



Mineralogical Society of Great Britain and Ireland

www.minersoc.org

FOCUS ON SPECIAL INTEREST GROUPS

Did you know that several of the Mineralogical Society's Special Interest Groups – the Geochemistry Group, the Volcanic and Magmatic Studies Group and the Applied Mineralogy Group – now publish their own newsletters? You can receive your own copy by contacting the respective Group Secretaries and asking to be added to their mailing list. For example, the Applied Mineralogy Group has launched the *Applied Mineralogist*, and you can receive a copy by contacting Eimear Deady (eimear@bgs.ac.uk).



The most recent issue of *Applied Mineralogist* included a very interesting contribution by former chairman, Dave Alderton:

LITHIUM MINING IN THE UK?

The recently announced plans to undertake lithium exploration in Cornwall have been widely reported and have generated a flurry of newspaper headlines. It is very early days, but how justified is this excitement?

Undoubtedly, the demand for lithium has increased greatly over the last decade. The metal has many applications – in lubricants, ceramics and fluxes – but the main interest stems from its use in Li-ion rechargeable batteries. The growth in the consumer-electronics industry and demand for electric cars has necessitated the development of ever smaller and more powerful batteries and here lithium comes into its own. This increase in demand (coupled with a lack of recycling) has resulted in a dramatic rise in price and consequently a concomitant increase in exploration for new deposits.

Traditionally, lithium has been extracted from granitic pegmatites, utilising silicate minerals (spodumene, petalite, lepidolite). As such, Australia has had the major market share. However, lithium is being increasingly extracted from brines under salt lakes ('salars') and here the production and reserves are dominated by countries in South America (Chile, Argentina, Bolivia); they now contribute approximately half of the world's supply. Processing from brines is cheaper than from silicates and this advantage is compounded by the availability here of large expanses of land and cheap solar power to aid the brine evaporation process.

Britain does possess granitic rocks enriched in lithium, notably in SW England where the lithium is mainly concentrated in mica. But as yet, no viable deposits have been identified, even allowing for the fact that this material sometimes has to be disposed of as waste (e.g. from the china clay industry). However, it has been known since the mid-1800s that thermal springs (up to 60°C) encountered at depth in some of the mines in Cornwall are also enriched in lithium (e.g. the "Lithia spring" encountered in the former copper-tin mine of Wheal Clifford). It is these that are the focus of this recent exploration announcement.

The technology for lithium extraction from geothermal waters is in its infancy, and there will be several challenges to make Cornish Lithium Ltd's venture economic and able to compete with other sources. Salt-lake brines typically contain 200 to >1,000 mg/L Li, compared to the lower concentrations measured so far in the Cornish brines, which only rarely exceed 100 mg/L. In addition, it remains to be seen whether flow rates and concentrations are sufficient and can be maintained during extended periods of pumping. This is an exciting project, but only time will tell whether the optimistic press reports of "vast resources" and the "mining revolution" are borne out.

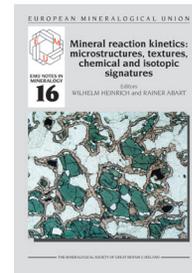
Information about this and the other society Special Interest Groups is available from the society website at <http://www.minersoc.org/groups.html>.

DID YOU GET YOUR COPY OF OUR NEW BOOK IN THE EMU NOTES IN MINERALOGY SERIES YET?

A new title in the European Mineralogical Union (EMU) series Notes in Mineralogy has been published: *Mineral Reaction Kinetics: Microstructures, Textures, Chemical and Isotopic Signatures*, edited by W. Heinrich and R. Abart.

This volume arose from an EMU 'School' held in Vienna in September 2016 and provides a methodologically sound insight into the theoretical foundations of mineral reaction kinetics. The principle aim is to help students and others become acquainted with contemporary methods in experimental and analytical techniques and to give worked examples that illustrate recent advances in geoscience based on an improved characterization and understanding of mineral and rock systems.

The book is available from the Mineralogical Society online bookshop: www.minersoc.org (click on bookshop) at a price of £55 (institutions) and £40 for individuals (+ shipping). It is also available from the MSA Online bookshop and from Amazon.co.uk and Amazon.com.



REDOX-ACTIVE MINERALS IN NATURAL SYSTEMS

Clay Minerals Group, Geomicrobiology Network, Environmental Mineralogy Group, Geochemistry Group of the Mineralogical Society

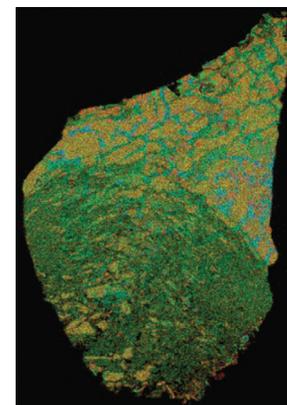
University of Manchester, UK
21–22 June 2017

Don't forget our multigroup meeting this June in Manchester (UK). Four of the Special Interest Groups of the Mineralogical Society will come together for a summer 2017 meeting under the themed title of "Redox-Active Minerals in Natural Systems". The meeting will consist of two days of scientific sessions (including a poster session).

Each of the society's Special Interest Groups will sponsor a session at the meeting, with delegates encouraged to move between sessions. There will be a minimum of five keynote speakers:

- Geomicrobiology Network (contact Vernon Phoenix Vernon.phoenix@strath.ac.uk): speaker Amelia-Elena Rotaru (University of Southern Denmark).
- Clay Minerals Group (contact Chris Greenwell: chris.greenwell@durham.ac.uk): speaker Anke Neumann (University of Newcastle, UK).
- Geochemistry Group (contact Jason Harvey feejh@leeds.ac.uk): speaker Susan Little (Imperial College, London).
- Environmental Mineralogy Group (contact Andy Bray: A.W.Bray@leeds.ac.uk): speaker Rob Newton (University of Leeds, UK).
- Mineralogical Society Hallimond Lecturer: Barrie Johnson (Bangor University, Wales).

