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Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Νοέμβριος 2022 -

**If you are fond of learning, you will soon be full of
learning.**
(Isocrates)

Newsletter of the Hellenic Society of Archaeometry

- November 2022 -

Nr. 260

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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

HISTORIES OF METALLURGY AND METAL MATERIAL CULTURE SYMPOSIUM IN- PERSON AND ONLINE FRIDAY 18 NOVEMBER, 2022 (UTC +11), AUSTRALIAN NATIONAL UNIVERSITY

Dear Colleagues,

Please join Histories of Metallurgy and Metal Material Culture, to be held in-person and online at the Australian National University on Friday 18 November, 2022 (UTC +11).

This symposium hosted by the ANU Centre for Art History and Art Theory aims to generate cross-disciplinary dialogue about how we interpret metal in ancient and historical societies. Researchers in history, art history, archaeology, archaeometry, curatorship and creative practice will present papers which adopt diverse approaches to investigating the production, fabrication, meanings and interpretation of metals and metal material culture across chronologies and geographies.

We welcome interested colleagues in Australia and around the world to join us in person and virtually to participate in the discussions generated by these papers.

For more details and to register, see: <https://soad.cass.anu.edu.au/events/histories-metallurgy-metal-material-culture>

Kind regards,

Christina Clarke

ANU Centre for Art History and Art Theory

**THIRD ANNUAL MEETING OF THE
MEDITERRANEAN ARCHAEOLOGY
AUSTRALASIAN RESEARCH COMMUNITY
(MAARC) CONFERENCE, 13 – 15 FEBRUARY,
2023, CALL FOR PAPERS NOW OPEN**

The third annual meeting of the Mediterranean Archaeology Australasian Research Community (MAARC), will take place from Monday 13 to Wednesday 15 February 2023 (online via Zoom) hosted by The University of Sydney with the support of the Department of Archaeology, Chau Chak Wing Museum, Australian Archaeological Institute at Athens and Near Eastern Archaeology Foundation. For more see:

<https://mediterraneanarcha.wixsite.com/maarc/annual-meeting>

The Mediterranean Archaeology Australian Research Community (MAARC) was formed around the concept of exchanging ideas and has become a regional network that facilitates a sense of community and encourages interaction, communication, and collaboration between those researching the archaeology of the ancient Mediterranean, in the broadest possible sense.

We invite papers from researchers at all levels, on any facet of Mediterranean archaeology and interconnected regions spanning all time periods. This includes (but of course is not limited to): new methodologies for fieldwork, analysis and publication; interdisciplinary approaches to research questions; reports on recent excavations or projects; artefact studies; engaging with legacy data, archival material and historic collections; and perspectives on archaeological pedagogy. More information about the thematic panels can be found on our website:

<https://mediterraneanarcha.wixsite.com/maarc/annual-meeting>

To submit to the open call for papers please send your paper proposal form to the conference organisers: mediterraneanarchaeology@gmail.com

When submitting your paper, it is essential that you identify 3-5 keywords that situate your paper in broad themes for aligning the conference sessions.

Deadline for submissions: 20th November 2023, 11:59pm AEST.

SPECIAL SESSION ON
ARCHAEOMETALLURGY AND ANCIENT
METALWORKING AT THE
INTERNATIONAL MATERIALS,
APPLICATIONS & TECHNOLOGIES (IMAT)
2023 CONFERENCE, OCTOBER 16–19,
DETROIT, MICHIGAN, USA

A special session on **Archaeometallurgy and Ancient Metalworking** will be held at the **International Materials, Applications & Technologies (IMAT) 2023 Conference**, October 16–19, Detroit, Michigan, USA. The IMAT Conference is the annual meeting of ASM International.

This special session, sponsored by the ASM International Archaeometallurgy Committee, will feature presentations related to archaeometallurgy and the historical applications of metals and nonmetallic materials.

Presentations will address studies of artifacts or objects from archaeological excavations, museums, monuments, private collections, public infrastructure projects, and other pieces that reflect historical materials applications. Talks reflecting results of analytical studies on archaeological and historical metallic and nonmetallic materials (slag, crucible, metallic ore) from different regions and various historic and prehistoric periods are invited.

Papers related to studies that use modern characterization methods to determine details of past materials extraction, processing, and manufacturing methods are welcome.

The session is intended to serve as a forum for specialists (archaeologists, metallurgists, geologists, chemists, and archaeometrists) to share their recent findings in the field of archaeometallurgy and to network with others who are working in this field.

To learn more or to submit an abstract, visit
<https://www.asminternational.org/web/imat-2023/home>.

The abstract deadline is February 24, 2023.

The session organizers are:

- **Prof. Patricia Silvana Carrizo**, Archaeometallurgy Area, Metallurgy Laboratory, National Technological University, Mendoza Regional Faculty (Argentina). Prof. Carrizo is chair of the ASM Archaeometallurgy Committee.
- **Dr. Omid Oudbashi**, Associate Professor, Department of Conservation of Cultural and Historical Properties and Archaeometry, Art University of Isfahan (Iran)

Questions? Contact Scott Henry, (Scott.Henry@asminternational.org)

**3RD INTERNATIONAL CONFERENCE ON
TRANSDISCIPLINARY MULTISPECTRAL
MODELLING AND COOPERATION FOR THE
PRESERVATION OF CULTURAL HERITAGE
RECAPTURING THE WORLD IN CONFLICT
THROUGH CULTURE, PROMOTING
MUTUAL UNDERSTANDING AND PEACE, 20-
23 MARCH 2023, ATHENS, GREECE, CALL
FOR PAPERS**

Dear Colleague,

We are pleased to announce the 3rd International TMM_CH Conference on “Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage, Recapturing the World in Conflict through Culture, promoting mutual understanding and Peace”, that will be held in Athens, Greece, on March 20th -23rd, 2023, following the successful 1st & 2nd International TMM_CH Conferences in 2018 & 2021.

You are invited to submit your research contributions for oral and poster presentations.

For more information about the Conference: <https://www.tmm-ch.com/>

INTERNATIONAL STEERING COMMITTEE

https://www.tmm-ch.com/files/TMM_CH2023_Steering_Committee.pdf

INTERNATIONAL SCIENTIFIC COMMITTEE

https://www.tmm-ch.com/files/TMM_CH2023_Scientific_Committee.pdf

ABOUT THE CONFERENCE

Innovative scientific methodologies and challenging projects marking future trends in the protection of cultural heritage, have initiated a universal conversation within a holistic approach, merging competence from the scientific fields of architecture, civil engineering, surveying engineering, materials science and engineering, information technology and archaeology, as well as heritage professionals on restoration and conservation, stakeholders, industry representatives and policy makers. The combined utilization of digital documentation technologies with innovative analytical and non-destructive techniques, numerical, computational and 3D techniques, archaeometric and archaeogene methods, supports the creation of a transdisciplinary multispectral modeling towards the sustainable preservation of cultural heritage. Innovation is enhancing and

revealing a critical dimension of the preservation of cultural heritage along with social participation and communication, and supporting peace through culture.

The National Technical University of Athens interdisciplinary team “Protection of monuments” [Prof. A. Moropoulou, Prof. M. Korres, Prof. A. Georgopoulos, Prof. C. Spyarakos, Ass. Prof. C. Mouzakis], scientific responsible for the Holy Aedicule’s rehabilitation of the Holy Sepulchre in Jerusalem, and the Technical Chamber of Greece, in collaboration with international and Greek Organisations and Universities, organize the 3rd TMM_CH International Conference on “Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage: Recapturing the World in Conflict through Culture, promoting mutual understanding and Peace”, on 20-23 March 2023 in Athens, Greece, discussing modern trends in the original agora of our technological and democratic roots.

The Conference is organized by the National Technical University of Athens in cooperation with the Technical Chamber of Greece, under the patronage of H.E. the President of the Hellenic Republic, Ms Katerina Sakellaropoulou, with benedictions bestowed by His All Holiness, Ecumenical Patriarch, Bartholomew I of Constantinople, and His Beatitude Archbishop Hieronymus II of Athens and All Greece.

Distinguished scientists and representatives of the National Geographic Society, the Cultural Heritage Finance Alliance, the International Council of Monuments and Sites ICOMOS, the Organization of World Heritage Cities OWHC, the European Society for Engineering Education SEFI, the European Construction Technology Platform ECTP, the International Federation of Surveyors FIG, the International Committee CIPA Heritage Documentation, the World Monuments Fund, AHEPA Hellas and other major International and European Organizations, Associations, networks Universities and Research Centers in the field of cultural heritage preservation, participate in the International Steering and Scientific Committees which had successfully organized the 1st and 2nd TMM_CH Conferences.

The conference will be held at the Eugenides Foundation. On-site attendance and oral presentation is required and will be organised according to government restrictions against Covid-19. Scientific walk and talk visits on 23 March 2023 to Acropolis Museum [in the footsteps of the Greek Peripatetic Philosophical School] and other visits planned upon demand.

At the 1st and the 2nd TMM_CH Conferences, which were held with great success in October 2018 and December 2021 respectively at the Eugenides Foundation in Athens, with the presence of 350/650 delegates from 22/33 countries from all continents, and over five thousand viewers the emblematic rehabilitation of the Holy Aedicule of the Holy Sepulchre in Jerusalem was presented as an exemplary application, in the field of monuments' protection, of interdisciplinary and multispectral collaboration, as an outcome of innovation, not only on Research, but in the implementation process as well, with emphasis on technological advancements, not only intersecting all the scientific fields of engineers and natural scientists, but also initiating an ongoing dialogue with humanities, such as Archaeology, Theology, Sociology, Diplomacy and Tourism. Innovative knowledge transfer through practice and education is continuing the venture for the rehabilitation projects in the Holy Sepulchre Church, adjoining the National Technical University of Athens and La Sapienza University of Rome with Bezalel

Academy of Science and Arts in Jerusalem, in cooperation with Israeli Antiquities Authority, through the Erasmus+ Strategic Alliance EDICULA "Educational Digital Innovative Cultural Heritage related Learning Alliance".

Further to the achievements of the 2nd TMM_CH Conference the latest developments in research and innovation that identify novel trends to build an interdisciplinary approach to conservation and holistic digital documentation of cultural heritage is attempted at the 3rd TMM_CH. The utilization and reuse of monuments, historic cities and sites, forms the framework of a sustainable preservation of cultural heritage, in accordance with the principles of circular economy; in terms of respect and protection of values, materials, structures, architecture and landscape; with an informed society, able to participate effectively in the policies that will design and implement the new strategies required.

Sharing knowledge, experiences, and recommendations about sustainable cultural heritage approaches and practices at a moment of great conflicts and climate change, energy, environment and socioeconomic risks, the sustainable preservation of cultural heritage is addressing challenges through mutual understanding and international cooperation.

Conference Topics

- Emblematic works as source of innovation and transdisciplinarity
- Resilience to Climate Change, Natural Hazards and Pandemic Risks - Biosafety
- Novel Educational Approach for the Preservation of Cultural Heritage
- Preserving Compatibility, the Materiality and Integrity of Structures and Architectural Authenticity
- Advanced Non-Destructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring
- Earthquake and structural rehabilitation
- Archaeology - Archaeometry - Archaeogenetics
- Bridging Heritage Stakeholders, Art, Science and Industry
- Transdisciplinary dialogue for World Heritage at risk and conflict
- Digital Heritage: a holistic approach
- Green and blue deal for local and regional Sustainable Development
- The New European Bauhaus creative and interdisciplinary initiative
- Historic cities and centers: New Reuse and preservation strategies applying Circular Economy
- Cultural heritage preservation addressing energy challenges
- Recapturing the World in conflict through Culture, promoting mutual understanding and Peace

Special Sessions

- Honorary Special Session in memoriam Guido Biscontin, Professore emerito di chimica del restauro all'Università Ca' Foscari di Venezia

CALL FOR PAPERS

The International Steering Committee and the International Scientific Committee welcome research contributions for oral and poster presentations.

