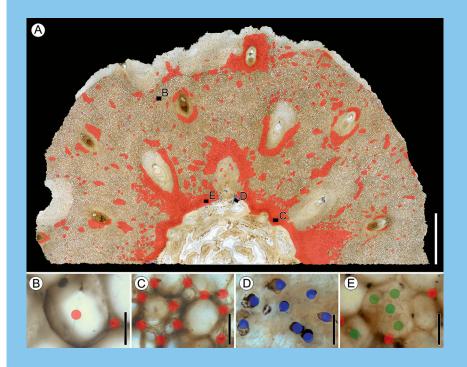
Earth and Environmental Science

Transactions of the Royal Society of Edinburgh

volume **108** part **4** 2019 (for 2017)



Special Issue

Agora Paleobotanica

Editors

Borja Cascales-Miñana,

Cyrille Prestianni and

Philippe Gerrienne

Published by The RSE Scotland Foundation, 22-26 George Street, Edinburgh EH2 2PQ



The Royal Society of Edinburgh is committed to the widespread dissemination of scientific knowledge and has published the *Transactions of the Royal Society of Edinburgh* since 1785, when James Hutton's 'Theory of the Earth' was published in Volume 1. The journal evolved to the *Transactions of the Royal Society of Edinburgh: Earth Sciences* in 1980 and is now (as from 2007) the *Earth and Environmental Science Transactions of the Royal Society of Edinburgh.* Through this journal, the Society continues to encourage and support the international Earth and Environmental Science communities by:

- publishing a journal of international standing and authorship;
- publishing substantial papers on all scientific aspects of the Earth and its surface environments;
- publishing without page or colour charges;
- · reproducing photographs and artwork to the highest standard, where appropriate at a size larger than is customary; and
- aiming to have papers reviewed within three months by at least two referees of international standing; and usually publishing within six months
 of acceptance.

The Editorial Board welcomes original manuscripts in the Earth and Environmental Sciences. It also welcomes proposals for Special Issues in these areas.

Editorial Board (as at 31 July 2018)

Ian ALSOP (Editor), University of Edinburgh Tectonics/structural geology

Donald DAVIDSON (Chairman & Editor-in-Chief), University of Stirling Soil science; soil conservation; anthropogenic impacts on soils; soil biodiversity; geoarchaeology

Kevin EDWARDS (Editor), University of Aberdeen Environmental change in northern Europe & North Atlantic; Palynology; palaeoecology; Quaternary science; environmental archaeology

Tony FALLICK (*Editor*), University of Glasgow Isotope biogeosciences; economic geology; dating & geochronology; the Palaeoproterozoic & Neoproterozoic

Fiona FORDYCE (Editor), British Geological Survey

John GORDON (Editor), University of St Andrews Geodiversity; geoconservation; Quaternary research Alistair MCGOWAN (*Editor*), BioGeoD, Edinburgh Palaeobiology; biodiversity; invertebrate palaeontology; the Fossil Record

Andrew ROSS (*Editor*), National Museums Scotland, Edinburgh Invertebrate palaeontology; palaeobiology; palaeoecology; palaeoenvironment; palaeoclimate

Chris SOULSBY (*Editor*), University of Aberdeen *Hydrogeology; biogeochemistry*

Philip STONE (Editor), British Geological Survey, Edinburgh Scottish and South Atlantic regional geology and tectonics

Stig WALSH (*Editor*), National Museums Scotland, Edinburgh Vertebrate palaeobiology; vertebrate palaeontology

COPYRIGHT: It is the policy of the Royal Society of Edinburgh not to charge any royalty for the production of a single copy of any one article made for private study or research. Specific permission will not be required for photocopying multiple copies of copyright material, to be used for *bona fide* educational purposes, provided this is done by a member of the staff of the university, school or other comparable institution, for distribution without profit to student members of that institution, and provided the copies are made from the original journal. Requests for the copying or reprinting of any article for any other purpose should be sent to the Journals & Archive Officer at the Royal Society of Edinburgh. (publications@theRSE.org.uk).

