

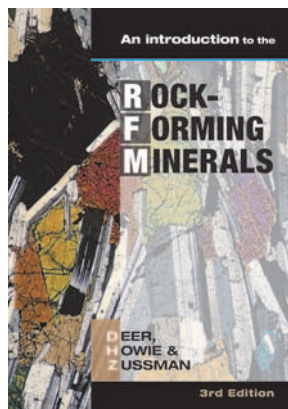


Mineralogical Society of Great Britain and Ireland

www.minersoc.org

NOTES FROM LONDON

Introduction to the Rock-Forming Minerals, 3rd edition, published



In this third edition of 'DHZ', most of the commonly occurring minerals of igneous, metamorphic and sedimentary rocks are discussed in terms of structure, chemistry, optical and other physical properties, distinguishing features and paragenesis. Important correlations between these aspects of mineralogy are emphasized wherever possible. The content of each section has been updated where needed in the light of published research over the 21 years since the second edition. Tables with over 200 chemical analyses and formulae are included and a number of older entries have been replaced by more recent examples.

Major new features:

- Over 60 colour photographs of minerals in thin section under the petrological microscope
- Colour improvements to earlier illustrations of crystal structures
- Entirely new views of crystal structures in perspective using CrystalMaker® colour images
- Free CrystalViewer™ interactive CD with over 100 mineral structures
- Guide for use of the table of mineral data and optical-orientation sketches
- Mineral-identification table based on birefringence and listing other properties
- Colour strip with appropriate interference colours and birefringences for the main rock-forming minerals
- Expanded reading lists
- Short 'boxed' sections summarizing important features of the main mineral groups
- Considerably expanded treatment of zeolites and a major revision of the feldspar chapters

This book will be useful to undergraduate students of mineralogy, petrology and geochemistry, especially those in their third or fourth year or engaged in more advanced courses or specialized projects, and also as a reference work for students working towards a master's degree through taught courses or research. For doctoral students and researchers in the Earth sciences, in materials science and in related disciplines, this work will be useful as a condensed version of the very extensive treatment presented in the volumes of the DHZ series *Rock-Forming Minerals*, second edition.

Copies of the book are available from the Mineralogical Society's online bookshop (www.minersoc.org) (list price £55, member price £35), from the Geological Society (London) (www.geolsoc.org.uk/bookshop) and from the Mineralogical Society of America (www.minsocam.org).

Future Meetings

"Building Strong Continents"



The Metamorphic Studies Group (a joint special interest group of the Mineralogical Society and the Geological Society) is hosting an international, interdisciplinary, three-day meeting focused on the geochemical, geophysical and geobiological processes that have governed the evolution of the continental crust through time.

Check the conference website at www.port.ac.uk/special/buildingstrongcontinents for details of the pre-conference workshop on in situ analytical techniques and for descriptions of the post-conference field trips to Guernsey, Sark and Brittany and to the Lewisian Gneiss Complex of northwestern Scotland.

The conference features the following themes:

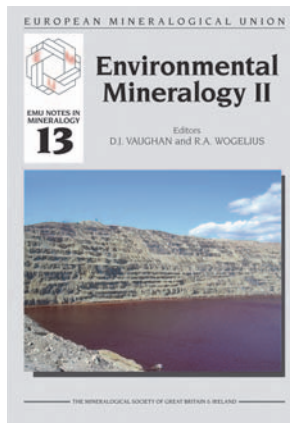
- Early Earth and the Archaean (Hugh Rollinson, theme leader)
- Metamorphic controls and responses (MSG; Simon Harley, theme leader; Mike Brown, Maryland, keynote)
- Magmatic processes and records (Bruno Dhuime, theme leader; Jon Davidson, Durham, keynote)
- Large igneous provinces through time (VMMSG; Mike Widdowson, theme leader; Richard Ernst, keynote)
- Tectonic controls and responses (Clare Warren and Kent Condie, theme leaders; Kent Condie, New Mexico, MinSoc Hallimond Lecturer)
- The lower crustal perspective (Hilary Downes, Birkbeck, theme leader)
- The subcontinental lithospheric mantle (Kathryn Goodenough, BGS, theme leader)
- Modelling of subduction zones, collision zones and continent growth (Jeroen van Hunen, keynote)
- Physical properties of the lithosphere (Phil Benson, Portsmouth, theme leader)
- Mineralization (Martin Smith, theme leader)
- Sedimentary records and environmental consequences (Neil Davies, Cambridge, keynote)

We intend this to be an open and collaborative meeting, with plenty of time for discussion leading to some real agreement on the state of the art and any key missing areas of research and collaboration. To facilitate this, theme leaders will summarize the main points arising from contributions during the conference. A panel of theme leaders will then discuss key questions arising from the presentations, areas of collaboration that could address key questions and resources that may be required. They may then make recommendations, which could include publications, collaborative working groups and future meetings/workshops. They will address the delegates with their findings and open up the floor for discussion.