Submitted papers will be peer reviewed. Please check important dates for submission deadlines.

Accepted papers will be distributed into sessions. Plenary lectures [after invitation] will cover major accomplishments, innovations and challenges.

Accepted papers will be published, as in the case of the 1st and 2nd TMM_CH Conference available in 2023 following the Conference, and Scientific Journals in the field of Cultural Heritage Preservation, selectively.

Full papers need to be a minimum of 12 pages and no more than 20 pages and written in English. You can submit papers via EasyChair, using the conference link:

<https://easychair.org/conferences/?conf=tmm-ch2023>

IMPORTANT DATES

July 5th, 2022 First Announcement and Call for Participation

October 30th, 2022 Extended Abstract Submission Deadline

November 3rd, 2022 Notification of Acceptance/Rejection

January 13th, 2023 Full paper submission deadline

February 3rd, 2023 Notification of author's acceptance

February 3rd, 2023 Announcement of preliminary program

February 20th, 2023 Completion of early bird registration

February 20th, 2023 Revised paper submission

February 23rd, 2023 Announcement of the final program

March 20th-23rd, 2023 Conference dates

Post Conference, end 2023 Publications of papers

The President of the International TMM_CH Conference

Emer. Prof. A. Moropoulou

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

**FELLOWSHIPS: “ASSYRIAN SCULPTURE
COURT PIGMENT PROJECT” (MET
MUSEUM, NYC)**

The Slifka Foundation Interdisciplinary Fellowship combines art historical research with training in the technical investigation of the Museum's collections. (Note: This position is distinct from the Interdisciplinary Fellowship, which carries a separate application and requirements.)

The following project is available for the 2023–2024 Slifka Foundation Interdisciplinary Fellow:

“Assyrian Sculpture Court Pigment Project” (provisional title), sponsored by the Department of Ancient Near Eastern Art, in collaboration with Objects Conservation and Scientific Research.

The Met’s current capital project to reimagine the stories and renovate the spaces that present the collection of Ancient Near Eastern and Cypriot art to the public provides an unparalleled opportunity to develop curatorial training as well as participate in scholarly research and offer meaningful contributions to new narratives. For 2023–2024, the Department of Ancient Near Eastern Art, in collaboration with Objects Conservation and Scientific Research, proposes the Slifka Foundation Interdisciplinary Fellow research the analysis and reconstruction of ancient pigment on Assyrian reliefs.

The Met stewards an important collection of sculptural reliefs from first millennium B.C. Assyria (modern northern Iraq), and the Assyrian Sculpture Court is one of the most iconic spaces in the Museum.

The fellow will review the upcoming documentation of the current condition of the reliefs, including condition mapping and Multispectral Imaging, with The Met’s objects conservators. They will also review and discuss nondestructive analyses and any sampling of pigment traces with Museum scientists. Working with curators and conservators—and with reference to relevant findings in other collections—the fellow will contribute to a possible combination of digital, graphic, and textual elements in the galleries and potentially online.

The ideal candidate has a PhD in art history or is an advanced graduate student with a specialization in ancient art.

How to Apply

<https://www.metmuseum.org/about-the-met/fellowships/how-to-apply>

Please visit the site: <https://www.metmuseum.org/about-the-met/fellowships/types-of-fellowships>

STUDY IN GREECE 2023-2024 - ASCSA **PROGRAMS AND FELLOWSHIPS**

The American School of Classical Studies at Athens was founded in 1881 to provide American graduate students and scholars a base for their studies in the history and civilization of the Greek world. Today it is still a teaching institution, providing graduate students a unique opportunity to study firsthand the sites and monuments of Greece. The School is also a superb resource for students and senior scholars pursuing research in many fields ranging from prehistoric to modern Greece, thanks to its internationally renowned libraries, the Blegen, focusing on all aspects of Greece from its earliest prehistory to late antiquity, and the Gennadius, which concentrates on the medieval to modern Greek world, as well as the Malcolm H. Wiener Laboratory for Archaeological Sciences.

FUNDING FOR GRADUATE STUDENTS FOR STUDY AT THE ASCSA (FULL ACADEMIC YEAR AND SUMMER PROGRAMS)

REGULAR MEMBER FELLOWSHIPS: Fellowships are available for the School's Regular Members. Fellowships provide a stipend of \$11,500 plus room and board at Loring Hall on the School grounds, costs of transportation and lodging on required field trips, and waiver of School fees. Regular Member fellowships are awarded for the entire nine-month program. All awards are made on the recommendation of the Committee on Admissions and Fellowships and are based on the results of the qualifying examinations and materials submitted with the application.

Fellowships include two in archaeology, one each in history and literature, and nine unrestricted as to field. **DEADLINE: JANUARY 15, 2023.**

STUDENT ASSOCIATE MEMBERSHIP: For advanced graduate students who plan to pursue independent 9-month (Sept. to May) research projects and do not wish to commit to the full Regular Program. **DEADLINE: ROLLING**

ADVANCED FELLOWSHIPS: Several fellowships for the full academic year at the ASCSA with a stipend of \$11,500 plus room and board at Loring Hall, and waiver of School fees are available to students who have completed the Regular Program or one full academic year as a Student Associate Member and plan to return to the School to pursue independent research, usually for their Ph.D. dissertations. Advanced Fellowships awarded by the School include one each in art and architecture of antiquity, history of architecture, Mycenaean archaeology or Athenian architecture and/or archaeology, and the study of pottery; and three unrestricted as to field. **DEADLINE: FEBRUARY 15, 2023.**

FULBRIGHT FELLOWSHIPS: Visit the Fulbright website for fellowship details and stipend information. Applicants for a Fulbright Fellowship in Greece to be held in affiliation with the ASCSA, must request a letter from the ASCSA for affiliation. Applications for a letter of affiliation must be submitted at least two weeks before the applicant's institutional deadline.

Simultaneous application to both the Fulbright and the ASCSA is required. Candidates must submit the ASCSA application by the due date for the Fulbright application.

DEADLINE: OCTOBER 11, 2022.

WIENER LABORATORY PRE-DOCTORAL FELLOWSHIP 2023-2025 Two-year funding for individuals actively enrolled in a graduate program who have passed all qualifying exams and have an approved Ph.D. proposal pursuing archaeological research related to the ancient Greek world at the Wiener Laboratory. Stipend of \$20,000 per year.

DEADLINE: JANUARY 15, 2023.

MEDIEVAL GREEK SUMMER SESSION AT THE GENNADIUS LIBRARY, SUMMER 2023:

Graduate students and professors in any field of late antique, post-antique, Byzantine or medieval studies at any university worldwide. Month-long program in intermediate level Medieval Greek language and philology at the Gennadius Library, with site and museum trips. Up to twelve scholarships available.

DEADLINE: JANUARY 15, 2023.

SUMMER SESSION: Six-week session to explore the sites and museums in Greece for graduates, undergraduates, and high school and college/university teachers. Fee of \$4,900 includes tuition, travel within Greece, room and partial board, and museum and site fees.

Scholarships available.

DEADLINE: JANUARY 9, 2023.

SUMMER SEMINARS: Two 18-day sessions designed for those who wish to study specific topics in Greece and visit major monuments with exceptional scholars as study leaders, and to improve their understanding of the country's landscape, archaeology, material culture, history, literature, and culture. Enrollment is open to graduate and advanced undergraduate students, and to high school and college/university teachers of classics and related subjects. Fee of \$2,750 includes tuition, travel within Greece, room, partial board in Athens, and museum and site fees. Scholarships available.

DEADLINE: JANUARY 9, 2023.

FUNDING FOR GRADUATE STUDENTS AND POSTGRADUATES FOR STUDY AT THE ASCSA (FULL ACADEMIC YEAR)

CONSTANTINE AND GEORGE MACRICOSTAS FELLOWSHIP: For Ph.D. candidates and recent Ph.D.s (within the last 5 years), of any nationality, for work in the Gennadius Library for the full academic year. Research must focus on the role of the Eastern Orthodox church in the broader history of Hellenism. Stipend of \$11,500 plus room and board at Loring Hall, and waiver of School fees.

DEADLINE: JANUARY 15, 2023.

JACOB HIRSCH FELLOWSHIP: For projects carried out in Greece; eligibility is limited to U.S. or Israeli citizens, Ph.D. candidate writing a dissertation or recent Ph.D. (within the last 5 years) revising a dissertation for publication. A stipend of \$11,500 plus room and board at Loring Hall, and waiver of School fees.

DEADLINE: JANUARY 15, 2023.

KATHRYN AND PETER YATRAKIS FELLOWSHIP: Ph.D. candidates and recent Ph.D.s (within the last 5 years), of any nationality, for work in the Gennadius Library for the full academic year. Stipend of \$11,500 plus room and board at Loring Hall, and waiver of School fees.

DEADLINE: JANUARY 15, 2023.

M. ALISON FRANTZ FELLOWSHIP: Ph.D. candidates and recent Ph.D.s (within the last 5 years) from colleges or universities in the U.S. or Canada, for work in the Gennadius Library for the full academic year.

A stipend of \$11,500 plus room and board at Loring Hall, and waiver of School fees.

DEADLINE: JANUARY 15, 2023.

SCHWARZ FELLOWSHIP AT THE GENNADIUS LIBRARY FOR RESEARCH ON MUSIC:

Career musicians, or researchers who are either currently Ph.D. candidates or have received their Ph.D. within the last 5 years, of any nationality, engaged in research on music that focuses on cultural interactions in the Mediterranean world broadly defined. Stipend of

\$11,500 plus room and board at Loring Hall, and waiver of School fees.

DEADLINE: JANUARY 15, 2023.

SCHWARZ FELLOWSHIP AT THE GENNADIUS LIBRARY FOR RESEARCH ON URBAN

ARCHITECTURE: Practicing architects, or Ph.D. candidates or recent Ph.D.s (within the last 5 years), of any nationality, engaged in research on architecture, urban planning, and the history of the built environment in Greece from 1821 to the present. Stipend of \$11,500 plus room and board at Loring Hall for the academic year, and waiver of School fees.

DEADLINE: JANUARY 15, 2023.

FUNDING FOR GRADUATE STUDENTS OR POSTGRADUATES FOR STUDY AT THE ASCSA (SHORT-TERM FELLOWSHIPS)

ARCHAEOLOGICAL INSTITUTE OF AMERICA (AIA) ANNA C. AND OLIVER C. COLBURN FELLOW: Ph.D. candidates or recent Ph.D. (within the last 5 years) whose field is classical archaeology. Visit the Archaeological Institute of America website for more information. Simultaneous application to both the AIA and the ASCSA is required. Two fellowships of \$5,500 each. Fellowship granted in even years. Call for applications will open fall 2023.

COTSEN TRAVELING FELLOWSHIP FOR RESEARCH IN GREECE: Short-term travel award of \$2,000 for senior scholars and graduate students for projects and research at the Gennadius Library. At least one month of residency required. School fees are waived.

DEADLINE: JANUARY 15, 2023.

HARRY BIKAKIS FELLOWSHIP: North American or Greek graduate students researching ancient Greek law or Greek graduate students working on a School excavation. A stipend of \$1,875. School fees are waived.

DEADLINE: JANUARY 15, 2023.

HENRY S. ROBINSON CORINTH RESEARCH FELLOWSHIP: Awarded to pre- or post-doctoral scholars for research on a dissertation or primary publication specifically on Corinth, requiring the use of the resources, archaeological site, and collections at the ASCSA excavations at Ancient Corinth. Open to all nationalities. One or more grants for up to three months, maximum amount of stipend is \$4,000.

School fees are waived. Granted every other year. Call for applications will open fall 2023.

