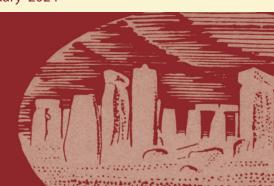


www.antiquity.ac.uk Volume 98 • Number 397 • February 2024

A REVIEW OF WORLD ARCHAEOLOGY

EDITED BY ROBERT WITCHER



EDITOR Robert Witcher

DEPUTY EDITOR
Robin Skeates

EDITORIAL MANAGER
Lindsey Elstub

ASSISTANT EDITOR

Abigail Teasdale

REVIEWS EDITOR
Marion Uckelmann
PRODUCTION EDITOR
Helen Devonshire

Public Engagement and Press Co-ordinator Max Storey

EDITORIAL ADDRESS

Antiquity, Department of Archaeology, Durham University, South Road, Durham DH1 3LE, UK Tel: +44 (0) 191 3341125; Email: editor@antiquity.ac.uk

Antiquity is an international, peer-reviewed journal of archaeological research that aims to communicate the most significant discoveries, theory, method and cultural resource issues rapidly and in plain language to practising archaeologists everywhere.

Antiquity is included in the Cambridge Journals Online service at http://journals.cambridge.org/AQY. Additional and free-to-access material may be found at http://antiquity.ac.uk

Antiquity was founded in 1927 by O.G.S. Crawford and is owned by the Antiquity Trust, a registered charity. The trustees of the Antiquity Trust are Graeme Barker, Amy Bogaard, Robin Coningham, Barry Cunliffe, Roberta Gilchrist, Anthony Harding, Carl Heron, Martin Millett, Nicky Milner, Stephanie Moser and Cameron Petrie.

The Directors of Antiquity Publications Ltd, owned by the Antiquity Trust and responsible for producing *Antiquity*, are **Chris Gosden**, **Sue Hamilton**, **Nicky Milner**, **Cameron Petrie**, **Mike Pitts**, **Marie Louise Stig Sørensen and Robert Witcher**.

EDITORIAL ADVISORY BOARD

Peter Bellwood, The Australian National University, Australia Xingcan Chen, Chinese Academy of Social Sciences, Beijing Eduardo Goés Neves, Universidade de São Paulo, Brazil Elizabeth Graham, University College London, UK Charles Higham, University of Otago, New Zealand Corinne Hofman, Leiden University, the Netherlands Stephen Houston, Brown University, USA Timothy Insoll, University of Exeter, UK Susan Keech McIntosh, Rice University, USA Ian Kuijt, University of Notre Dame, USA Kevin Lane, Universidad de Buenos Aires, Argentina Akira Matsuda, University of Tokyo, Japan Barbara Mills, University of Arizona, USA

Peter Mitchell, University of Oxford, UK
Timothy Pauketat, University of Illinois, USA
Victor Paz, University of The Philippines, The Philippines
Michael Petraglia, Australian Research Centre for Human
Evolution, Griffith University, Australia
Innocent Pikirayi, University of Pretoria, South Africa
Susan Pollock, Freie Universität Berlin, Germany
Natalia Shishlina, State Historical Museum, Moscow, Russia
Benjamin Smith, University of Western Australia, Australia
Claire Smith, Flinders University, Australia
Monica Smith, University of California, Los Angeles, USA
Miriam Stark, University of Hawai'i-Manoa, USA
Sarah Tarlow, University of Leicester, UK

Antiquity is published six times a year: February, April, June, August, October and December.

Published by Cambridge University Press on behalf on Antiquity Publications Ltd.

Advertising enquiries to the publisher at advertising@cambridge.org.

©Antiquity Publications 2024. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying or otherwise, without permission in writing from Cambridge University Press. Permission to copy (for users in the USA) is available from Copyright Clearance Center, http://www.copyright.com, email: info@copyright.com.

This journal issue has been printed on FSC™-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organisation established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

Printed in Great Britain by Henry Ling Limited, The Dorset Press, Dorchester, DT1 1HD.

Cartographic design by Connor J. Sweetwood; inset maps use map data from Mapbox, OpenStreetMap and their data sources. To learn more, visit https://www.mapbox.com/about/maps/ and http://www.openstreetmap.org/copyright.

Typesetting: Nova Techset Private Limited, Bengaluru & Chennai, India.

Subscriptions can be purchased from Cambridge University Press and online at https://www.cambridge.org/core/journals/antiquity/subscribe.

Antiquity remains neutral with regard to jurisdictional claims in maps supplied by authors.

