

Mineralogical Magazine

PRINCIPAL EDITORS

R. H. MITCHELL M. D. WELCH P. A. WILLIAMS

Volume 75

(Nos. 488–493, 2011)

THE MINERALOGICAL SOCIETY

12 BAYLIS MEWS, AMYAND PARK ROAD,
TWICKENHAM TW1 3HQ,

2011

CONTENTS

[No. 488, FEBRUARY 2011]

Review

- P. C. BURNS. Nanoscale uranium-based cage clusters inspired by uranium mineralogy 1

CNMNC Newsletter 7

- P. A. WILLIAMS, F. HATERT, M. PASERO and S. J. MILLS: New minerals and nomenclature modifications approved in 2010 27
- A. M. CALLEGARI, M. BOIOCCHI, F. BELLATRECCIA, E. CAPRILLI, O. MEDENBACH and A. CAVALLO: Capranicaite, $(K, \square)(Ca, Na)Al_4B_4Si_2O_{18}$: a new inosilicate from Capranica, Italy, with a peculiar topology of the periodic single chain $[Si_2O_6]$ 33
- C. L. CORKHILL, M. C. WARREN and D. J. VAUGHAN: Investigation of the electronic and geometric structures of the (110) surfaces of arsenopyrite (FeAsS) and enargite (Cu_3AsS_4) 45
- A. J. LUSSIER, F. C. HAWTHORNE, Y. ABDU, S. HERWIG, V. K. MICHAELIS, P. M. AGUIAR and S. KROEKER: The crystal chemistry of 'wheatsheaf' tourmaline from Mogok, Myanmar 65
- J. SCHILLING, F.-Y. WU, C. MCCAMMON, T. WENZEL, M. A. W. MARKS, K. PFAFF, D. E. JACOB and G. MARKL: The compositional variability of eudialyte-group minerals 87
- R. GRAPES: Experimental breakdown of staurolite + inclusions of albite and muscovite at 800°C and 0.1 GPa 117
- S. J. MILLS, M. S. RUMSEY, G. FAVREAU, J. SPRATT, M. RAUDSEPP and M. DINI: Bariopharmacolumite, a new mineral species from Cap Garonne, France and Mina Grande, Chile 135
- I. E. GREY, F. L. SHANKS, N. C. WILSON, W. G. MUMME and W. D. BIRCH: Carbon incorporation in plumbogummite-group minerals 145

Letter

- J. MAJKA, J. PRŠEK, B. BUDZYŃ, P. BAČÍK, A. K. BARKER and M. ŁODZIŃSKI: Fluorapatite-hingganite-(Y) coronas as products of fluid-induced xenotime-(Y) breakdown in the Skoddefjellet pegmatite, Svalbard 159
- A. G. SHTUKENBERG and YU. O. PUNIN: Micromorphological instability of a growing face as a source of oscillatory zoning in crystals 169
- S. ILNICKI: Variscan prograde *P-T* evolution and contact metamorphism in metabasites from the Sowia Dolina, Karkonosze-Izera massif, SW Poland 185
- A. J. LUSSIER and F. C. HAWTHORNE: Short-range constraints on chemical and structural variations in bavenite 213
- R. KRYZA, A. P. WILLNER, H.-J. MASSONNE, A. MUSZYŃSKI and H.-P. SCHERTL: Blueschist-facies metamorphism in the Kaczawa Mountains (Sudetes, SW Poland) of the Central-European Variscides: *P-T* constraints from a jadeite-bearing metatrachyte 241
- Book reviews 265
- Erratum 267

[No. 489, APRIL 2011]

- W. D. BIRCH, I. E. GREY, S. J. MILLS, A. PRING, C. BOUGEROL, A. RIBALDI-TUNNICLIFFE, N. C. WILSON and E. KECK: Nordgauite, $MnAl_2(PO_4)_2(F, OH)_2 \cdot 5H_2O$, a new mineral from the Hagendorf-Süd pegmatite, Bavaria, Germany: description and crystal structure 269
- LIHUA DING, GUANG YANG, FANG XIA, CLAIRE E. LENEHAN, GUJIE QIAN, AOIFE MCFADDEN, JOËL BRUGGER, XIANGHUA ZHANG, GUORONG CHEN and ALLAN PRING: A LA-ICP-MS sulphide calibration standard based on a chalcogenide glass 279