WIENER LABORATORY RESEARCH ASSOCIATE APPOINTMENTS: Short-term funding for Ph.D. candidates and postdoctoral scholars from colleges and universities worldwide pursuing archaeological research related to the ancient Greek world at the Wiener Laboratory. Variable amounts up to \$7,000. Term variable, up to nine months.

DEADLINE: JANUARY 15, 2023.

WILLIAM SANDERS SCARBOROUGH FELLOWSHIPS: For up to three months in residence to carry out a proposed research project, to join the School's academic programs, and/or to develop knowledge, resources, and collegial networks to enhance their teaching. Open to Graduate students, K-12 and college/university teachers, and independent scholars residing in the United States or Canada, regardless of citizenship, whose geographic origin, diverse experiences, and socio-economic background are underrepresented at the School (including persons from the Black, Indigenous, and Persons of Color communities). Stipend of \$1500 per month, room and board at Loring Hall, waiver of any applicable School fees, and one roundtrip economy-class airfare to Athens. Applicants need not be specialists in the field of Classical Studies.

DEADLINE: JANUARY 15, 2023.

TRAVELING AND EXCHANGE FELLOWSHIPS FOR GRADUATE STUDENTS AND POSTGRADUATE STUDY

COULSON/CROSS AEGEAN EXCHANGE: Program of the Council of American Overseas Research Centers (CAORC): Short-term fellowships for Greek nationals and scholars to pursue research in Turkey under the auspices of the American Research Institute in Turkey (ARIT). Stipend of \$250 per week plus up to \$500 for travel expenses. Submit online application to ASCSA.

DEADLINE: MARCH 15, 2023.

MULTI-COUNTRY RESEARCH FELLOWSHIPS, Council of American Overseas Research Centers (CAORC): Ph.D. candidates and postdoctoral scholars with research in the humanities, social sciences, or allied natural sciences requiring travel to several countries with an American overseas research center. Consult CAORC website for application and deadline: www.caorc.org.

PAUL REHAK MEMORIAL TRAVELING FELLOWSHIP: Regular Members and Student Associate members in attendance at the ASCSA for the entire academic year. Maximum grant of \$1,000 or lesser amounts. School fees are waived. The purpose is to allow individuals to travel in Greece and Italy to conduct a research project during the current academic year from September 1, 2022 to July 1, 2023. Compensation for travel

that transpired during the prior fall and winter terms or planned for the spring term of the 2022-2023 academic year will be considered.

DEADLINE: MARCH 1, 2023.

FUNDING FOR SENIOR SCHOLARS FOR STUDY AT THE ASCSA

KRESS PUBLICATIONS FELLOWSHIPS: Postdoctoral scholars working on assigned material from excavations at Ancient Corinth, the Athenian Agora, Lerna, and affiliated projects of the ASCSA to support research for publication of excavated material. Grants for at least three months (up to \$10,000) to a maximum of nine months (up to \$30,000).

DEADLINE: JANUARY 15, 2023.

WIENER LABORATORY POST-DOCTORAL FELLOWSHIP 2023-2026:

Three-year funding for individuals who have received their Ph.D. within the last seven (7) years pursuing archaeological research related to the ancient Greek world at the Wiener Laboratory. Stipend of \$35,000 per year.

DEADLINE: JANUARY 15, 2023.

WIENER LABORATORY PROGRAMMATIC POST-DOCTORAL FELLOWSHIP: FOR 2024-2027: Three-year funding for individuals who have received their Ph.D. and have a demonstrable record of research and publication directly relevant to the project. Eligibility limited to any archaeological project affiliated with the ASCSA, current and former permit holders. Stipend of \$35,000 per year. Call for applications will open fall 2023.

For more information about each program or fellowships, please visit <http://www.ascsa.edu.gr/>

ASCSA programs are generally open to qualified students and scholars at colleges or universities in the U.S. or Canada; restrictions may apply for specific fellowships and programs. 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.

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DEPUTY DIRECTOR JOB AT CHRONOS, UNSW

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LinkedIn

<https://www.linkedin.com/jobs/view/3314957852/?capColoOverride=true>

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The Conversation

Associate Director, Chronos Facility - Senior Research Associate/Senior Research Fellow (Level B/C) Job at UNSW in Sydney, Australia | The Conversation Job Board

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

THE CTTN IMAGE OF RESEARCH COMPETITION 2022 – CAN YOU CAPTURE THE ESSENCE OF YOUR RESEARCH IN AN EYE-CATCHING PHOTOGRAPHIC IMAGE?

Organised by the CTTN (Caucasus Through Time Network) and funded by LAHP (London Arts & Humanities Partnership).

Call for entries opens: 05.10.2022

Call for entries closes: 22.11.2022

We are thrilled to announce that we have been awarded a Public Engagement Award from the London Arts & Humanities Partnership (LAHP).

In order to help young scholars creatively capture and communicate to a public we will thus be hosting an “Image of Research Competition”, which is open to everyone - such as students at universities or professionals within cultural institutions - who are working on the Caucasus and adjacent regions.

All entries should be related to subjects of Archaeology, Ethnography, Anthropology, History, or interdisciplinary and art-related fields.

Entries will be judged by a committee and by public vote and the best entries will be rewarded with various cash prizes and final entries will be published in a report compiled for the LAHP.

Why Image of Research Competition?

The aim of the Image of Research competition is to help young scholars creatively capture and communicate to a public, non-specialist audience and thereby build bridges across different research themes and projects. This is a unique opportunity for individuals who work in the Caucasus region to raise their profile and gives them the opportunity to showcase their research in a creative and visually compelling way.

If you would like to submit your image for the competition, please send your image (300dpi) along with a description of no more than 150 words in a single PDF document to caucasusthroughtime@gmail.com.

Please clearly state “Image of Research Competition” in the subject line. Assistance is available in local languages: Armenian, Azerbaijani, and Georgian. Do not hesitate to contact us in case you need further assistance or anything is unclear.

For further details, such as submission guidelines, prizes for winners and publication of the images, please see the below link:

https://docs.google.com/document/d/1b17CwRXGGzUHjg0-Di4Kv9kTvoZEcanjTmwU-hO2_2c/edit

Please reach out to us via email: caucasusthroughtime@gmail.com

2022 GORGIAS BOOK GRANT: RECEIVE \$500 WORTH OF GORGIAS PRESS TITLES

The Gorgias Book Grant was first awarded in 2002. It is an important part of our ongoing efforts to support young scholars in the humanities. Every year, Gorgias chooses two graduate students to receive an award of \$500 worth of Gorgias titles (each) for demonstrating excellence in their fields.

2022 Grant Field: Any field within the scope of Gorgias Publications (Ancient Near East, History, Biblical Studies, Jewish Studies, Islamic and Middle Eastern Studies, Language and Linguistics, Religion, Syriac and Eastern Christianity)

Application Deadline: December 31, 2022

Eligibility

Candidates must be enrolled in a graduate program (Master's or Ph.D.) in an accredited university or an institution of learning in the field of the grant.

Candidates must be a student in good standing.

Application Process

To apply, please email or post the following to Gemma Tully (gemma@gorgiaspress.com)

A letter indicating your interests in your field and plans for the future.

A two-page description of your thesis, or a one-page description of your course work in the case of course-based programs.

Official transcripts of the previous 2 years of university education.

If the institutions you come from do not give out transcripts, or this process is difficult due to COVID-19 complications, please contact us to make alternative arrangements to satisfy this requirement.

Two letters of recommendation from professors familiar with your work (one must be your current supervisor in the field of the grant).

If applying by mail, please send the above items to Gemma Tully, Gorgias Press LLC, Book Grants Program, 954 River Rd., Piscataway, NJ 08854, USA

Please bear in mind that all documents, except for official transcripts, should be in English.

In order to be considered for the grant, please submit all documents by December 31, 2022 (snail-mail documents should be postmarked by the due date). We'll announce the lucky winners in early 2023.

Further details can be found on our website: <https://www.gorgiaspress.com/gorgias-book-grant>

FRONTIERS IN EARTH SCIENCE RESEARCH **TOPIC "TRANSDISCIPLINARY** **APPROACHES TO METAL PROCUREMENT** **AND EXCHANGE IN ARCHAEOLOGY" -** **DEADLINES EXTENDED**

Dear colleagues,

You are warmly invited to contribute original research articles to a forthcoming Research Topic (what other journals call a Special Issue) on "Transdisciplinary Approaches to Metal Procurement and Exchange in Archaeology". The article collection will be published by *Frontiers in Earth Science* (IF: 3.661 - CiteScore: 3.2), but submissions are also welcome via *Frontiers in Environmental Archaeology*. Details on the call are available here (see also at the bottom of this email):

<https://www.frontiersin.org/research-topics/47095/transdisciplinary-approaches-to-metal-procurement-and-exchange-in-archaeology>

Please note that the submission deadlines have now been extended, as follows:

Abstract deadline: **January 13 2022**

Manuscript deadline: **March 12 2023**

As Frontiers is an Open Access Publisher, a fee will apply on acceptance of a submitted manuscript. However, a comprehensive package of fee support is available. Please check here for details: <https://www.frontiersin.org/journals/earth-science/for-authors/publishing-fees>

If you work for a Higher Education or research institution, you might want to check if your institution has an agreement in place with the publisher, which would cover your publication fee: <https://www.frontiersin.org/about/institutional-partnerships>

Please get in touch should you have any queries.

Best wishes,

Andrea Dolfini, Peter Bray, Kunlong Chen, Heide W. Nørgaard & Miljana Radivojević

Background

Provenance studies of ancient metals have long been at the forefront of interdisciplinary debate cutting across archaeology, materials analysis, and the Earth sciences. In the last decades, early contentious attempts to ground provenance in object chemistry have largely been superseded by isotopic methods, especially Lead Isotopic Analysis (LIA). Despite its widespread application, however, LIA has spurred a new wave of controversies centring on (a) whether lead isotopes fractionate during high-temperature processes; (b) frequent overlaps in the isotopic signatures of geological sources; and (c)

the mixing of metals from different geological sources in workshop practices. These controversies have led to a fractured research landscape, in which LIA, chemistry-based, and non-analytical approaches to metalwork procurement and exchange are often deployed separately, owing to alleged incompatibilities in methods and approaches. These divisions diminish our ability to work across disciplinary boundaries and to advance knowledge and understanding of the life histories of early metals.

Goals

This special issue aims to initiate a new season of theoretically oriented and science-informed studies on the life histories of ancient metals. We aim to capture multi-method, interdisciplinary, and transdisciplinary research exploring the geological origin, workshop provenance, social procurement, alloying, transformation, circulation, exchange, recycling, and re-fashioning of ferrous and non-ferrous metals from around the world, from prehistory to the birth of the industrial revolution. Any collaborative research cutting across entrenched disciplinary boundaries and employing purportedly incompatible methods is particularly welcome, and so are papers proposing new approaches and models for the study of metal procurement and exchange.

Scope

Topics encompass, but are not limited to:

- Explorations of the life histories of ancient metals through isotopic, chemical, GIS-based, network-based, morphological, and other methods of analysis, or any integration thereof.
- Characterisations of metallic histories, with special reference to sourcing, procurement, exchange, alteration, alloying, re-casting, re-forging, re-fashioning, and re-using.
- Critical appraisals of the strengths and limitations of different methods of analysis.
- Original re-evaluations of, and reflections on, disciplinary controversies and debates, including isotope fractionation in pyrotechnology, chemical and isotopic similarities in ore deposits, and changes in isotopic signature and object chemistry due to metal mixing.
- New theoretically informed narratives about the social mechanisms underpinning metal procurement, exchange, and transformation.
- Critical explorations of the concepts of origin, provenance, procurement, and exchange in archaeometallurgy.