Cover. This well-preserved pukara (hilltop fortress) is one of many in the Andean highlands. Most pukaras date to the Late Intermediate Period (c. AD 1000–1450), reflecting a period of conflict following the disintegration of the Wari and Tiwanaku states. This site features in one of six articles in a special section in this issue on the 'Geospatial Platform for Andean Culture, History and Archaeology' (GeoPACHA) initiative. For more information, see 'A new view of hillforts in the Andes: expanding coverage with systematic imagery survey' by Elizabeth Arkush, Lauren E. Kohut, Romuald Housse, Ryan D. Smith & Steven A. Wernke in this issue (photograph by Christophe Delaere, ALTI-plano).

ANTIQUITY

Volume 98 Number 397 February 2024

Editorial	3
Robert Witcher	
Research Articles	
Did crops expand in tandem with culinary practices from their region of origin? Evidence from ancient DNA and material culture Harriet V. Hunt, Hongen Jiang, Xinyi Liu, Diane L. Lister, Yidilisi Abuduresule, Wenying Li, Changsui Wang & Martin K. Jones	12
Late prehistoric and early historic chronology of Myanmar: a four-millennia sequence from Halin T.O. Pryce, Baptiste Pradier, Aude Favereau, U Saw Naing Oo, Clémence Le Meur, Daw Kay Thwe Oo, U Arkar Aye, Daw Thu Thu Win, Kinga Alina Langowska, Kasper Hanus, Yoshiyuki Iizuka, Cloé Georgon, Yijie Zhuang, Cristina Castillo, Dorian Fuller, Daw Hlaing Sabai Win, Daw Han Myo Kyi Aung, Louis Champion, U Myo Minh Oo, U Min Naing Oo, U Zayar Phyo, U Phyo Wai Maung, Daw Yin Min Myat, U Thein Zaw, Khun Atiphat Paibool, Khun Varis Domethong, Anna Willis, Charles F.W. Higham & Thomas F.G. Higham	30
Intermarriage and ancient polity alliances: isotopic evidence of cross-regional female exogamy during the Longshan period (2500–1900 BC) Xiaotong Wu, Zhiyong Guo, Nu He, Shijie Zhao, Yanxin Li, Huimin Yu, Fang Huang & Xingxiang Zhang	48
A Vasconic inscription on a bronze hand: writing and rituality in the Iron Age Irulegi settlement in the Ebro Valley Mattin Aiestaran, Javier Velaza, Joaquín Gorrochategui, Carmen Usúa, Pablo Pujol, Euken Alonso, Eneko Iriarte, Josu Narbarte, Dani Ruiz-González, Oihane Mendizabal-Sandonís, Jesús Sesma, Jose Antonio Mujika-Alustiza, Jesús García Gazólaz, Berta Balduz & Juantxo Agirre-Mauleon	66
Making wine in earthenware vessels: a comparative approach to Roman vinification Dimitri Van Limbergen & Paulina Komar	85

The origins of saddles and riding technology in East Asia: discoveries from the Mongolian Altai Jamsranjav Bayarsaikhan, Tsagaan Turbat, Chinbold Bayandelger, Tumurbaatar Tuvshinjargal, Juan Wang, Igor Chechushkov, Manabu Uetsuki, Naoto Isahaya, Mark Hudson, Noriyuki Shiraishi, Yue Li, Chengrui Zhang, Gelegdorj Eregzen, Gino Caspari, Paula López-Calle, Joshua L. Conver, Gaëtan Tressières, Lorelei Chauvey, Julie Birgel, Nasan-Ochir Erdene-Ochir, Jan Bemmann, Gregory Hodgins, Kristine K. Richter, Ludovic Orlando, Christina Warinner & William Timothy Treal Taylor	102
Early architecture in Tonga: implications for the development of Polynesian chiefdoms Geoffrey Clark, Phillip Parton & Christian Reepmeyer	119
Inequality or insecurity? The case of pre-colonial farming communities in southern Africa Mncedisi J. Siteleki & Per Ditlef Fredriksen	135
Special section: GeoPACHA	
Large-scale, collaborative imagery survey in archaeology: the Geospatial Platform for Andean Culture, History and Archaeology (GeoPACHA) Steven A. Wernke, Parker VanValkenburgh, James Zimmer-Dauphinee, Bethany Whitlock, Giles Spence Morrow, Ryan Smith, Douglas Smit, Grecia Roque Ortega, Kevin Ricci Jara, Daniel Plekhov, Gabriela Oré Menéndez, Scotti Norman, Giancarlo Marcone, Manuel Mamani Calloapaza, Lauren Kohut, Carla Hernández Garavito, Sofia Chacaltana-Cortez & Elizabeth Arkush	155
A new view of hillforts in the Andes: expanding coverage with systematic imagery survey Elizabeth Arkush, Lauren E. Kohut, Romuald Housse, Ryan D. Smith & Steven A. Wernke	172
Augmenting field data with archaeological imagery survey: mapping hilltop fortifications on the north coast of Peru Giles Spence Morrow, Parker VanValkenburgh, Christopher Wai & Steven A. Wernke	193
Late pre-Hispanic fog oasis settlements and long-term human occupation on the Peruvian central coast from satellite imagery Giancarlo Marcone, Geraldine Huertas, James Zimmer-Dauphinee, Parker VanValkenburgh, Justin Moat & Steven A. Wernke	211
Managing pastoral landscapes: remote survey of herding infrastructure in Huancavelica, Peru Bethany Whitlock, Parker VanValkenburgh & Steven A. Wernke	229
Eyes of the machine: AI-assisted satellite archaeological survey in the Andes James Zimmer-Dauphinee, Parker VanValkenburgh & Steven A. Wernke	245

