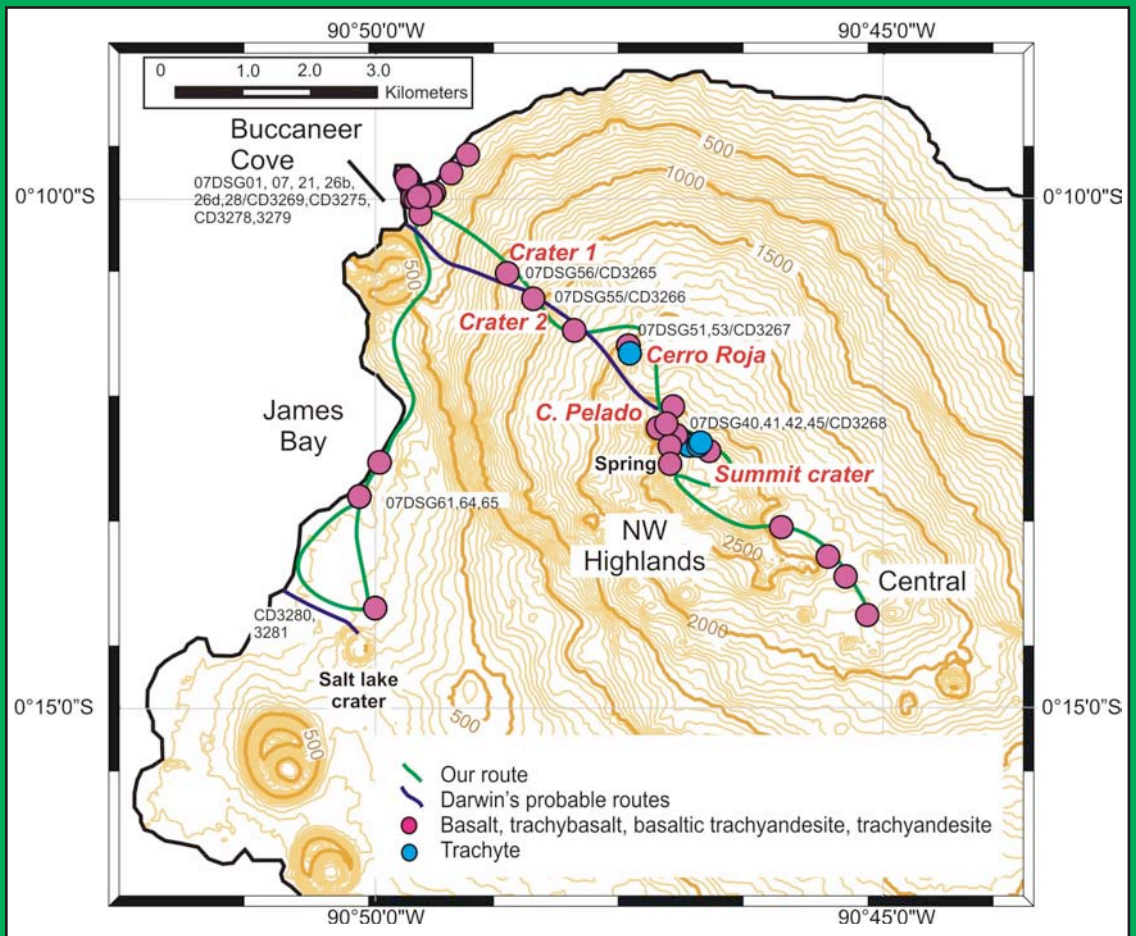
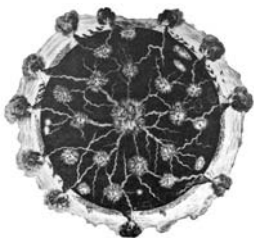


EARTH SCIENCES HISTORY

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OF THE EARTH SCIENCES SOCIETY**



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EDITOR: David R. Oldroyd, University of New South Wales. Postal address: 28 Cassandra Avenue, St Ives, NSW 2075, 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

FOUNDING EDITOR: Gerald M. Friedman, 1982–1993

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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

Paleontology; Latin America
Maria Margaret Lopes
Universidade Estadual de Campinas
Campinas, São Paulo
Brazil
mmlopes@ige.unicamp.br

Oceanography
Eric Mills
Dalhousie University
Halifax, Nova Scotia
B3H 4J1 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; paleontology
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 paleontology, geological education,
conservation, Canada*
David Spalding
1105 Ogden Rd
Pender Island BC
V0N 2M1 Canada
david@davidspalding.com

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

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

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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: Topographic map of the northwest of Isla Santiago, Galápagos Islands, showing the approximate route of Charles Darwin in 1835 and that of an expedition that sought to retrace his footsteps in 2007 (figure prepared by Sally A. Gibson).