Professor Andrea Dolfini (he/him)

[Chair of Archaeology](#)

[Convenor of Materiality, Artefacts & Technologies in Culture and History \(MATCH\)](#)

Scientific Committee Member, European Association of Archaeologists

School of History, Classics and Archaeology

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+44 (0)191 2083402

<http://newcastle.academia.edu/AndreaDolfini>

Download my latest Open Access papers for free:

- Caricola, I., et al. (2022). Organic residue analysis reveals the function of Bronze Age metal daggers. *Nature: Scientific Reports* 12(6101): <https://doi.org/10.1038/s41598-022-09983-3>
- Dolfini, A. (2021). Warrior graves reconsidered: metal, power and identity in Copper Age Italy, *World Archaeology* 53(5): 809-833. <https://doi.org/10.1080/00438243.2021.2013307>

Please ask me for a copy of the following paper:

- Iaia, C. & Dolfini, A. (2021). A new seriation and chronology for early Italian metalwork, 4500 – 2100 BC. *Rivista di Scienze Preistoriche* 71: 1-43. DOI [10.32097/1151](https://doi.org/10.32097/1151)

INTERNET SITES

CHROMOPHOBIA: WHO STOLE THE COLOUR FROM CLASSICAL ART?

Do we have a bias against colour in classical art?

Matt Wilson explores prejudices that have built up over centuries – leading to what has been labelled 'chromophobia', the subject of an exhibition at New York's Metropolitan Museum of Art.

Wilson finds out why we don't value colour, questioning a centuries-old misunderstanding. As Chroma's curator Sarah Lepinski tells him: "It's important that audiences come to understand the way they see ancient Greek and Roman sculpture isn't the way it was first created."

Video by Paul Ivan Harris
Produced by Fiona Macdonald

Please visit the site: <https://www.bbc.com/reel/video/p0crt9v/chromophobia-who-stole-the-colour-from-classical-art> is this brief (6') video

VIRTUAL TOUR OF THE FAIDA CANAL & ROCK-RELIEFS

After the official opening of the first stage of the Faida Archaeological Park, which took place on October 16, we are very glad to announce the publication of a virtual tour of the Assyrian canal and rock-reliefs.

The virtual visit has been created thanks to the collaboration between the Land of Nineveh Archaeological Project, the Directorate of Antiquities and Heritage of Duhok, and the Lab Gis of the Università di Roma Tre.

The Faida Archaeological Complex located in the Duhok Governorate of the Kurdistan Region of Iraq is a unique site, which has been investigated since 2019 by a Kurdish-Italian team of the Duhok Directorate of Antiquities and Heritage and the University of Udine co-directed by Bekas Jamaluddin Hasan and Daniele Morandi Bonacossi.

The site comprises an Assyrian 10 Km long canal and thirteen impressive rock-reliefs sculpted on its inner bank.

The Kurdish-Italian Faida Archaeological Project has excavated, recorded, restored, and protected this extraordinary complex with the final aim to make it accessible to the public.

The opening of the first stage of the park on October 16 was the initial step towards the creation of the first archaeological park in the region able to welcome national and international tourists. Since its opening, about one thousand Iraqi and foreign tourists have already visited the park.

The project was supported by the Italian Ministry of Foreign Affairs and International Cooperation, ALIPH Foundation, Gerda Henkel Stiftung, Friuli Venezia Giulia Regional Authority, Friuli Banking Foundation, Italian Agency for Development Cooperation, 3D Target and 3D Flow.

The first preliminary report on the Faida excavation will appear in the 2022 Iraq journal issue:

Morandi Bonacossi, D. and Qasim, H.A. 2022, "Irrigation and Landscape Commemoration in Northern Assyria. The Assyrian Canal and Rock Reliefs in Faida (Kurdistan Region of Iraq). Preliminary Report on the 2019 Field Season", Iraq 84, 1-39.

Please visit the site: <http://www.terradinive.com/visita-virtuale-di-faida/?lang=en>

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

LANDSCAPE ARCHAEOLOGY OF SOUTHERN MESOPOTAMIA: IDENTIFYING FEATURES IN THE DRIED MARSHES BY JAAFAR JOTHERI, MALATH FEADHA, JASSIM AL-JANABI AND RAHEEM ALABDAN

(This article belongs to the Special Issue Archaeology of Sustainability and Sustainable Archaeology)

The landscape of the Mesopotamian floodplain is mainly structured by channel processes, including the formation of levees, meanders, scrollbars, oxbow lakes, crevasse splays, distributary channels, inter-distributary bays, and marshes. Moreover, several human-made features also form and shape this landscape, such as canals, roads, trenches, farms, and settlement sites ranging in size from villages to cities. A significant part of the Mesopotamian floodplain is covered by marshes, especially the southern region. These marshlands have thrived for thousands of years and are well known for their sustainable biodiversity and ecosystem. However, after the deliberate draining of the marshes in the 1990s, the areas have become dry and only small areas of shallow water and narrow strips of vegetation remain. Several kinds of archaeological landscape features have appeared on the surface and can be clearly identified in both ground surveys and with the use of remote sensing tools.

This paper aims to determine the type and nature of the preserved archaeological features that appear in the landscape of the dried marshes and whether they are different from other features elsewhere in the Mesopotamian floodplain. An intensive ground survey was carried out in a selected area of the dried marshland, resulting in the identification of six types of archaeological features: settlement sites, rivers, canals, farms, grooves, and roads (hollow ways). These features used to be covered by bodies of deep water and dense zones of vegetation (reeds and papyrus). [View Full-Text](#)

Please visit the site: <https://www.mdpi.com/2071-1050/14/17/10961>> is posted this article (Go there for full download and details)

**THE PETROUS BONE CONTAINS HIGH
CONCENTRATIONS OF OSTEOCYTES: ONE
POSSIBLE REASON WHY ANCIENT DNA IS
BETTER PRESERVED IN THIS BONE,
BY JAMAL IBRAHIM, VLAD BRUMFELD,
YOSEPH ADDADI, SARAH RUBIN, STEVE
WEINER AND ELISABETTA BOARETTO**

PLoS ONE 17(10):e0269348

DOI: [10.1371/journal.pone.0269348](https://doi.org/10.1371/journal.pone.0269348)

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Abstract

The characterization of ancient DNA in fossil bones is providing invaluable information on the genetics of past human and other animal populations. These studies have been aided enormously by the discovery that ancient DNA is relatively well preserved in the petrous bone compared to most other bones. The reasons for this better preservation are however not well understood. Here we examine the hypothesis that one reason for better DNA preservation in the petrous bone is that fresh petrous bone contains more DNA than other bones. We therefore determined the concentrations of osteocyte cells occluded inside lacunae within the petrous bone and compared these concentrations to other bones from the domestic pig using high resolution microCT. We show that the concentrations of osteocyte lacunae in the inner layer of the pig petrous bone adjacent to the otic chamber are about three times higher (around 95,000 lacunae per mm³) than in the mastoid of the temporal bone (around 28,000 lacunae per mm³), as well as the cortical bone of the femur (around 27,000 lacunae per mm³). The sizes and shapes of the lacuna in the inner layer of the petrous bone are similar to those in the femur. We also show that the pig petrous bone lacunae do contain osteocytes using a histological stain for DNA. We therefore confirm and significantly expand upon previous observations of osteocytic lacuna concentrations in the petrous bone, supporting the notion that one possible reason for better preservation of ancient DNA in the petrous bone is that this bone initially contains at least three times more DNA than other bones. Thus during diagenesis more DNA is likely to be preserved in the petrous bone compared to other bones.

VIRTUAL SEA-DRIFTING EXPERIMENTS BETWEEN THE ISLAND OF CYPRUS AND THE SURROUNDING MAINLAND IN THE EARLY PREHISTORIC EASTERN MEDITERRANEAN

Phaedon Kyriakidis, Theodora Moutsiou, Andreas Nikolaidis, Christian Reepmeyer, Georgios Leventis, Stella Demesticha, Evangelos Akylas, Vasiliki Kassianidou, Constantine Michailides, Zomenia Zomeni, Daniella E. Bar-Yosef Mayer, Yizhaq Makovsky and Carole McCartney

Heritage 2022, 19, 3081–3099.

<https://doi.org/10.3390/heritage5040160>

Abstract

Seaborne movement underpins frontier research in prehistoric archaeology, including water-crossings in the context of human dispersals, and island colonisation. Yet, it also controls the degree of interaction between locations, which in turn is essential for investigating the properties of maritime networks. The onset of the Holocene (circa 12,000 years ago) is a critical period for understanding the origins of early visitors/inhabitants to the island of Cyprus in the Eastern Mediterranean in connection with the spread of Neolithic cultures in the region. The research undertaken in this work exemplifies the synergies between archaeology, physical sciences and geomatics, towards providing novel insights on the feasibility of drift-induced seaborne movement and the corresponding trip duration between Cyprus and coastal regions on the surrounding mainland. The overarching objective is to support archaeological inquiry regarding the possible origins of these visitors/inhabitants—Anatolia and/or the Levant being two suggested origins.

Keywords: early Holocene; maritime mobility; non-directed seaborne movement

FROM HYDROLOGY TO
HYDROARCHAEOLOGY IN THE ANCIENT
MEDITERRANEAN AN INTERDISCIPLINARY
APPROACH,
EDITED BY GIOVANNI POLIZZI, VINCENT
OLLIVIER, SOPHIE BOUFFIER

Paperback, 166pp
9781803273747
£34.00

[This title is not yet published. You may pre-order, with print copies despatching, and digital copies available to download via your account page, immediately following publication.]

This volume is devoted to the study of water management in ancient cities. It compares the approaches and methods adopted by researchers from different disciplinary sectors to identify the water conditions of past societies and to highlight the measures they have taken to adapt to their water resources.

READ MORE

From Hydrology to Hydroarchaeology in the Ancient Mediterranean: An interdisciplinary approach is devoted to the study of water management in ancient cities. It compares the approaches and methods adopted by researchers from different disciplinary sectors to identify the water conditions of past societies and to highlight the measures they have taken to adapt to their water resources. Deriving from an interdisciplinary meeting held in Aix-en-Provence (Mediterranean House of Human Sciences) in 2019, it brings together seven articles that present the innovative results of collaborations between archaeologists and environmental scientists, geologists, geomorphologists, and climatologists in particular. After an introduction that situates the discussions conducted in Aix-en-Provence within the framework of the Watertraces project, funded by the A*Midex foundation (Aix-Marseille University), most of the articles focus on the Sicilian situation. An initial synthesis covers all aspects of the question, followed by four case studies ranging from the 4th century BC to the 1st century AD. Case studies on Agrigento, Termini Imerese/Thermai Himerenses, Alesa/Halaesa, Solunte and Tyndaris are presented. The focus then moves to southern Italy (the Terme di Baia), and to Aegean Greece (the sanctuary at Delphi).

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Natural Risks and Water Management in Delphi – Amélie Perrier, Isabelle Moretti and Luigi Piccardi

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EΙΔΗΣΕΙΣ - NEWS RELEASE

CAN THIS MAGNETIC TECHNOLOGY PROVE BIBLE STORIES ARE REAL? BY CANDIDA MOSS

A new way of using archaeomagnetic dating is being used to examine Bible stories, and one scholar wants to go after the most controversial part of the Bible's history.

According to the Bible, and a religious song you may know, Joshua fought a battle at Jericho. The one-time spook and former assistant to Moses led the Israelites around the city walls on successive days until, after seven circuits on the seventh day, the walls fell down.

Then the Israelites, following divine commands, slaughtered every living thing in the city—adults, children, and their pets. It's not a happy story so you should breathe a sigh of relief that these events never took place. When archaeologists excavated the site at Tell es-Sultan, where the battle was supposed to have taken place, they discovered that it had been abandoned long before Joshua's arrival.