Check the society's website for details (www.minersoc.org/Redox).



RECENT CONTENT IN SOCIETY JOURNALS

Check new content in both *Mineralogical Magazine* (www.minersoc.org, members click on login; <http://www.ingentaconnect.com/content/minsoc/mm> and <http://minmag.geoscienceworld.org/>) and *Clay Minerals* (www.minersoc.org, members click on login; <http://www.ingentaconnect.com/content/minsoc/cm> and <http://claymin.geoscienceworld.org/>)

The March 2017 issue of *Clay Minerals* includes an Open Access review paper by Lynda Williams of Arizona State University:

 Geomimicry: Harnessing the antibacterial action of clays (doi: 10.1180/claymin.2017.052.1.01), by L.B. Williams.



The April 2017 issue of *Mineralogical Magazine* includes the following papers:

Leone Melluso, Vincenze Guarino, Michele Lustrino, Vincenzo Morra and Roberto de' Gennaro. The REE- and HFSE-bearing phases in the Itatiaia alkaline complex (Brazil) and geochemical evolution of feldspar-rich felsic melts.

M. Lacalamita, E. Mesto, E. Kaneva, F. Scordari, G. Pedrazzi, N. Vladykin and E. Schingaro. Structure refinement and crystal chemistry of tokkoite and tinaksite from the Murun massif (Russia).

Anthony R. Kampf, Jakub Plašil, Anatoly V. Kasatkin, J. Marty, Jiří Čejka and Ladislav Lapčák. Shumwayite, $[(\text{UO}_2)(\text{SO}_4)(\text{H}_2\text{O})_2]_2 \cdot \text{H}_2\text{O}$, a new uranyl sulfate mineral from Red Canyon, San Juan County, Utah, USA.

I.E. Grey, E. Keck, A.R. Kampf, C.M. MacRae, A.M. Glenn and J. R. Price. Wilhelmgümbelite, $[\text{ZnFe}^{2+}(\text{PO}_4)_3(\text{OH})_4(\text{H}_2\text{O})_5] \cdot 2\text{H}_2\text{O}$, a new schoonerite-related mineral from the Hagendorf Süd pegmatite, Bavaria.

Mark D. Welch and Anthony R. Kampf. Stoichiometric partially-protonated states in hydroxide perovskites: the jeanbandyite enigma revisited.

F. Cámara, E. Bittarello, M.E. Ciriotti, F. Nestola, F. Radica, F. Massimi, C. Balestra and R. Bracco. As-bearing new mineral species from Valletta mine, Maira Valley, Piedmont, Italy: III. Canosioite, $\text{Ba}_2\text{Fe}^{3+}(\text{AsO}_4)_2(\text{OH})$, description and crystal structure.

Anthony R. Kampf, Barbara P. Nash, Joe Marty and John M. Hughes. Mesaitite, $\text{Ca}(\text{V}_2\text{O}_7)_3 \cdot 12\text{H}_2\text{O}$, a new vanadate mineral from the Packrat mine, near Gateway, Mesa County, Colorado, USA.

I.E. Grey, E. Keck, A.R. Kampf, W.G. Mumme, C.M. MacRae, R.W. Gable, A.M. Glenn and C.J. Davidson. Steinmetzite, $\text{Zn}_2\text{Fe}^{3+}(\text{PO}_4)_2(\text{OH}) \cdot 3\text{H}_2\text{O}$, a new mineral formed from alteration of phosphophyllite at the Hagendorf Süd pegmatite, Bavaria.

E. Schingaro, E. Mesto, M. Lacalamita, F. Scordari, E. Kaneva and F. N. Vladykin. Single-crystal X-ray diffraction, EMPA, FTIR and X-ray photoelectron spectroscopy study of narsarsukite from Murun Massif, Russia.

Dan Topa and Emil Makovicky. The crystal structure of veenite.

F. Cámara, E. Sokolova, Y.A. Abdu, F.C. Hawthorne, T. Charrier, V. Dorcet and J.-F. Carpentier. Fogoite-(Y), $\text{Na}_3\text{Ca}_2\text{Y}_2\text{Ti}(\text{Si}_2\text{O}_7)_2\text{OF}_3$, a Group I TS-block mineral from the Lagoa do Fogo, the Fogo volcano, São Miguel Island, the Azores: Description and crystal structure.

A.N. Sapozhnikov, E.V. Kaneva, L.F. Suvorova, V.I. Levitsky and L.A. Ivanova. Sulfhydrylbystrite, $\text{Na}_5\text{K}_2\text{Ca}(\text{Al}_6\text{Si}_6\text{O}_{24})(\text{S}_5)(\text{SH})$, a new mineral with the LOS framework, and re-interpretation of bystrite: cancrinite-group minerals with novel extra-framework anions.

CNMNC Newsletter 36

This latest newsletter of the Commission on New Minerals, Nomenclature and Classification (CNMNC) provides information on new minerals and nomenclature modifications approved in 2017. See <http://minmag.geoscienceworld.org/content/gsmminmag/81/2/403.full.pdf>.

Coming soon in *Mineralogical Magazine*:

 Roger H. Mitchell, Mark D. Welch and Anton R. Chakhmouradian.

Nomenclature of the perovskite supergroup: A hierarchical system of classification based on crystal structure and composition.

Anthony R. Kampf, George R. Rossman, Chi Ma and Peter A. Williams. Kyawthuite, $\text{Bi}^{3+}\text{Sb}^{5+}\text{O}_4$, a new gem mineral from Mogok, Burma (Myanmar).