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EDITOR'S INTRODUCTION

DAVID R. OLDROYD

The University of New South Wales
28 Cassandra Avenue, St Ives
NSW 2075
Australia
esh@historyearthsciences.org

The year 2009 is, as *everyone* knows, the bicentenary of Darwin's birth and the 150th year since the publication of *On the Origin of Species*—not to mention the bicentenaries of the death of Joseph Haydn and the birth of Felix Mendelssohn, and (as William Brice has informed me) the 150th year since Edwin Drake sank his oil well in Titusville, PA, which kicked off the modern oil industry. And, for good measure, 2009 is the year of *the* Global Financial Crisis. Thus far, and thankfully, HESS is not seriously affected by the GFC and it leaves musical celebrations to other bodies. But *ESH* does want to play its part in remembering the work of Darwin, and notably his geology, which is sometimes overlooked. We therefore think it appropriate that the first paper of the year should be a multi-authored work that describes an expedition made in 2007 to retrace some of Darwin's footsteps in the Galápagos Islands. There he made some remarkably simple but astute petrological observations, on the basis of which he formulated novel ideas of considerable importance in igneous petrology. Darwin's petrological specimens from Isla Santiago are described, and one uncertainty at least in the historical record is cleared up. The seven co-authors are headed by the Darwin aficionado **Sandra Herbert**, whose *Charles Darwin, Geologist* (2005) has been widely acclaimed. The six other contributors are **Sally Gibson**, **David Norman**, **Dennis Geist**, **Greg Estes**, **Thalia Grant**, and **Andrew Miles**.

Almost all readers of this journal will presumably be familiar with Archibald Geikie's *Founders of Geology* (1897) and many will probably have been puzzled by its somewhat cursory treatment of Charles Lyell. In the second paper in this issue, **Leonard Wilson**, well known as a biographer of Lyell, gives an account of a little-known early work by Geikie, which went badly awry but was utilised by Lyell in the first edition of his *Antiquity of Man*. Lyell subsequently emended his book to omit reference to Geikie's erroneous interpretation, but Geikie did not rescind his youthful interpretation; and it appears that the matter led to a 'distance' between Geikie and Lyell that is otherwise difficult to explain. The issue may appear to be but a 'storm in a teacup' but we think it significant as a likely, or at least partial, explanation of the seemingly strained relationship between two of the most influential of nineteenth-century British geologists.

Students of the history of geology in Italy will be familiar with the efforts of Professor Gian Battista Vai of Bologna University to familiarise us with the rather little known work of Luigi Marsigli in 'proto-tectonic' theory, map-work, hydrology, etc. But Marsigli's best-known contributions were in oceanography and his studies of sea floors and marine currents, as well as rivers (notably the Danube). **Bruno Soffientino** and **Michael Pilsen** provide the first English translation of an interesting text (1681) describing Marsigli's detailed investigations of the waters of the Bosphorus channel, undertaken when he was residing in Istanbul.

To the non-geologist, the study of mudstones may seem to be a somewhat esoteric (or mundane?) and uninviting field, but earth-science professionals do not need the theoretical and economic importance of such rocks to be emphasised. In their 'timeline paper', **Paul Potter**, **Barry Maynard**, and **Warren Huff** provide what I think will be a

most useful time-ordered bibliography of the history of the study of mudstones, which we hope will be of real value to students of sedimentary petrology, as was the late H. S. Yoder's 'Timetable of petrology' (1993) for those interested in igneous petrology or S. J. Thompson's *Chronology of Geological Thinking* (1988) for the history of the earth sciences more generally.

ESH (2009, No. 1) also provides something of an innovation for the journal. Two massive books by a former President of HESS—**Martin Rudwick's** *Bursting the Limits of Time* (2005) and *Worlds Before Adam* (2008)—have created a highly favourable impression amongst those interested in the history of geology,¹ and both have received critical acclaim (by yours truly among others). The two books are both extremely important for the field of history of geology, presenting as they do a kind of summation of Professor Rudwick's long years of historical study. The first volume is particularly important for us, as it presents a thesis as to how geology emerged (from theories of the Earth) in the late eighteenth and early nineteenth centuries, becoming a 'historicised' field of investigation. Rudwick's early area of specialisation was invertebrate palaeontology and especially Permian brachiopods and it is from this background in palaeontology and history that his historical work has developed.

However, another scholar, Professor **A. M. Celâl Şengör** from Istanbul, a world authority on tectonics and also a prolific writer on the history of geology, has not been so impressed by *Bursting the Limits of Time* as have some others and he subjects the book to a searching critique in a long essay review. We are glad that Professor Rudwick was willing to respond to Şengör, but he did so on the understanding that there should be no 'reply to the reply'. Moreover, we shall not be willing to publish public correspondence about the exchange. On the other hand, we shall not be displeased if the exchange 'stirs the possum',² as we say in Australia, and encourages people to think deeply about the question of the origins of geology and also the issue of the relations between geology and religion. And we presume that the two protagonists will be interested to receive the views of readers in private or informal correspondence. Professor Rudwick's second volume will be 'scrutinised' in an 'ordinary' review in the September issue of *ESH*.