Studying the Bible's historical accuracy is always fraught. Our main sources are ancient texts that have been edited by many hands, were copied dozens of times over, and were written with an eye to the theological message rather than the facts. For centuries, therefore, scholars have used archaeological methods to supplement our knowledge and test the Bible's accuracy. Even then, the results are controversial and difficult to interpret. A new study methodology using magnetic data may change some of that.

Tel Aviv University doctoral student Yoav Vaknin is the lead author of a pioneering a new study of biblical archaeology that applies archaeomagnetic technologies to date the military campaigns described in the Bible. The article, which was recently published in the open access journal PNAS, assembles an array of data drawn from studies of 17 different archaeological sites to build a timeline of ancient destruction. The geomagnetic dataset he compiled includes evidence of 21 layers of destruction. It is, as Vittoria Benzine observed, a “geological ledger of conquests by Aramean, Assyrian, and Babylonian armies against the Kingdoms of Israel and Judah.”

Unlike more conventional archaeological methods like stratigraphy (which looks at different strata in the soil), archaeomagnetic dating is interested in the magnetic field generated by the Earth's core. It examines the layer of liquid iron in the planet's outer core. Ron Shaar, who led the development of the methodology itself, said that “Until recently scientists believed that the [Earth's core] remains stable for decades, but archaeomagnetic research has contradicted this assumption by revealing some extreme and unpredictable changes in antiquity.”

Vaknin explained that archaeological material contains magnetic minerals. “On the atomic level, one can imagine the magnetic signal of these minerals as a tiny needle of a compass.” When, say, a clay brick is incinerated during the sack of a city the brick

preserves the magnetic signal at the moment the city caught fire. If geophysicists know the magnetic states of various eras at certain periods in time, then they can determine origin of the materials.

The study focuses on items made of mud (mostly bricks but also loom weights and beehives crafted from clay) that were burned during period of military unrest and invasion. His findings confirm some biblical stories and archaeological theories, and debunk others.

Tel Beth-Shean, in the northern district of modern Israel, was previously thought by archaeologists to have been destroyed by the Aramean king Hazael in 830 BCE. Vaknin and his co-authors suggest that it was actually sacked between 70 (95 percent probability) and 100 (68 percent probability) years earlier. This would mean, argues Vaknin, that the city was most likely destroyed during a military campaign by Pharaoh Shoshenq I. This campaign is mentioned in both the Hebrew Bible (2 Kings 14:25-26) and in a relief of the campaign carved into the walls of the Temple of Karnak in Egypt.

Most surprisingly, Vaknin's findings suggest that the Babylonians were not responsible for the total destruction of Judah in 586 B.C. (2 Kings 24:18; Jeremiah 1:3; 39:2; 52:5-6). The intensity results from sites in the Negev, southern Judean mountains, and southern Judean foothills, however, suggest that towns in this region survived the Babylonian invasion. It was only several decades later, after Jerusalem and its environs had been destroyed, that others (most likely the Edomites) attacked these smaller settlements. The discovery may help explain some of the animosity towards the Edomites that we find in the Hebrew Bible.

It's undeniable that archaeomagnetic dating offers another complementary method for establishing the chronology of these events.

Much like carbon dating (which works from a sample set of data), it is able to use the larger data sets gathered from the numerous archaeological studies in the region to date military campaigns with greater precision. It's promising and exciting work.

At the same time, some of the media buzz around the findings may overestimate the significance of the method and overlook some of its limits. Though you would not know it from some of the reporting, archaeology is already a highly technological savvy discipline that utilizes an array of technologies (like, for example, carbon 14 dating) to develop hypotheses and reach conclusions. As with carbon dating, archaeomagnetic findings are expressed as percentages not binaries, but this does not show up in news reports. You can forgive the transformation of a 95 percent probability into a certainty, but 68 percent probability is less decisive. Let's be frank, it's a C+.

This isn't Vaknin's fault; it's just what happens when archaeology makes news.

It's also important to note that the findings only express the facts of a site's destruction, not its cause. As Dr. Laura Zucconi, a professor of history and archaeology at Stockton University who has written on copper mines and the Edomites, told me, "It's a very interesting new dating method," but it doesn't tell us why a site was destroyed. "If a site has a destruction layer but lacks other information, we have no way of knowing if it was warfare or simply an earthquake with resulting fire." While we do have other methods for

dating sites, says Zucconi, multiple methods of analysis are always preferable. “Even if [archaeomagnetic analysis] replicates other methods, it’s good to have different approaches because the material” used in one methodology may not always be available. Because of a phenomenon known as the Hallstatt plateau, for example, carbon 14 dating methods are unhelpful for dating materials from between 800-400 B.C.. Having another instrument in the archaeological toolbox is important.

Vaknin told Artnet news that he hopes to establish a similar chronological ledger for the most controversial period of ancient Levantine archaeology: 1300-900 B.C.. This is, according to the Bible, the period during which the Exodus took place, Israelites settled in the land of Canaan, and David was king. This is a fiercely debated time period the events of which have political ramifications in the present. It will take him out of the proverbial frying [pan] and into the proverbial fire. But after five years studying the effects of incineration on clay bricks, and with a well-stocked arsenal of archaeological tools, he is well suited for the challenge.

Please visit the site: <https://www.thedailybeast.com/can-this-magnetic-technology-prove-bible-stories-are-real>

MINOAN-ERA SKELETON AND STUNNING NECKLACE UNEARTHED ON CRETE, BY NICK KAMPOURIS

A woman's ancient skeleton was recently found during excavations in the Minoan-era city of Sisi on Crete. Credit: Ministry of Culture/Illustration: Greek Reporter

An intact skeleton of a woman lying next to a stunning necklace and other important artifacts from the Early Minoan era (circa 2,600 BC), were unearthed recently at the archaeological site of Sisi on Crete.

Sisi, located in the prefecture of Lasithi, represents one of the most important Bronze Age excavations on Crete in the past decade because of its extent, chronological range and the type of buildings discovered.

The site sits on the coastal hill of Kephali of Agios Antonios, locally known as Buffo. Its strategic position attracted the attention of early settlers and from its initial foundation around 2600 BC, it remained occupied until the end of the Bronze Age around 1200 BC.

A mirror and neckless found next to the skeleton on Crete A box-shaped grave belonging to the post-Minoan era containing an almost intact skeleton of a woman was found.

A copper mirror with an ivory handle, dress pins made of copper, and a necklace with fifteen olive-shaped, golden beads and fifteen smaller golden beads were also found within the woman's grave. These types of graves are rare on Crete and are usually only found in Knossos and Chania.

Further excavations have revealed a decorated floor, constructed with a high-quality mortar, and a well-made 33-meter (109-foot) long clay drainage pipe, the Ministry said.

Significant discoveries from less well-known eras have also been unearthed in other parts of the hill, among them a residence that was destroyed in the mid-Minoan era.

Sisi was destroyed by fire and abandoned During its early history, Sisi was apparently only one out of a series of small hamlets, which dotted the coast of the larger Malia Bay, but, soon, it outgrew its neighbors and become the second largest settlement after Malia in the region.

“After the abandonment of the settlement by its people, who left almost the entirety of their material culture in loco, a monumental structure was constructed to the east of the village,” the Greek Ministry of Culture noted in its announcement.

“This building became the heart of the later west wing,” the statement noted, “even though it was destroyed by a fire in 2,500 BC. Its remains were almost fully incorporated into the construction of a complex of monumental buildings with a courtyard, which was constructed around 1,700 BC.”

Sissi, like so many other Minoan settlements and palace centers, was destroyed by fire and the nature of occupation drastically changed.

The ruins of one or more Neopalatial houses were partly incorporated and built over by a new type of structure that betrays influences of the Mycenaean mainland.

Late in the 13th century BC, the site was suddenly abandoned. Fortunately, apart from metal, all other objects were left in place, allowing a proper reconstruction of its internal functioning.

The Kephali Hill at Sisi would, in the centuries to follow, become a place of memory and gradually disappear from history.

The Sisi Archaeological Project started excavating the site in 2007 by a team of the University of Louvain under the auspices of the Belgian School at Athens.

Please visit the site: <https://greekreporter.com/2022/10/23/minoan-era-skeleton-crete/>

ARCHIVISTS DISCOVERED THE OLDEST KNOWN MAP OF THE STARS UNDER A CHRISTIAN MANUSCRIPT, BY ZOE SOTTILE

Archivists have uncovered a long-lost historical relic hidden underneath a Christian manuscript: the earliest known map of the stars, according to the Museum of the Bible.

Stolen in 1917, this 1,000-year-old manuscript was just returned to its rightful owners

A copy of astronomer Hipparchus' map of the stars was discovered underneath the Syriac text of John Climacus' "Ladder of Divine Ascent," a treatise written in around 600 CE, according to a news release from the Washington, DC-based Museum of the Bible.

Scholars have long known about Hipparchus' star catalog because other ancient texts made references about it – but their searches for the document itself were unsuccessful.

"The newly discovered text is a remarkable breakthrough that highlights the creative use of multispectral imaging technology to read previously lost texts," Brian Hyland, the museum's associate curator of medieval manuscripts, said in the release. "It also attests to the accuracy of Hipparchus's measurements."

Careful analysis showed that the ancient parchment was reused multiple times – like old-school recycling.

First, in the fifth or sixth century, a Greek scribe copied Hipparchus' "Star Catalogue." Hipparchus worked as a Greek astronomer, geographer, and mathematician during the decades between 162 and 127 BCE. The early scientist is considered the father of trigonometry and one of the greatest astronomers in antiquity.

Then, in the 10th or 11th century, a scribe at Saint Catherine's Monastery at Egypt's Mount Sinai recycled the older manuscript to write something new, says the Museum of the Bible.

The scribe in Egypt must have gathered leaves of parchment, also called vellum, from at least ten different older manuscript, says the release. Then the scribe would have scraped off the existing ink and washed the parchment before writing a Syriac translation of the "Ladder of Divine Ascent."

But over time, the remnants of the scraped-off ink began to darken – so researchers realized the document was a palimpsest, with layers of different texts all written on the same material.

The museum performed multispectral imaging of the leaves in the manuscript in 2013, 2015, 2017, and 2018, says the release. Then they sent the manuscript to Tyndale House at Cambridge University to study the underlying text.

The researchers published their findings this month in the peer-reviewed Journal for the History of Astronomy.

In addition to confirming that Hipparchus' text was hidden underneath the Christian treatise, the researchers also found that Hipparchus' measurements were more accurate than those of his successor, the mathematician and astronomer Ptolemy.

The Museum of the Bible was founded by the Green family, the owners of privately held arts and crafts retailer Hobby Lobby.

Please visit the site: <https://www.cnn.com/2022/10/30/us/christian-manuscript-star-map-scn-trnd/index.html> [Go there for pix]

ARCHAEOLOGISTS RECONSTRUCT BIBLICAL CONFLICTS USING EARTH'S MAGNETIC FIELD, BY ARIEL DAVID

Israel is full of ancient ruins, but who destroyed what and when?

Earth's magnetic field is helping researchers identify remains of wars described in the Bible

According to the Bible, the Holy Land was a frequent target for conquering empires: from the ancient Egyptians to the Arameans, from the Assyrians to the Babylonians. Of course, the good book interprets these tragedies from a religious standpoint, usually as divine retribution for the sins of the ancient Israelites. But many of the wars mentioned in the biblical text were historical events.

Settlements were often burnt down, and in some cases were rebuilt only to be sacked again a century or so later – leaving archaeologists today puzzling over multiple layers of destruction and struggling to figure out who destroyed what and when.

Questions over the dating of ancient sites in the Levant are not purely academic. They lie at the heart of the longstanding debate over fact and fiction in the Bible.

Now a new scientific technique based on information from the Earth's ever-changing magnetic field is helping archaeologists date their finds and reconstruct biblical conflicts that occurred in the Iron Age – that is the period that goes from the 12th to the sixth century B.C.E. and spans the rise and fall of the biblical kingdoms of Israel and Judah.

