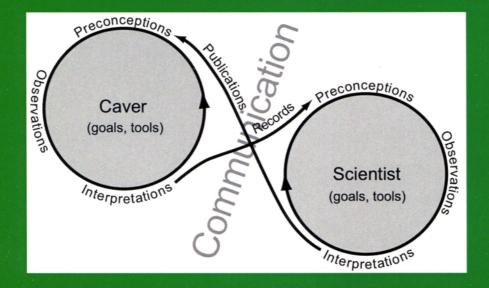
# **EARTH SCIENCES HISTORY**

# JOURNAL OF THE HISTORY OF THE EARTH SCIENCES SOCIETY

**EDITED: David R. Oldroyd** 





Volume 30, Number 1

2011

## EARTH SCIENCES HISTORY

Journal of the History of Earth Sciences Society

EDITOR: David R. Oldroyd, School of History and Philosophy, University of New South Wales, Sydney, NSW 2052, Australia. Tel: 61 2 9449 5559. Fax: 61 2 9402 7635. esh@historyearthscience.org

#### JOURNAL/SOCIETY WEBSITE: www.historyearthscience.org

BOOK REVIEWS EDITOR: Vic Baker, Department of Hydrology and Water Resources The University of Arizona, Tucson, AZ 85721, USA. Tel: 1 520-621-7875 baker@hwr.arizona.edu

PAST EDITORS: Gerald M. Friedman, 1982–1993; Mott T. Greene, 1994–1998; Gregory A. Good, 1999–2004; Patrick Wyse Jackson, 2005–2007

#### **ASSOCIATE EDITORS**

American geology; stratigraphy Kennard Bork Denison University Granville, OH 43023 USA bork@denison.edu

Mineralogy and petrology; petroleum geology William Brice University of Pittsburgh at Johnstown Johnstown, PA 15904 USA wbrice@pitt.edu

Mineralogy and geology; history, sociology and philosophy of geoscience; European geology Bernhard Fritscher Munich Center for the History of Science and Technology Museuminsel 1 D-80306 Munich Germany b.fritscher@lrz.uni-muenchen.de

> Geophysics Gregory Good Center for History of Physics One Physics Ellipse College Park MD 20740 USA

ggood@aip.org *Tectonics* Homer Le Grand

Monash University Caulfield East Victoria 3145 Australia homer.legrand@arts.monash.edu.au Palaeontology; Latin America Maria Margaret Lopes Centro de Estudos de História e Filosofia da Ciência Universidade de Évora Portugal mariamargaretlopes@gmail.com

> Meteorology Cornelia Lüdecke Fernpass strasse 3 D 53115, Germany c.luedecke@lrz.uni-muenchen.de

> > Oceanography Eric Mills Dalhousie University Halifax, Nova Scotia B3H 4JI Canada e.mills@dal.ca

18th and 19th centuries; American geology Julie R. Newell Southern Polytechnic State University 1100 S. Marietta Parkway, Marietta, GA 30060 USA jnewell@spsu.edu

Geomorphology and Quaternary geology Antony Orme University of California, Los Angeles CA 90095-1524 USA orme@geog.ucla.edu History of fieldwork; palaeontology Irina Podgorny Carlos Pellegrini 1219, 8vo. B C1009ABY, Buenos Aires Argentina podgorny@mail.retina.ar

> Geology in Britain James Secord Cambridge University Cambridge CB2 3RH UK

jas1010@hermes.cam.ac.uk

Vertebrate palaeontology, geological education, conservation, Canada David Spalding 1105 Ogden Rd Pender Island BC VON 2MI Canada david@davidspalding.com

18th and 19th centuries; European geology Ezio Vaceari Università dell'Insubria 21100 Varese Italy ezio.vaccari@uninsubria.it

Invertebrate palaeontology; stratigraphy; museums; Ireland Patrick Wyse Jackson Department of Geology Trinity College, Dublin 2 Ireland wysjcknp@tcd.ie

Earth Sciences History is published twice a year. Manuscripts are refereed by at least two reviewers.

To submit a manuscript, or to subscribe to the journal, visit the HESS website at www.historyearthscience.org. Intending authors are invited to contact an Associate Editor or the Editor in advance. Manuscripts *must* conform to the journal's Guidelines (see website) and papers that do not do so will not be referred.

Changes of address: please notify the Society's Treasurer, Dr Emma Rainforth, by e-mail: treasurer@historyearthscience.org.

To join HESS: use the form at the back of the journal or visit the website.

**HESS logo:** Athanasius Kircher's (1602–1680) *Systema ideale prophylaciorum*—imagined view of subterranean fires and surface volcanoes, from *Mundus subterraneus*, 1678, Vol. 1, between pp. 186 and 187.