Another novel feature of the present issue is a 'letter of protest', which is being published in (we believe) *all* history of science journals in their first issues for 2009. *ESH* has gladly joined this protest, the nature of which is self-explanatory, at the invitation of Professor Simon Schaffer, editor of the *British Journal for the History of Science*.

Finally, readers will surely notice the absence of the regular feature 'Interesting Publications' from the present issue. These valuable contributions have been compiled for many years by *ESH's* founding editor, Professor Gerald M. Friedman. Sadly, however, his declining health has prevented him from providing material for the present issue, and it appears likely that the series will have to be discontinued, at least in its present form, though the Editorial Board has been giving consideration to 'alternative arrangements'. We intend to provide an appreciation of Professor Friedman's contributions in the next issue. Also, we should like to take the opportunity to draw readers' attention to a recent autobiographical paper by Friedman—'My Administration of National and International Geological Organizations: Education, Energy, and Environment'—which can be viewed on his website at: <http://www.geraldfridman.com/home>.

¹ See, for example, reviews in *Science* by Naomi Oreskes (27 October, 2006, pp. 596–597) and Ralph O'Connor (12 September, 2008, pp. 1447–1448).

² Stirring the possum: to liven things up, create a disturbance; raise issues that others [may] wish left dormant (G. A. Wilkes, *Australian Dictionary of Colloquialisms*).

JOURNALS UNDER THREAT: A JOINT RESPONSE FROM HISTORY OF SCIENCE, TECHNOLOGY AND MEDICINE EDITORS

We live in an age of metrics. All around us, things are being standardized, quantified, measured. Scholars concerned with the work of science and technology must regard this as a fascinating and crucial practical, cultural and intellectual phenomenon. Analysis of the roots and meaning of metrics and metrology has been a preoccupation of much of the best work in our field for the past quarter century at least. As practitioners of the interconnected disciplines that make up the field of science studies we understand how significant, contingent and uncertain can be the process of rendering nature and society in grades, classes and numbers.

We now confront a situation in which our own research work is being subjected to putatively precise accountancy by arbitrary and unaccountable agencies. Some may already be aware of the proposed European Reference Index for the Humanities (ERIH), an initiative originating with the European Science Foundation. The ERIH is an attempt to grade journals in the humanities—including “history and philosophy of science”. The initiative proposes a league table of academic journals, with premier, second and third divisions. According to the European Science Foundation, ERIH “aims initially to identify, and gain more visibility for, top-quality European Humanities research published in academic journals in, potentially, all European languages”. It is hoped “that ERIH will form the backbone of a fully-fledged research information system for the Humanities”. What is meant, however, is that ERIH will provide funding bodies and other agencies in Europe and elsewhere with an allegedly exact measure of research quality. In short, if research is published in a premier league journal it will be recognized as first rate; if it appears somewhere in the lower divisions, it will be rated (and not funded) accordingly.

This initiative is entirely defective in conception and execution. Consider the major issues of accountability and transparency. The process of producing the graded list of journals in science studies was overseen by a committee of four, the membership of which is currently listed at:

<http://www.esf.org/research-areas/humanities/research-infrastructures-including-erih/erih-governance-and-panels/erih-expert-panels.html>.

This committee cannot be considered representative. It was not selected in consultation with any of the various disciplinary organizations that currently represent our field such as the European Association for the History of Medicine and Health, the Society for the Social History of Medicine, the British Society for the History of Science, the History of Science Society, the Philosophy of Science Association, the Society for the History of Technology or the Society for Social Studies of Science. Journal editors were only belatedly informed of the process and its relevant criteria or asked to provide any information regarding their publications. No indication has been given of the means through which the list was compiled; nor how it might be maintained in the future.

The ERIH depends on a fundamental misunderstanding of conduct and publication of research in our field, and in the humanities in general. Journals’ quality cannot be separated from their contents and their review processes. Great research may be published anywhere and in any language. Truly ground-breaking work may be more likely to appear from marginal, dissident or unexpected sources, rather than from a well-established and entrenched mainstream. Our journals are various, heterogeneous and distinct. Some are aimed at a broad, general and international readership, others are more specialized in their content and implied audience. Their scope and readership say nothing about the quality of their intellectual content. The ERIH, on the other hand, confuses internationality with quality in a way that is particularly prejudicial to specialist and non-English language

journals. In a recent report, the British Academy, with judicious understatement, concludes that “the European Reference Index for the Humanities as presently conceived does not represent a reliable way in which metrics of peer-reviewed publications can be constructed” (Peer Review: the Challenges for the Humanities and Social Sciences, September 2007: <http://www.britac.ac.uk/reports/peer-review>). Such exercises as ERIH can become self-fulfilling prophecies. If such measures as ERIH are adopted as metrics by funding and other agencies, then many in our field will conclude that they have little choice other than to limit their publications to journals in the premier division. We will sustain fewer journals, much less diversity and impoverish our discipline.