A paleomagnetic study of 21 destroyed Iron Age settlements at 17 different sites was published Monday in PNAS by Yoav Vaknin, a doctoral candidate at Tel Aviv University and the Hebrew University in Jerusalem, and colleagues. The application of paleomagnetic research to biblical archaeology has been pioneered by Vaknin together with his PhD advisors, archaeologists Oded Lipschits and Erez Ben-Yosef of Tel Aviv University as well as geophysicist Ron Shaar of the Hebrew University.

Turning up the heat

First of all, we need a short primer on how the study of our planet's magnetic field is applied to archaeological research.

The Earth's magnetosphere, which protects living beings from dangerous solar radiation and high-energy particles, can fluctuate wildly in intensity and direction, for reasons that are not entirely clear. So if researchers can reconstruct the magnetic conditions for a certain time and region they can also use that information to date ancient ruins and artifacts.

They can do this because ceramic vessels and many ancient construction materials, such as sun-dried mud bricks, contain tiny ferromagnetic particles. When these particles are

heated to high temperatures – for example, in a pottery kiln, or in a destructive fire – they behave like tiny compass needles: they align with the magnetic field of the Earth and become magnetized based on the direction and intensity of the field at the time.

“Our location here in Israel is uniquely conducive to archaeomagnetic research, due to an abundance of well-dated archaeological findings,” Shaar explains. “Over the past decade we have reconstructed magnetic fields recorded by hundreds of archaeological items.”

This provides researchers with a double opportunity. If the date of a particular destruction event is known, scientists can gain information on how the magnetic field looked at that time, possibly providing some insight into its enigmatic fluctuations. This was the focus of a previous study led by Vaknin, which reconstructed magnetic data for the Levant using samples from the stone floors of a Jerusalem building burned down in 586 B.C.E., when according to historical records and the Bible, the Babylonians conquered the capital of Judah and destroyed the First Temple.

Also, data from sites whose chronology is unclear can be compared with the magnetic information from securely dated ruins, such as that structure in Jerusalem. If they match, then the destructions were roughly contemporaneous; if they don't, they occurred in different periods.

“The new dating tool is unique because it is based on geomagnetic data from sites, whose exact destruction dates are known from historical sources,” says Lipschits. “By combining precise historical information with advanced, comprehensive archaeological research, we were able to base the magnetic method on reliably anchored chronology.”

“Paleomagnetic data is particularly useful when it comes to remains from 800-400 B.C.E., a period for which radiocarbon dating does not enable high resolution dating,” Vaknin adds. “This means that, for this period, archaeologists often tend to date their finds based only on ceramic typology, a tried and true method, but not a particularly precise one.”

Biblical whodunits

Vaknin and colleagues were able to combine and compare magnetic information from previously dated sites with evidence from undated sites ranging from Beth She'an in the Galilee to Be'er Sheva in the Negev desert.

Their results answer several riddles in biblical archaeology.

One puzzle concerns the remains of large structures destroyed by a massive fire at Tel Beth She'an. Based on the typology of the pottery remains, the site's excavators have seesawed between attributing the destruction of the city either to Pharaoh Sheshonq I, the biblical Shishak who raided the Levant around 925 B.C.E., or to the Aramean forces of Hazael of Damascus, who conquered parts of the Holy Land about a century later.

By sampling the burnt bricks at Beth She'an and comparing the data to the magnetic picture from sites previously linked to Hazael's rampage, chiefly the Philistine city of Gath, the researchers found that this particular destruction in the Galilee cannot be attributed to the Arameans. Instead, the intensity and direction of the magnetic field

recorded in Beth She'an suggests that the last time the ancient walls were heated to a high temperature was in the late tenth or early 9th century B.C.E., which is compatible with the Egyptian invasion led by Sheshonq, recounted both in the Bible (1 Kings 14:25-26) and on the walls of the pharaoh's own temple at Karnak.

Another link between the biblical narrative and the archaeological record emerges from the magnetic study of Beth Shemesh, an ancient Judahite town just west of Jerusalem. The data suggests the town was destroyed at the beginning of the eighth century B.C.E., Vaknin and colleagues say. This does not correspond to any major foreign invasion of the Levant or known major natural disaster, but dovetails well with a biblical episode of internal conflict between the kingdoms of Israel and Judah around 790 B.C.E, when, according to 2 Kings 14:11-13, King Joash of Israel battled King Amaziah of Judah at Beth Shemesh: "And Judah was put to the worse before Israel; and they fled every man to their tents."

While it is confined to a few verses in the Bible, this event was quite significant, as it established the dominance of the northern kingdom of Israel over Judah and Jerusalem for most of the eighth century B.C.E., until Israel was vanquished by the Assyrians.

A pox on Edom

Moving forward a couple of centuries, another interesting finding comes from the ruins of Malhata, a Judahite settlement in the Negev, east of Be'er Sheva. Vaknin and colleagues found that the remains of Malhata did not share the same magnetic signature of the destruction of Jerusalem and other Judahite sites known to have been put to the torch by the Babylonians around 586 B.C.E.

Instead, it seems that this remote desert town was set alight years after the fall of Judah and the start of the Babylonian exile, when the magnetic field was weaker.

This supports recent theories according to which Judah's southern neighbors, the Edomites, encroached upon some of the lands formerly controlled by Jerusalem, taking advantage of the Babylonian conquest to expand their own territory, says Ben-Yosef.

"Some researchers, relying on archaeological evidence, argue that Judah was not completely destroyed by the Babylonians," he says. "Now, the magnetic results support this hypothesis, indicating that the Babylonians were not solely responsible for Judah's ultimate demise."

This may also explain why the Bible frequently singles out the Edomites for opprobrium, alongside their Babylonian allies, for their complicity in the destruction of Judah and the First Temple, he adds.

Take Psalm 137, famous for its opening line "By the rivers of Babylon" and its pledge of "If I forget thee, O Jerusalem." Less cited is the Psalm's ending, which laments: "Remember, O Lord, the children of Edom in the day of Jerusalem; who said, rase it, rase it, even to the foundation thereof," and concludes with a blessing for anyone who would dash Babylonian babies against stones.

When they go low

Underscoring the promise of paleomagnetic dating, Vaknin and his supervisors co-authored their latest study with more than a dozen top archaeologists who are often on opposing sides of the debate on biblical historicity.

The team's work is "impressive," says Israel Finkelstein, an archaeologist from Tel Aviv and Haifa University who is one of the leading figures in this debate. "There are ways in which paleomagnetism dating can help, especially in periods for which radiocarbon is not reliable, first and foremost after the middle of the eighth century B.C.E.," says Finkelstein, who did not participate in the paleomagnetic study.

In recent decades, the question of how much of the Bible is a real story has centered on the putative kingdom of David and Solomon and on the dating of remains linked to the biblical United Monarchy of Israel. Back in the 1990s, Finkelstein proposed a new paradigm, dubbed the "Low Chronology," which essentially shifted down by a century the dating of ruins at ancient sites like Megiddo, Hazor and Gezer once attributed to Solomon's building prowess.

Those structures, Finkelstein argued, were built not in the 10th century B.C.E., the time when David and Solomon reigned according to the biblical chronology, but in the ninth century B.C.E. and were the mark of the Omride dynasty, the founders of the northern kingdom of Israel. The corollary to this Low Chronology is of course that it leaves us with no grandiose structures from the time of David and Solomon and consigns their fabled United Monarchy to myth.

Ever since it was put forward, more conservative archaeologists have been trying to poke holes in this theory and uncover some major architectural remains that can be securely attributed to the time of David and Solomon, but nothing has been terribly conclusive, partly because the margins of error on dating methods, whether it's pottery typology or radiocarbon, often exceed the century or so that separates the differing views.

While the newly published material pertains to a period just after the legendary United Monarchy, starting with Sheshonq's invasion at the end of the 10th century B.C.E., Vaknin is convinced that paleomagnetism will in the near future contribute directly to the debate on the earlier era at the heart of the controversy.

"While radiocarbon dating works better in the earlier parts of the Iron Age, up to the 8th century B.C.E., it is not always possible to find organic material to date a site and even when such material is available, the results still have a margin of error," Vaknin notes.

"The two methods can work together," he tells Haaretz. "Let's say radiocarbon gives overlapping ranges for two destroyed sites. We can then look at the magnetic results from the two sites: if they match then the sites may have been destroyed at the same time and if they don't then they were destroyed at different times."

Is paleomagnetism the key to resolving the ceaseless arguments on biblical historicity? Well, it's certainly a powerful new tool, but let's face it, archaeologists love to argue and come up with conflicting interpretations of data from the field. So this new method, like most good research does, will likely help provide some answers, only to generate even more questions.

Please visit the site: <https://www.haaretz.com/00000184-0983-d018-af87-b9d3221d0000> [See eARTICLE posted at <https://www.pnas.org/doi/10.1073/pnas.2209117119>]

ETRUSCAN TOMB EXCAVATION **SURFACED ANCIENT GREEK CUP,** **BY PATRICIA CLAUS**

Archaeologists in Italy recently uncovered ten remarkable Etruscan tombs in the Monterozzi necropolis, where they found ancient Greek artefacts such as Euboic drinking cups.

Carried out in what the archaeologists called an “emergency campaign” to save the complex, the finds date back to between the Villanovan and Archaic periods (8th-5th centuries BC).

They are located just a few dozen meters from the Tomb of the Bulls and the Tomb of the Augurs. After the first restoration work was completed on the objects found there, some of the spectacular discoveries made in one of the tombs were finally revealed.

The Soprintendenza dell Belle Arti Paesaggio Etruria Meridionale, the governmental authority in charge of all archaeological excavations, stated that the excavations had been necessary in order to shore up a series of cavities that had opened up as a result of excessive plowing on private land. Since the area was adjacent to an already known archaeological site, measures were taken as soon as possible to shore up the area.

Etruscan Tombs Looted

Unfortunately, the Soprintendenza noted, as so often happens in the case of burials that are so shallow, and accessible from the road, all the surrounding area had already been violated in the past. Grave goods were taken from some of the tombs, sometimes, the authority stated, “with devastating effects.” after vaults and walls had collapsed.

Nevertheless, the archaeologists, who were working as part of the EOS ARC company, were fortunate: in that one of the burial complexes, the one closest to the road itself had indeed been looted in ancient times. But luckily for the archaeologists, these grave robbers were only interested in precious stones and jewelry – not, as it happens, in ceramics and other grave goods, which are of equal or perhaps even more archaeological interest.

The Vital context of the burials was, therefore, able to be determined and examined by the archaeologists, using the vases and other objects that were part of the burials.

Daniele Federico Maras, an official of the Superintendence for the territory of Tarquinia, explains “The tomb dates back to the first half of the seventh century BC. It is of the ‘twin’ type, i.e. consisting of two independent chambers side by side, almost identical to each other and open to the south-west on as many open vestibules, which can be accessed via a steep staircase.

“The roof of both chambers is of the slit type, with an ogive vault carved into the rock, closed at the top by a series of nephrite slabs, while along the left wall is a bed, carved in stone which, in the case of the northernmost chamber, is decorated with carved legs”.

The doors of the tombs had been sealed with slabs of nephrite, which had unfortunately been broken by the grave robbers so that they could gain access to the tombs – however, in a very unusual twist, they had been carefully closed again after they had been plundered, Maras says.

Perhaps this was part of a belated show of respect for the dead – or hoping that there wouldn’t be divine retribution for the desecration.

However, the looters failed to break through the slab protecting the north chamber, prompting the looters to also remove two blocks from the roof of the tomb, causing it to collapse over time, the Soprintendenza says.

Working beneath the remains of the Gemina Tomb, sifting through the loose earth, archaeologists collected such treasures as fragments of glazed impasto vases, sometimes with incised decorations or configurations and a clay statuette depicting a weeping woman.