Earth and Environmental Science Transactions of the Royal Society of Edinburgh is published as one volume of four parts per year, usually in a combination of single and double issues. Volume 108 (2017) will provisionally be published in three parts – one double issue and two single issues.

An annual subscription to EESTRSE costs GBP362/ USD663 (Print plus Online); or GBP314/ USD582 (Online only).

Orders should be placed with Cambridge University Press, Journals Fulfilment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK. Telephone: 44 (0)1223 326070; Fax: 44 (0)1223 325150; email: journals@cambridge.org

EESTRSE is indexed/abstracted in the following: Current Contents/Physical, Chemical & Earth Sciences; Biosciences Information Service; Geoabstracts; GEOBASE; Mineralogical Abstracts; Science Citation Index; SciSearch; VINITI (All-Russian Institute of Scientific and Technical Information); Zoological Record.

© 2019 The Royal Society of Edinburgh

The Royal Society of Edinburgh, Scotland's National Academy, is Scottish Charity No. SC000470

Agora Paleobotanica

Editors

Borja Cascales-Miñana,
Cyrille Prestianni and
Philippe Gerrienne

CONTENTS

B. CASCALES-MIÑANA, C. PRESTIANNI and P. GERRIENNE Welcome to papers from the 4th International Meeting of Agora Paleobotanica – Preface	337
B. CASCALES-MIÑANA, J. Z. XUE, G. RIAL, P. GERRIENNE, P. HUANG and P. STEEMANS Revisiting the spore assemblages from the Lower Devonian Posongchong Formation of Wenshan, Yunnan Province, southwestern China	339
O. A. ORLOVA, N. ZAVIALOVA, S. SNIGIREVSKY, A. JURINA and A. LIDSKAYA <i>Kossoviella timanica</i> Petrosjan emend. from the Upper Devonian of North Timan: morphology and spore ultrastructure	355
M. TANRATTANA, B. MEYER-BERTHAUD and AL. DECOMBEIX Callixylon wendtii sp. nov., a new species of archaeopteridalean progymnosperm from the Late Devonian of Anti-Atlas, Morocco	373
C. J. HARPER, J. GALTIER, T. N. TAYLOR, E. L. TAYLOR, R. RÖßLER and M. KRINGS Distribution of fungi in a Triassic fern stem	387
C. RÍOS-SANTOS and S. R. S. CEVALLOS-FERRIZ Upper Jurassic, Upper Cretaceous and Palaeocene conifer woods from Mexico	399
ZJ. LIU, YM. HOU and X. WANG <i>Zhangwuia</i> : an enigmatic organ with a bennettitalean appearance and enclosed ovules	419
P. ESTÉVEZ-GALLARDO, L. M. SENDER, E. MAYORAL and J. B. DIEZ First evidence of insect herbivory on Albian aquatic angiosperms of the NE Iberian Peninsula	429
L. M. SENDER, H. NISHIDA and J. B. DIEZ The extinct tree fern <i>Tempskya</i> Corda from the Albian of Spain: palaeophytogeographical and palaeoenvironmental implications	437
B. GOMEZ, V. DAVIERO-GOMEZ, G. GARCIA, L. CANER, A. BOURA, A. BARRAL, P. CANTINOLLE and X. VALENTIN Silicified plant megafossils from the upper Turonian of Vienne, western France	449
C. DEL RIO, R. THOMAS and D. DE FRANCESCHI Fruits of Icacinaceae Miers from the Palaeocene of the Paris Basin (Oise, France)	459
A. L. HERNÁNDEZ-DAMIÁN, S. R. S. CEVALLOS-FERRIZ and A. R. HUERTA-VERGARA Fossil flower of <i>Staphylea</i> L. from the Miocene amber of Mexico: New evidence of the Boreotropical Flora in low-latitude North America	471