membrane) intact.

The findings raise questions and shed light on snail consumption and the antiquity of culinary traditions in Tunisian societies. The findings are published in the journal *Archaeological and Anthropological Sciences*.

The site of Kef Ezzahi is one of a handful of sites that contain a rammadiyet (massive accumulations of shell remains). During excavations conducted at the site in 2012, shells belonging to the species *Sphincterochila candidissima* were uncovered. Of these over 35,000 remains, 41 revealed the presence of epiphragms.

Dr. Saafi explains the function of this epiphragm, "Land snails produce an epiphragm when climatic conditions are unfavorable for their activity (temperature varies between 5° and 25°, presence of rain or high humidity). The epiphragm protects against water loss, especially when the temperature rises."

The finding is remarkable because it is the only known case in northern Africa and may be one of the oldest pieces of evidence pointing to humans consuming snails with epiphragms.

"In Turkey, *Pomatias elegans* shells with an epiphragm were discovered at the Üçağizli Cave I site (41000–29000 uncalibrated BP). The presence of a perforation in the middle of the epiphragm of a shell encourages researchers to consider consumption of the flesh by a predator. So, this is not a collection for consumption," says Dr. Saafi.

"So far, the discovery at Kef Ezzahi is the oldest evidence of the collection of land snails with epiphragm in relation to consumption."

In order to understand why snails with epiphragms may be so rare in archaeology, Dr. Saafi conducted an ethnographic study of a modern population living in Aouled Said.

The inhabitants of Aouled Said (or Saâïd) collect *Cantareus apertus*, a snail that also produces epiphragms. His study found that individual families and groups in Tunisia will collect only certain species of snail, which is usually based on their size and taste.

The group living in Aouled Said set out to collect *Cantareus apertus* snails, which can only be found in Tunisia's north. In summer, these snails enter a period of estivation (a period of rest similar to hibernation). During this time, they burrow underground and create an epiphragm.

Collectors of the snail need to harvest the snail in summer, between April and July. To do this, collectors use pickaxes to dig into the ground. Once collected, the snails need to be placed into a container of ash or sawdust, or else the snail will shed its epiphragm.

Any snails that shed their epiphragm or do not have one are thrown away or avoided as they are viewed as dirty. It is imperative to collect the snails at the correct time; if they are left in their resting phase for too long, they become bitter, and their mass reduces, making them less favorable on the market or for consumption.

On average, collectors are able to collect about 1kg of snails in a single day, leaving behind the juveniles to ensure the species' survival and abundance for the next season. Due to the amount of physically strenuous activity required to gather these snails, it is usually a task relegated to men or young people over the age of 15. The skill and know-how of this collection technique is passed down from one generation to the next.

The lack of epiphragms in other archaeological contexts is unlikely to be a preservation bias. This is because while easy to remove, once in the archaeological deposit, epiphragms remain relatively unchanged.

According to Dr. Saafi, "An epiphragm can be best preserved when it is still stuck to the entrance of the shell. Once the shell has been buried in the archaeological deposit (mainly ash in the case of our study sites), the changes are less significant [except in the case of contact with another, harder archaeological object (flint or stone)]."

Instead, their rarity in archaeology is likely linked to how difficult they are to obtain. As seen in the ethnographic study, one requires a unique set of skills in order to know where to look for snails with epiphragms and when to collect them. On top of this, the physical effort required and the limited season of collection may make them less desirable as collection targets as compared to other snails, which may be more widespread and can be collected year-round in larger quantities.

Dr. Saafi elaborates, saying, "This rarity could be due to a culinary tradition that was not popular with ancient populations. To eat the shells, the epiphragm must be removed to extract the body of the mollusk from its shell. So, this rarity is linked more to culinary practices (collection and consumption) than to a conservation bias."

It is possible that a group of prehistoric Tunisians practiced the collection of *S. candidissima*, similar to how modern groups in Tunisia specialize in the collection of one type of snail species. Passing this technique down through the generations, as evidenced by the fact that *S. candidissima* snails, which made up 90% of the snail species at Kef Ezzahi, are found through the deposit, suggesting its continued collection through time.

However, due to the limitations of collecting this species, other groups and sites with shell remains did not adopt the collection of *S. candidissima* or other epiphragm-producing snails, hence why they are so rare in archaeology.

"This discovery confirms the antiquity and continuity of certain practices linked to culinary and cultural traditions in the exploitation of land snails, such as the extraction of the mollusk bodies after the shell has been pierced. These data give us a better

understanding of the status of land snails among ancient and contemporary populations," says Dr. Saafi.

More information: Ismail Saafi, Shells with epiphragms in an Upper Capsian rammadiya at Kef Ezzahi (Central Tunisia): a local food tradition?, Archaeological and Anthropological Sciences (2024). DOI: 10.1007/s12520-024-02071-9

Please visit the site: <https://phys.org/news/2024-10-tunisian-snail-insights-year-local.html> [Go there for pix]