CONTENTS

CNMNC Newsletter 8

P. A. WILLIAMS, F. HATERT, M. PASERO and S. J. MILLS: New minerals and nomenclature modifications approved in 2011	289
A. R. CABRAL, G. BEAUDOIN and F. MUNNIK: Lead in diagenetic pyrite: evidence for Pb-tolerant bacteria in a red-bed Cu deposit, Quebec Appalachians, Canada	295
A. PIECZKA, E. S. GREW, L. A. GROAT and R. J. EVANS: Holtite and dumortierite from the Szklary Pegmatite, Lower Silesia, Poland	303
P. ELLIOTT and A. C. WILLIS: The crystal structure of perloffite	317
S. J. MILLS, A. R. KAMPF, J. SEJKORA, P. M. ADAMS, W. D. BIRCH and J. PLÁŠIL: Iangreyite: a new secondary phosphate mineral closely related to perhamite	327
O. I. SIDRA, S. V. KRIVOVICHEV, N. V. CHUKANOV, I. V. PEKOV, A. MAGGANAS, A. KATERINOPOULOS and P. VOUDOURIS: The crystal structure of $Pb_5(As^{3+}O_3)Cl_7$ from the historic slags of Lavrion, Greece – a novel Pb(II) chloride arsenite	337
M. FIALIN, C. WAGNER and M.-L. PASCAL: Iron speciation using electron microprobe techniques: application to glassy melt pockets within a spinel lherzolite xenolith	347
X. HU, X. LIU, Q. HE, H. WANG, S. QIN, L. REN, C. M. WU and L. CHANG: Thermal expansion of andalusite and sillimanite at ambient pressure: a powder X-ray diffraction study up to 1000°C	363
E. SATO, I. NAKAI, Y. TERADA, Y. TSUTSUMI, K. YOKOYAMA, R. MIYAWAKI and S. MATSUBARA: Beaverite-(Zn), $Pb(Fe_2Zn)(SO_4)_2(OH)$, a new member of the alunite group, from Mikawa Mine, Niigata Prefecture, Japan	375
T. ARMBRUSTER, B. LAZIC, F. GFELLER, E. V. GALUSKIN, I. O. GALUSKINA, V. B. SAVELYEVA, A. E. ZADOV, N. N. PERTSEV and P. DZIERŻANOWSKI: Chlorine content and crystal chemistry of dellaite from the Birkhin gabbro massif, Eastern Siberia, Russia	379

[No. 490, JUNE 2011]

Goldschmidt Abstracts 2011

[No. 491, AUGUST 2011]

Nuclear Waste Management Conference, Cambridge, September 2010

Introduction	2357
<i>Review</i>	
R. C. EWING: Actinides and radiation effects: impact on the back-end of the nuclear fuel cycle	2359
A. R. FELMY, E. S. ILTON, K. M. ROSSO and J. M. ZACHARA: Interfacial reactivity of radionuclides: emerging paradigms from molecular-level observations	2379
T. BEIRAU, C. PAULMANN and U. BISMAYER: Recrystallization of metamict allanite	2393
D. SAVAGE: A review of analogues of alkaline alteration with regard to long-term barrier performance	2401
J. M. MCBETH, J. R. LLOYD, G. T. W. LAW, F. R. LIVENS, I. T. BURKE and K. MORRIS: Redox interactions of technetium with iron-bearing minerals	2419
C. R. CAILES, I. BARRACLOUGH, R. E. SMITH and G. THOMSON: Research and development for geological disposal of higher activity wastes: the role and expectations of the Environment Agency	2431
R. J. HALLAM, N. D. M. EVANS and S. L. JAIN: Sorption of Tc(IV) to some geological materials with reference to radioactive waste disposal	2439
H. HARRISON, D. WAGNER, H. YOSHIKAWA, J. M. WEST, A. E. MILODOWSKI, Y. SASAKI, G. TURNER, A. LACINSKA, S. HOLYOAKE, J. HARRINGTON, D. NOY, P. COOMBS, K. BATEMAN and K. AOKI: Microbiological influences on fracture surfaces of intact mudstone and the implications for geological disposal of radioactive waste	2449