Along with many others in our field, this Journal has concluded that we want no part of this dangerous and misguided exercise. This joint Editorial is being published in journals across the fields of history of science and science studies as an expression of our collective dissent and our refusal to allow our field to be managed and appraised in this fashion. We have asked the compilers of the ERIH to remove our journals’ titles from their lists.

Hanne Andersen (*Centaurus*)
 Roger Ariew and Moti Feingold (*Perspectives on Science*)
 A. K. Bag (*Indian Journal of History of Science*)
 June Barrow-Green and Benno van Dalen (*Historia mathematica*)
 Keith Benson (*History and Philosophy of the Life Sciences*)
 Marco Beretta (*Nuncius*)
 Michel Blay (*Revue d’histoire des sciences*)
 Cornelius Borck (*Berichte zur Wissenschaftsgeschichte*)
 Geof Bowker and Susan Leigh Star (*Science, Technology and Human Values*)
 William Brice (*Oil Science History*)
 Massimo Bucciantini and Michele Camerota (*Galilaeana: Journal of Galilean Studies*)
 Jed Buchwald and Jeremy Gray (*Archive for History of Exact Sciences*)
 Vincenzo Cappelletti and Guido Cimino (*Physis*)
 Mark Clark and Alex Keller (*ICON*)
 Roger Cline (*International Journal for the History of Engineering and Technology*)
 Stephen Clucas and Stephen Gaukroger (*Intellectual History Review*)
 Hal Cook and Anne Hardy (*Medical History*)
 Leo Corry, Alexandre Métraux and Jürgen Renn (*Science in Context*)
 Brian Dolan and Bill Luckin (*Social History of Medicine*)
 Hilmar Duerbeck and Wayne Orchiston (*Journal of Astronomical History & Heritage*)
 Moritz Epple, Mikael Hård, Hans-Jörg Rheinberger and Volker Roelcke (*NTM: Zeitschrift für Geschichte der Wissenschaften, Technik und Medizin*)
 Steven French (*Metascience*)
 Paul Farber (*Journal of the History of Biology*)
 Mary Fissell and Randall Packard (*Bulletin of the History of Medicine*)
 Robert Fox (*Notes and Records of the Royal Society*)
 Jim Good (*History of the Human Sciences*)
 Willem Hackmann (*Bulletin of the Scientific Instrument Society*)
 Robert Halleux (*Archives internationales d’histoire des sciences*)
 Bosse Holmqvist (*Lychnos*)
 Rod Home (*Historical Records of Australian Science*)
 Michael Hoskin (*Journal for the History of Astronomy*)
 Ian Inkster (*History of Technology*)
 Marina Frasca Spada (*Studies in History and Philosophy of Science*)
 Nick Jardine (*Studies in History and Philosophy of Biological and Biomedical Sciences*)
 Trevor Levere (*Annals of Science*)

Bernard Lightman (*Isis*)
 Christoph Lüthy (*Early Science and Medicine*)
 Michael Lynch (*Social Studies of Science*)
 Stephen McCluskey and Clive Ruggles (*Archaeoastronomy: The Journal of Astronomy in Culture*)
 Peter Morris (*Ambix*)
 E. Charles Nelson (*Archives of Natural History*)
 Ian Nicholson (*Journal of the History of the Behavioural Sciences*)
 David Oldroyd (*Earth Sciences History*)
 Kathy Olesko (*Osiris*)
 Liliane Pérez (*Documents pour l'histoire des techniques*)
 Iwan Rhys Morus (*History of Science*)
 John Rigden and Roger Stuewer (*Physics in Perspective*)
 Julio Samsó (*Suhayl: Journal for the History of the Exact and Natural Sciences in Islamic Civilisation*)
 Simon Schaffer (*British Journal for the History of Science*)
 Norbert Schappacher (*Revue d'histoire des mathématiques*)
 Claire Strom (*Agricultural History*)
 Paul Unschild (*Sudhoffs Archiv*)
 Peter Weingart (*Minerva*)
 Stefan Zamecki (*Kwartalnik Historii Nauki i Techniki*)
 Huib Zuidervaart (*Studium: Tijdschrift Voor Wetenschaps- en Universiteits-geschiedenis / Revue de l'histoire des sciences et des universités*)