Geometric Vases and Ancient Greek Euboic Cups In addition, they also came upon several Etruscan-geometric engraved and painted bucchero vases, including jugs decorated by the man known as the Painter of the Palms, as well as ancient Greek Euboic cups.

Ancient Greek Drinking Cup “Kylis” was an important component of the symposium, which was a ritualized drinking party enjoyed by elite Greek men. credit: Met Museum / Public Domain

Some Artefacts Stolen From the Tombs by Grave Robbers Sadly, they also found the fragments of a thin sheet of gold, which the archaeologists believe was all that remained of a thicker coating of the precious metal, which the ancient grave robbers had indeed stolen.

“All the material was found shattered”, Maras says, “probably intentionally broken by the looters in order to look for imaginary treasures hidden in the vases. Luckily, however, the fragments were left on the ground and are now finally being restored.” They will all be displayed before the public as soon as possible.

The Gemima Tomb will be left exposed at the conclusion of the excavations, according to the Soprintendenza, which added that a roof will be added over the site so that the entire tomb complex can be viewed in its context by visitors in the future.

In the meantime, it says, the long, difficult conservation work on the finds continues, at the end of which process they will be turned over to the authorities so that the people of Tarquinia and the rest of the world may enjoy their beauty.

Superintendent Margherita Eichberg noted in the announcement that “The emergency intervention was necessary to remedy the damage, but now, thanks to the commitment of

the archaeologists of the Superintendency, the emergency has been transformed into an opportunity for knowledge and cultural promotion.”

Please visit the site: <https://greekreporter.com/2022/10/16/excavation-etruscan-tomb/> [Go there for pix]

ARCHAEOLOGISTS AT POMPEII SAY THE IPAD PRO—WHICH COMES WITH A LIDAR SCANNER—IS CHANGING THE WAY THEY WORK, BY SARAH CASCONE

Archaeologists from Tulane University developed a new digital workflow, enabled by the iPad Pro, to conduct excavations at Pompeii.

For excavations at Pompeii, the ancient Roman city famously frozen in time by the eruption of Mount Vesuvius in the year 79 C.E., archaeologists have an unexpected new tool to use alongside trowels, shovels, brushes, and sieves: the iPad Pro.

During the recent Tulane University Pompeii I.14 Project, which uncovered artifacts from an ancient Roman kitchen, archaeologists used the iPad to document, examine, and better understand what they'd found—and how such objects would have been used by their creators.

“iPad is the perfect archaeology machine,” Allison Emmerson, the dig’s head archaeologist and a professor at Tulane University, told the Apple Newsroom, the company’s site for news about the brand. She worked with digital archaeologist Alex Elvis Badillo to integrate the device into her practice, and develop new techniques for its use at a dig site.

“Archaeological excavation is a destructive process—once a location has been dug, that work can never be repeated—so our most essential concern is thorough recording of all relevant data so that future researchers can ‘reconstruct the site,’” she explained. “iPad Pro allows us to collect data faster, more accurately, and more securely than any other tool, and has the processing power we need to aggregate that information and present it in a way no one has before.”

The iPad is even equipped with a LiDAR scanner—technology typically used on airplanes to help read topography covered with dense vegetation, and which has led to numerous groundbreaking finds in recent years. At a smaller site, it can create 3-D maps of trenches that create an exact record of where each and every artifact was unearthed.

And it can help nearly every step of the way to create a digital record of an archaeological dig, from shooting photographs, to taking notes, to drawing diagrams of the excavation trenches with the Apple Pencil in the program Concepts.

“The way I have always recorded on past digs was on paper with pencils or pens,” Jordan Rogers of Minnesota’s Carleton College, one of the excavation’s dig supervisors, said. “And when you drew something, you did it on graph paper, and used string and levels to measure where things were located. Photos were taken on separate cameras that you had to upload manually once you got back home. Everything was in a different place, and every night involved many hours transferring your day’s notes onto your computer.”

Now, all of this data can be stored automatically in readily accessible files that can be made available to other scholars and experts online. It's a paperless workflow created on and accessed through a single device—and one that could allow archaeologists to share their findings, a process that has typically taken years, on a much-accelerated timeline.

The findings at Tulane's Pompeii dig, which was conducted over five weeks this summer and will continue in 2023 and '24, are already challenging archaeologists' assumptions about the ancient city.

Previously, experts thought this particular kitchen dated to the second or third century B.C.E. Now, archaeologists are leaning toward a later date, from the first century C.E.—not long before the fateful volcanic eruption that put an end to Pompeii society. (One major clue was a rare gold coin called an aureus, commissioned by the Emperor Augustus in 13 or 14 C.E.)

And there was a school of thought that Pompeii was already in trouble ahead of the eruption that caused its destruction, having never recovered from an earthquake some 17 years beforehand.

That doesn't match with what's turned up at the dig, Emmerson said, such as "improvements to the dining areas of the restaurant that lead us to believe that Pompeii was not a city in decline at the time of the eruption—it was thriving."

Please visit the site: <https://news.artnet.com/art-world/pompeii-archaeologists-use-ipad-2190232> [Go there for many pix]

SYRIA DIGS UP 'RARE' ROMAN MOSAIC IN FORMER REBEL STRONGHOLD, **BY ALBERT AJI**

People look at a large mosaic that dates back to Roman era in the town of Rastan, Syria, Wednesday, Oct. 12, 2022. Syrian officials said it is the most important archaeological discovery since the conflict began 11 years ago. Credit: AP Photo/Omar Sanadiki

Syria uncovered a large intact mosaic that dates back to the Roman era, describing it Wednesday as the most important archaeological discovery since the country's conflict began 11 years ago.

Journalists were shown the mosaic in the central town of Rastan near Homs, Syria's third largest city.

The mosaic, at 120 square meters (around 1300 square feet), was found in an old building that Syria's General Directorate of Antiquities and Museums had been excavating. Lebanese and Syrian businessmen from the neighboring country's Nabu Museum bought the property that dates back to the 4th century and donated it to the Syrian state. Each panel was filled with square-shaped, small colorful stones measuring about half an inch on each side.

Dr. Humam Saad, the associate director of excavation and archaeological research at the directorate, said among the scenes the mosaic shows is a rare portrayal of Ancient Amazon warriors in Roman mythology.

"What is in front of us is a discovery that is rare on a global scale," Saad told The Associated Press, adding that the images are "rich in details," and includes scenes from the Trojan War between the Greeks and Trojans.

In Ancient Greek and Roman mythology, demigod hero Hercules slayed Hippolyta, queen of the Amazons, in one of his 12 labors.

People look at a large mosaic that dates back to Roman era in the town of Rastan, Syria, Wednesday, Oct. 12, 2022. Syrian officials said it is the most important archaeological discovery since the conflict began 11 years ago. Credit: AP Photo/Omar Sanadiki

The mosaic also portrays Neptune, Ancient Roman god of the sea, and 40 of his mistresses.

"We can't identify the type of the building, whether it's a public bathhouse or something else, because we have not finished excavating yet," Saad told the AP.

Sulaf Fawakherji, a famous actress in Syria and a member of the Nabu Museum's board of trustees said she hopes they could purchase other buildings in Rastan, which she says is filled with heritage sites and artifacts waiting to be discovered.

"There are other buildings, and it's clear that the mosaic extends far wider," Fawkherji told the AP. "Rastan historically is an important city, and it could possibly be very important heritage city for tourism."

Despite Rastan's historical significance in the country, Saad says there have not been significant excavation efforts in the town prior to the country's armed conflict.

A detail of a large mosaic that dates back to Roman era is seen in the town of Rastan, Syria, Wednesday, Oct. 12, 2022. Syrian officials said it is the most important archaeological discovery since the conflict began 11 years ago. Credit: AP Photo/Omar Sanadiki

"Unfortunately, there were armed groups that tried to sell the mosaic at one point in 2017 and listed it on social media platforms," he said.

Syrian heritage sites have been looted and destroyed over the past decade of ongoing violent conflict.

Among the most notable incidents was the Islamic State group taking Palmyra, a UNESCO World Heritage Site that boasts 2,000-year-old towering Roman-era colonnades and priceless artifacts, and partially destroying a Roman theater. Meanwhile, Syria's cash-strapped government has slowly been rebuilding Aleppo's centuries-old bazaar after reclaiming it from armed opposition forces in 2016.

Rastan was once a major opposition stronghold and was a point of intense clashes, before the Syrian government reclaimed the city in 2018.

Please visit the site: <https://phys.org/news/2022-10-syria-rare-roman-mosaic-rebel.html> [Go there for pix]

HIDDEN IN 54 CORPSES, A REVELATION **ABOUT ANCIENT GREECE,** **BY FRANZ LIDZ**

DNA from a 2,500-year-old battlefield in Sicily reveals that mercenary soldiers were common, if not the Homeric ideal.

A mass grave of troops from the second Battle of Himera in Sicily in 409 B.C. One-fourth of the combatants are thought to have been mercenaries, compared to two-thirds in the first Battle of Himera seven decades earlier.

Wherever there is an out-of-the-way war, there will be mercenaries — hired fighters whose only common bond may be a hunger for adventure.

Some join foreign armies or rebel forces because they believe in the cause; others sign on because the price is right.

This was true in ancient Greece, although you wouldn't know it from ancient Greek historians, for whom the polis, or independent Greek city-state, symbolized the demise of kingly oppression and the rise of citizen equality and civic pride. For instance, neither Herodotus nor Diodorus Siculus mentioned mercenaries in their reports of the first Battle of Himera, a fierce struggle in 480 B.C. in which the Greeks from various Sicilian cities united to beat back a Carthaginian invasion. Mercenaries were considered the antithesis of the Homeric hero.

“Being a wage earner had some negative connotations — avarice, corruption, shifting allegiance, the downfall of civilized society,” said Laurie Reitsema, an anthropologist at the University of Georgia.

“In this light, it is unsurprising if ancient authors would choose to embellish the Greeks for Greeks aspect of the battles, rather than admitting they had to pay for it.”

But research published on Monday in the Proceedings of the National Academy of Sciences suggests that the ancestry of the troops defending Himera was not as strictly Greek as historical accounts of the time would have it.

The victory was widely seen as a defining event for Greek identity. But the new study, an analysis of degraded DNA from 54 corpses found in Himera's recently unearthed west necropolis, found that the communal graves were largely occupied by professional soldiers from places as far-flung as those known today as Ukraine, Latvia and Bulgaria.

The finding buttresses research published last year in which Katherine Reinberger, a bioarchaeologist at the University of Georgia, and her colleagues performed a chemical analysis of the tooth enamel of 62 fallen fighters buried near Himera's ancient battlefield, where two major clashes played out: one in 480 B.C., when Himeran forces defeated the Carthaginian general Hamilcar Mago, and a second battle seven decades later, when Hamilcar's grandson returned for revenge and Himera was destroyed. Dr. Reinberger's team concluded that about one-third of those who fought in the first conflict were locals,

compared with three-fourths in the later battle. Dr. Reitsema is a principal author on both studies.

Angelos Chaniotis, a Greek historian at the Institute for Advanced Study in Princeton, said the new study cast new light on the composition of the battles at Himera, if not on their outcomes. “It confirms the general picture that we had from ancient sources, highlighting at the same time the role of mercenaries,” he said. “Mercenaries are mentioned in our evidence, but they are often hiding in plain sight.”

David Reich, a geneticist at Harvard whose lab generated the data, noted that their paper “suggests that Greeks minimized a role for mercenaries, potentially because they wanted to project an image of their homelands being defended by heroic Greek armies of citizens and the armored spearmen known as hoplites.” Presumably, armies staffed with commandos-for-hire would undermine this picture.