Reviews

Getting closer to the Late Bronze Age collapse in the Aegean and eastern Mediterranean, c. 1200 BC GUY D. MIDDLETON	2
Destruction and its impact on ancient societies at the end of the Bronze Age Jesse Millek	
Synchronizing the destructions of the Mycenaean palaces Reinhard Jung & Eleftheria Kardamaki (ed.)	
Migration and ethnicity in prehistoric and early historic Europe CLAUDIO CAVAZZUTI	2
Rethinking migrations in late prehistoric Eurasia Manuel Fernández-Götz, Courtney Nimura, Philipp W. Stockhammer & Rachel Cartwright (ed.)	
Who do you think you are? Ethnicity in the Iron Age Mediterranean F. Saccoccio & E. Vecchi (ed.)	
Book reviews	
Colin D. Reader A gift of geology: ancient Egyptian landscapes and monuments Judith Bunbury	2
Hani Hayajneh (ed.) Cultural heritage: at the intersection of the humanities and the sciences JES WIENBERG	2
Sudeshna Guha <i>A history of India through 75 objects</i> Sonya Rhie Mace	2
Marie Louise Stig Sørensen & Katharina Rebay-Salisbury <i>Death and the body in Bronze Age Europe: from inhumation to cremation</i> ARJAN LOUWEN	2
Russell Palmer <i>Captives, colonists and craftspeople: material culture and institutional power in Malta, 1600–1900</i> ALEXANDER W. ANTHONY	2
P. Willey, Peter Gavette, Eric J. Bartelink & Colleen F. Milligan (ed.) Archaeology and bioarchaeology of anatomical dissection at a nineteenth-century Army hospital in San Francisco ROBERT J. STARK	2
Book Chronicle	2

Marion Uckelmann

Project Gallery (http://www.cambridge.org/core/journals/antiquity/project-gallery)

Late Glacial lithic industry of the Xiaonanshan site: implications for the Neolithisation in the Amur River basin

Jian-Ping Yue, You-Qian Li, Xia-Jun Yan, Xue-Ya Du & Shi-Xia Yang

The Founders project: evaluating the economic role of the 'founder crops' prior to the emergence of agriculture in Southwest Asia Amaia Arranz-Otaegui

Artisans of the Stone Age: the utilisation of plant- and wood-based raw materials at the wetland site of Järvensuo 1

Satu Koivisto, Jenni A. Suomela & Mia Lempiäinen-Avci

Proto-urban hillfort at 10 microns: integrated geoarchaeological research at Pungrt (central Slovenia)

Agni Prijatelj, Luka Gruškovnjak, Petra Vojaković, Branko Mušič, Helena Grčman & Matija Črešnar

Impact of trading networks on a small island at the end of Late Antiquity: Isla del Fraile

Alejandro Quevedo, Juan de Dios Hernández García, Mario Gutiérrez-Rodríguez, Francisco J. Moreno-Martín, Tomoo Mukai & Claudio Capelli

The Global Dynamics of Inequality (GINI) project: analysing archaeological housing data

Amy Bogaard, Scott Ortman, Jennifer Birch, Gabriela Cervantes Quequezana, Shadreck Chirikure, Enrico R. Crema, Pablo Cruz, Gary Feinman, Mattia Fochesato, Adam S. Green, Detlef Gronenborn, Helena Hamerow, Guiyun Jin, Tim Kerig, Dan Lawrence, Mark D. McCoy, Jessica Munson, Paul Roscoe, Eva Rosenstock, Amy Thompson, Cameron A. Petrie & Timothy A. Kohler