Convenors: Craig Storey (craig.storey@port.ac.uk), Mike Fowler (mike.fowler@port.ac.uk), Rob Strachan (rob.strachan@port.ac.uk), James Darling (james.darling@port.ac.uk) and Emilie Bruand (emilie.bruand@port.ac.uk); Metamorphic Studies Group (p.treloar@kingston.ac.uk)

Website: www.port.ac.uk/special/buildingstrongcontinents

EUROPEAN NOTES IN MINERALOGY, VOLUME 13: ENVIRONMENTAL MINERALOGY II



The latest volume in the EMU series, *Environmental Mineralogy II*, is a significant revision of the first edition published in 2002. The book begins with a review of the analytical, experimental and computational methods of importance in environmental mineralogy (R. A. Wogelius and D. J. Vaughan). These include long-established techniques used to characterize minerals and mineral associations, and the newer methods that can be used to study very fine-particle solids, mineral surfaces, and interactions between mineral surfaces and fluids. Examples are given of analytical, experimental and computational approaches applied to

important mineral systems. There follows a major section addressing 'key environmental systems'. First, soils are reviewed by D. A. C. Manning in regard to the mineralogical aspects of soil formation and the anthropogenic impacts on soils. Then the mineralogy of modern sediments is presented by A. Aplin and K. Taylor, including the processes of sediment formation and modification through natural mechanisms and mechanisms associated with pollutants. Microbial interactions with minerals are discussed by S. Welch and J. Banfield, and the mineralogy of atmospheric aerosol particles are considered by M. Pósfai and A. Molnár. The five remaining major chapters are each devoted to a specific environmental problem in the context of the relevant mineralogy. These are: metalliferous and related mine wastes (D. Blowes, C. J. Ptacek and J. Jambor); industrial and domestic waste disposal and containment (R. Hermanns Stengele and M. Plötze); nuclear waste (C. D. Curtis and K. Morris); the buildings and monuments that constitute our collective cultural heritage (G. Chiari); and the particular relationship between minerals and human health (H. C. W. Skinner).

The book is available (£40 to institutions, £25.50 to individuals) from the Mineralogical Society online bookshop (www.minersoc.org), and also through the Geological Society (www.geolsoc.org.uk/bookshop) and the Mineralogical Society of America (www.minsocam.org) online bookshops.

Kevin Murphy, Executive Director

MEETING REPORT

"Volcanism, Impacts and Mass Extinctions: Causes and Effects"



The Natural History Museum in London recently hosted an international, multidisciplinary conference that brought together 150 researchers in geology, geophysics, geochemistry, volcanology, sedimentology, palaeontology and astronomy to review and assess recent research into the causes of mass extinction events. Participants included seasoned experts, younger researchers and students. Through listening and learning from each other and by constructive discussions, a collaborative and multidisciplinary approach to resolving

outstanding problems in this field was explored. The data and concepts presented and discussed at the meeting also have value well beyond the geosciences, particularly with regard to understanding modern environmental crises.

The main conclusions of the conference were:

1. Large igneous province volcanism, along with associated climate and environmental changes, is likely to have played a significant role in at least four of the five major mass extinctions in Earth history: the end-Cretaceous, end-Triassic, end-Permian (comprising two distinct extinction events) and end-Devonian. However, the exact causal mechanisms by which 50–90% of the species preserved in the fossil record went extinct at each event remain to be worked out. Better age control for individual lava units and extinction events is critical to establishing the relationship between causes and effects.

2. There was overwhelming agreement that a single large asteroid or comet impact (Chicxulub) could not have been the sole cause of the end-Cretaceous mass extinction, but rather was a contributing factor. The long-term biological, environmental and climatic changes before, at and after the bolide impact call for a multicausal scenario, certainly involving volcanism and possibly multiple impacts or comet showers.

3. Participants gained an improved understanding of how large igneous province eruptions affect the biosphere. This resulted from data and conclusions derived from atmospheric chemistry, the geochronology of eruptions, the associated mechanisms of climatic changes and the direct effects on species-level extinctions.

4. Mass extinction patterns can tell us much about the age, tempo and nature of the catastrophe and the types of environments that were most affected. We know most about the end-Cretaceous mass extinction. However, similarly detailed records are still needed for the other mass extinctions. If common patterns, or critical differences, among all mass extinctions are found, these can yield critical evidence for or against specific extinction mechanisms.

5. Ultimately, the effects of volcanism, impacts, changes in sea level and climate (warming and cooling), ocean acidification, ocean anoxia and atmospheric changes have to be considered in any extinction scenario in order to understand the causes and consequences of mass extinctions. Moreover, these data hold keys to help us understand, and cope with, the looming environmental and extinction crises in the modern world.



Michael Benton (Bristol), speaking at the "Extinctions" meeting.
PHOTO COURTESY NHM

A planned GSA Special Paper will serve not only as a lasting record of the meeting but will also act as an important guide for the multidisciplinary studies still needed to resolve the outstanding problems in understanding the causes and effects of mass extinctions. See also Keller et al. (2013) at www.geolsoc.org.uk/Geoscientist/Archive/November-2012/Volcanism-impacts-and-mass-extinctions-2.

The conference was supported by The Natural History Museum (London); the Mineralogical Society of Great Britain and Ireland; the Volcanic and Magmatic Studies Group of the UK; the Solid Earth Composition and Evolution Working Group of the IMA; the Society of Sedimentary Geology; the Earth Science Institute, Lausanne University, Switzerland; and the Department of Geosciences, Princeton University.

Andrew C. Kerr, Gerta Keller, Norman MacLeod