The tyrants who ruled Greek Sicilian cities in the Hellenic Age recruited soldiers of fortune for territorial expansion, and in some cases because those rulers were wildly unpopular with their citizenry and required bodyguards. “The recruitment of mercenaries even spurred the use of coinage in Sicily to pay them,” Dr. Reitsema said.

The Sicily of antiquity, rich in resources and strategically located, was home to both Greek and Carthaginian colonies, which for a long time coexisted amicably. But when Terillus, tyrant of Himera, was ousted by his own people in 483 B.C., he called on his Carthaginian allies to help him retake the city.

Three years later, the Carthaginian general Hamilcar Mago sailed from North Africa to Himera with an expeditionary force estimated by Herodotus at more than 300,000 strong. (Modern historians put the figure closer to 20,000.) But cavalry and foot soldiers from two neighboring Greek Sicilian city-states, Syracuse and Agrigento, came to Himera’s aid, and Hamilcar’s troops were routed and his ships set ablaze. When all seemed lost, the general is said to have killed himself by leaping into a pyre.

In 409 B.C., Hamilcar’s grandson, Hannibal Mago, returned to settle scores. This time, the Greek army consisted mainly of citizens of Himera, with few reinforcements. The Greeks were defeated, and the city was razed.

The graves and the western necropolis at Himera were discovered in 2009, during the construction of a rail line connecting Palermo and Messina. The site has since yielded the remains from more than 10,000 burials. To archaeologists, one of the best indicators of a mercenary — foreign or local — is burial in a communal grave.

“Most likely, mercenaries would not have been known to the people cleaning up the battlefield and burying the casualties,” Dr. Reitsema said. As a result, mercenaries would have been more likely than citizen-soldiers to wind up in anonymous mass graves and become archaeologically invisible, or less visible, Dr. Reitsema said.

The dead found in the mass graves at Himera were all adult men. According to Dr. Reitsema, distinguishing the combatants from everyone else required “several lines of evidence.” Traces of violent trauma, such as spearheads lodged in a body, implied that an individual had died in action. “We didn’t find armor and weapons, apart from those

embedded in bones,” Dr. Reitsema said. “Those items would have been recovered by the survivors on the battlefield.” The dates of the graves, based on stratigraphy and a few scattered objects, closely aligned with the dates of the historically documented battles.

Determining which bones were Himeran and which were Carthaginian was a matter of location. Alissa Mittnik, a Harvard geneticist responsible for the genomic analysis, said the deliberate burial of the fallen within the necropolis denoted that they were part of the Himeran army rather than the enemy.

“While we know nothing of the manner in which members of the Carthaginian army were buried,” she said, “it was typical in Greek warfare for the victor to allow the enemy access to the battlefield to remove its dead.”

Chemical isotopes in the mercenaries’ bones indicated that the soldiers were born far away and that their parents and grandparents were not immigrants. And the ancient genomes were sequenced and compared to all published genomes, Dr. Reich said: “The ones those new genomes are closest to are those from Ukraine and Latvia.”

Dr. Mittnick speculated that the hirelings may have arrived at Himera with the army led by the tyrant Gelon of Syracuse. Diodorus wrote of 10,000 foreign “colonists” whom Gelon later rewarded with citizenship, although their geographic origins are unknown.

“We know that many of the young men in the mass graves likely grew up outside of the Mediterranean but might have come to Sicily for the promise of citizenship or monetary rewards,” Dr. Mittnick said.

Beyond highlighting the disparate genetic backgrounds of troops, the research showed that genetic ancestry informed which bodies were interred in which graves. “The intentional groupings of foreigners sheds light on the internal logic of the identity constructions of Greek colonists,” Dr. Reitsema said.

Foreign fighters from a variety of backgrounds were buried in the same mass graves: sufficiently respected to be buried in the necropolis but still differentiated from many other persons of Greek descent. The smaller mass graves, in which soldiers probably were Greek, show the signs of greatest care in body placement and burial objects, indicating greater reverence or prestige than the outlanders.

Britney Kyle, an anthropologist at the University of Northern Colorado and an author of the study, said the research demonstrated the power and potential of new techniques to illuminate what life was like in the past.

“Too many studies of ancient DNA focus only on genetic results without fully exploring the biocultural background to contextualize their findings,” she said. “We’ve made a concerted effort to bring together information from historical accounts, archaeology, bioarchaeology and isotopic analyses to contextualize the genetic data. It’s amazing what we can learn when we weave diverse lines of evidence.”

Of all the surprises Dr. Kyle encountered while fact-finding, the biggest may have been the distances over which some of the mercenaries traveled to reach Sicily. “We think of

warfare as causing or deepening divisions between people,” she said. “So it is fascinating to think of war as something that could bring people together.”

Please visit the site: <https://www.nytimes.com/2022/10/04/science/greece-sicily-himera-genetics.html>

CARVED, SIGNED, CROSSED OUT – DOCUMENTS ON WOODEN STICKS FROM ANCIENT SOUTH ARABIA, BY PETER STEIN

Legal contracts carved on palm-leaf stalks, correspondence laid down on cigar-shaped sticks? The mode of writing used in Ancient South Arabia, the legendary realm of the Queen of Sheba, was especially unique. The Sabaeans and their neighbours did not write on common materials such as leather or papyrus but rather on something surprisingly simple: branches of fresh wood just cut off the tree.

South Arabia, called “Araby the blest” by Greeks and Romans, was famous among the ancients for its wealth. This fame was based on long-distance trade in incense and exotic spices – goods from Eastern Arabia, the Horn of Africa and even India, which were in great demand in the Ancient World. To modern scholarship, however, the South Arabian culture is famous not so much because of incense and myrrh (which played in fact a rather marginal role in the original sources from the region) but because of its extraordinarily rich output in written documentation: thousands of impressive monumental inscriptions, mainly on rock and stone, but also on bronze tablets and other objects. More than 12.000 texts have thus far been discovered – written in four different languages (Sabaic, Minaic, Qatabanic and Hadramitic), spread over the territory of present-day Yemen up to central Saudi-Arabia and covering a time-span of about 1500 years from the early 1st millennium BCE (thus contemporary to the Neo-Assyrian empire) up to the 6th CE (immediately before the rise of Islam).

The Sabaic royal inscription of Yitha‘amar Watar (about 715 BC), discovered by the German Archaeological Institute in Sirwāh in 2005, is a meaningful example for the Ancient South Arabian script as used in written records on public display (© Deutsches Archäologisches Institut, photo I. Wagner).

Irrespective of its peculiar appearance, the Ancient South Arabian script originates in the Canaanite alphabet of the late 2nd millennium BCE. The Sabaeans (the word saba’ means “travel” in their language!) probably migrated southwards through the Arabian Peninsula after the political breakdown of the Near East in the 12th century BCE probably – bringing with them the alphabet to Yemen. The script was then adopted by peoples already established in the region – the Minaeans, Qatabanians and Hadramis. These peoples had not made use of previous scripts and spoke Semitic languages differing markedly from Sabaic.

The map shows the approximate extension of the four main tribal entities of Ancient South Arabia: Saba’, the Minaeans, Qatabān and Hadramawt.

A selection of inscribed wooden sticks from Ancient Yemen, with texts in Sabaic and Minaic languages, from the mid-1st millennium BC (L 014) to the 5th century CE (L 102). Apart from L 102, all pieces are made of palm-leaf stalks (Oosters Instituut foundation, Leiden; photos © W. Vreeburg).

At first glance, this script appears to fit perfectly the needs of monumental epigraphy: bold characters of a distinctly geometric shape pretending to be made just for public display. But astonishingly the script was also used for handwriting in daily life, on documents that are as small as a cigar and made of segments from palm-leaf stalks and branches of other wood – a material that is most cheaply available and easily prepared. In that respect, this material can best be compared to the so-called ostraca, broken pieces of pottery or stone, waste materials that served as writing surfaces in many neighbouring civilisations.

Unlike writing on ostraca, however, the script was not applied on the sticks by pen and ink, but rather incised with a pointed stylos. Thus the mode of manuscript writing does not in fact differ markedly from monumental epigraphy. Nevertheless, an increasing sense for fluent writing led to a gradual alteration of the script in the wooden documents towards a real cursive, characterised by curved, inclined letter forms. After a couple of centuries it had in fact become a script of its own, lacking any similarities with the contemporary ductus of the inscriptions.

Palaeographic chart showing the development of the Ancient South Arabian script in its monumental (left) and cursive forms (right) from the Early (ESab) to the Late Sabaic (LSab) period, i.e. from about the 8th century BC to the 6th c. CE.

Dependent on the length and diameter of the wooden support, comprehensive documents of any kind could be laid down this way.

Correspondence on private and business matters, accounts and contracts about transfer of money and goods, quittances of settled debts, and notes from the ritual practice such as oracular requests and responses are frequent genres among the inscribed sticks.

To make these documents effective, they could even be signed. Many business documents and some letters contain signatures by the involved parties as well as by other persons who witnessed the act. The individually formed signatures often show discernible elements of the particular names. These signatures make clear that the wooden stick was in fact the original document, whereas a monumental inscription that happens to exhibit the same text for public announcement could only be considered a copy.

The invalidated documents were nevertheless kept in the archive for certain reasons. One of these was obviously the need for sample texts in scribal education, since numerous school texts were found mixed with the original deeds, letters, and so on. The place where they were kept was obviously a central office, serving not only for any kind of correspondence by the local population but also transmitting the skills of writing from one generation to the next. Every larger settlement in Ancient Yemen must have had such an office, though not even a handful have been discovered thus far. The bulk of the inscribed wooden sticks known so far stem from one single spot: the ancient city of Nashshān, today as-Sawdā', in the wadi al-Jawf in the north of the country, were they survived beneath the soil to be rediscovered by local tribesmen as late as in the 1970s.

Left Image: A legal deed in Sabaic language stating that two twin daughters were handed over into the ownership of their mother's family, who were servants to the father of the two (X.BSB 61 = Mon.script.sab. 1, about 3rd century CE; Bavarian State Library,

Munich; images © P. Stein). Right Image: Sabaic letter of the 5th century CE. The text closes with the words “the one of the clan Gadanum (i.e., the sender) has signed”, followed by the individual signature of that person (X.BSB 155 = Mon.script.sab. 219; Bavarian State Library, Munich; images © P. Stein).

Eventually a legal matter was settled, or a debt was paid. Once a legally binding document became invalid, it was also visibly obliterated by breaking it to pieces (an easy procedure with a small piece of wood!) or by crossing out the written text. These techniques of “splintering” or “scratching,” which are even alluded to by specific terms in monumental inscriptions, have long been misunderstood – until the first examples of such annulled documents came to light.

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For Further Reading:

Multhoff, Anne: “Und es sei aufgelöst und aufgehoben”. Zur Annullierung juristischer Urkunden im vorislamischen Südarabien. In:

Françoise Briquel Chatonnet, Catherine Fauveaud & Iwona Gajda (eds.), *Entre Carthage et l’Arabie heureuse. Melanges offerts à François Bron (Orient & Méditerranée 12)*, Paris 2013, pp. 105–118

Stein, Peter, *Semitic Documents on Wooden Sticks: Manuscript Writing in Pre-Islamic South Arabia*. In: Andreas Kaplony & Daniel Potthast (eds.), *From Qom to Barcelona. Aramaic, South Arabian, Coptic, Arabic and Judeo-Arabic Documents (Islamic History and Civilization 178)*, Leiden & Boston 2021, pp. 24–54

Stein, Peter & Rijziger, Sarah: *The South Arabian zabūr Inscriptions from Maqwala, near Ṣan‘ā’, Yemen*. In: George Hatke & Ronald Ruzicka (eds.), *South Arabian Long-Distance Trade in Antiquity – “Out of Arabia”*, Newcastle upon Tyne 2021, pp. 310–351

Please visit the site: <https://www.asor.org/anetoday/2022/10/carved-signed-crossed-out> [Go there for pix and drawings]