Front-cover image: The intertwined hermeneutic circles of cavers and scientists, according to Florea and Vlacher.

© 2011 History of the Earth Sciences Society

ISSN 0736-623X (print); ISSN 1944-6187 (on-line)

# EARTH SCIENCES HISTORY

Volume 30, No. 1, 2011

## CONTENTS

Editor's Introduction David Oldroyd	ii
The CIPW System: Part 4 Davis Young	1
American Contributions to the Geological Mapping of Hokkaido, late nineteenth century Kenneth Aalto	39
Part of the History of the Origin of Transform Faults Alan Coode	58
Inventing the Present: Historical Roots of the Anthropocene Robert Davis	63
Communication and 'Forestructures' at the Geological Intersection of Caves and Subsurface Water Flow: Hermeneutics and Parochialism Lee Florea and H. L. Vacher	85
History of Field Observations on Volcanic Rocks of Western Mexico, Pre- Columbian to Recent <b>Eric Swanson</b>	106
The Meteorological Observations in Coimbra and the Portuguese Participation in Weather Forecasting in Europe António José Leonardo, Décio Martins and Carlos Fiolhais	135
Matching Mind and Method with Material: John Imbrie and Quantitative Facies Analysis Léo Laporte	163
David B. Kitts, Metageologist, 1923–2010 Kenneth Taylor	172
Book Review of M. Leddra, <i>Time Matters</i> Vic Baker	176
Notes on Contributors	178
Guidelines for Authors	179
HESS subscription details and back issues	181

### **EDITOR'S INTRODUCTION**

#### DAVID R. OLDROYD

With this issue, *Earth Sciences History* now passes its 'thirty mark'—from youth to maturity perhaps? We welcome Dr Cornelia Lüdecke to the Editorial Board to look after matters to do with the history of meterorology.

**Davis Young** leads off with Part 4 of his epic series of papers on the history of the CIPW system. He confided to me in an email that it was the most difficult paper he had ever written, and that is hardly surprising as the story is immensely complex, even if, thus far, it has only had four principal *dramatis personae*. But, I dare say the number of protagonists will increase in the next part, which will deal with the *reception* of the system.

In the next paper, **Kenneth Aalto** discusses the work of nineteenth-century American geologists in northern Japan, who introduced modern geological ideas and techniques to that part of the world, and trained the next generation of geologists, all Japanese. The story is quite well known to Japanese historians of geology but is not so well known in the West. Aalto reproduces a beautiful early geological map of Hokkaido.

Then **Alan Coode** writes about his role in the early ideas about sea-floor spreading, in relation to the thinking of J. Tuzo Wilson.

**Robert Davis** writes about the 'prehistory' of the notion of the Anthropocene as a unit in the stratigraphic column. That notion is controversial, but we do not think this article should be: it is intended to 'enlighten' the current debates by examining their antecedents.

Lee Florea and Len Vacher then consider the nature of the relationship and the interactions between practical cavers and cave scientists. How do their interests intersect and interact? A model for their cognitive interactions is proposed (see the cover of this issue).

**Eric Swanson** has spent a considerable part of his career investigating the volcanics of the *Sierra Madre Occidental* in Mexico, and especially the ignimbrites. Here he provides an interesting account of the early work in this region, coming through to later times. (It is interesting though that the term 'ignimbrite' was coined by a New Zealander.) It is a pleasure to receive a paper about a Mexican topic.

The paper by José Leonardo, Décio Martins and Carlos Fiolhais prompted the addition of Dr Lüdecke to the membership of the Editorial Board. It deals with the contributions of Portuguese meteorologists, and especially those associated with the University of Coimbra, to the collection of meteorological data—which are especially important for shipping forecasts for the eastern Atlantic and European weather more generally.

Léo Laporte, chiefly known to historians of science for his work on G. G. Simpson, here discusses the early work of his long-time friend John Imbrie and ponders the question of why this earlier work passed relatively un-noticed compared with his later studies on deep-sea Pleistocene cores and climate changes. He suggests that hitting on the right topic for research is every bit as important for fame and fortune as the actual quality of work, or the techniques deployed.

Finally, **Kenneth Taylor** pays his tribute to his late colleague at Oklahoma University, David Kitts. Kitts was more of a geologist–philosopher than a geologist–historian, but his acumen was such that he influenced the previous generation of historians of geology to a notable extent and *Earth Science History* mourns his passing.

This issue contains only one book review, of a book that displeased the reviewer Vic **Baker** considerably. Some in the pipe-line are being held over until 2011 No. 2.