CONTENTS

Research articles

Review

- O. G. SAFONOV, L. BINDI and V. L. VINOGRAD: Potassium-bearing clinopyroxene: a review of experimental, crystal chemical and thermodynamic data with petrological applications 2467
- T. LUDWIG, H. R. MARSCHALL, P. A. E. POGGE VON STRANDMANN, B. M. SHABAGA, M. FAYEK and F. C. HAWTHORNE: A secondary ion mass spectrometry (SIMS) re-evaluation of B and Li isotopic compositions of Cu-bearing elbaite from three global localities 2485
- E. SOKOLOVA, F. CÁMARA and F. C. HAWTHORNE: From structure topology to chemical composition. XI. Titanium silicates: crystal structures of inelilite-1T and inelilite-2M from the Inagli massif, Yakutia, Russia, and the crystal chemistry of inelilite 2495
- W. SEIFERT, D. RHEDE, R. THOMAS, H.-J. FÖRSTER, F. LUCASSEN, P. DULSKI and R. WIRTH: Distinctive properties of rock-forming blue quartz: inferences from a multi-analytical study of submicron mineral inclusions 2519
- CNMNC Newsletter 9*
- P. A. WILLIAMS, F. HATERT, M. PASERO and S. J. MILLS: New minerals and nomenclature modifications approved in 2011 2535
- Erratum 2541
- Obituary 2543

[No. 492, OCTOBER 2011]

CNMNC Newsletter 10

- P. A. WILLIAMS, F. HATERT, M. PASERO and S. J. MILLS: New minerals and nomenclature modifications approved in 2011 2549
- E. V. GALUSKIN, I. O. GALUSKINA, V. M. GAZEEV, P. DZIERŻANOWSKI, K. PRUSIK, N. N. PERTSEV, A. E. ZADOV, R. BAILAU and A. G. GURBANOV: Megawite, CaSnO_3 : a new perovskite-group mineral from skarns of the Upper Chegem caldera, Kabardino-Balkaria, Northern Caucasus, Russia 2563
- C. H. YODER, R. W. SCHAEFFER, P. MCWILLIAMS, A. ROWAND, X. LIU and J. SHAMBEDA: The synthesis of copper/zinc solid solutions of hydroxyl carbonates, sulphates, nitrates, chlorides and bromides 2573
- E. SOKOLOVA, F. C. HAWTHORNE, L. A. PAUTOV, A. A. AGAKHANOV and V. YU. KARPENKO: The crystal structure and crystal chemistry of mendeleevite-(Ce), $(\text{Cs}, \square)_6(\square, \text{Cs})_6(\square, \text{K})(\text{REE}, \text{Ca}, \square)_{30}(\text{Si}_{70}\text{O}_{175})(\text{H}_2\text{O}, \text{OH}, \text{F}, \square)_{35}$, a potential microporous material 2583
- S. A. HUNT, A. M. WALKER, R. J. McCORMACK, D. P. DOBSON, A. S. WILLS and L. LI: The effect of pressure on thermal diffusivity in pyroxenes 2597
- J. E. S. BARRETT, K. G. TAYLOR, K. A. HUDSON-EDWARDS and J. M. CHARNOCK: Solid-phase speciation of Zn in road dust sediment 2611
- B. LAZIC, T. ARMBRUSTER, V. B. SAVELYEVA, A. E. ZADOV, N. N. PERTSEV and P. DZIERŻANOWSKI: Galuskinite, $\text{Ca}_7(\text{SiO}_4)_3(\text{CO}_3)$, a new skarn mineral from the Birkhin gabbro massif, Eastern Siberia, Russia 2631
- F. NESTOLA, T. BALIĆ-ŽUNIĆ, M. KOCH-MÜLLER, L. SECCO, F. PRINCIVALLE, F. PARISI and A. DAL NEGRO: High-pressure crystal structure investigation of synthetic Fe_2SiO_4 spinel 2649
- E. M. SMITH, M. G. KOPYLOVA, L. DUBROVINSKY, O. NAVON, J. RYDER and E. L. TOMLINSON: Transmission X-ray diffraction as a new tool for diamond fluid inclusion studies 2657
- L. BINDI, C. CARBONE, R. CABELLA and G. LUCCHETTI: Bassoite, $\text{SrV}_3\text{O}_7 \cdot 4\text{H}_2\text{O}$, a new mineral from Molinello mine, Val Graveglia, eastern Liguria, Italy 2677
- A. P. KHOMYAKOV, F. CÁMARA, E. SOKOLOVA, Y. ABDU and F. C. HAWTHORNE: Sveinbergeite, $\text{Ca}(\text{Fe}_6^{2+}\text{Fe}^{3+})\text{Ti}_2(\text{Si}_4\text{O}_{12})_2\text{O}_2(\text{OH})_5(\text{H}_2\text{O})_4$, a new astrophyllite-group mineral from the Larvik Plutonic Complex, Oslo Region, Norway: description and crystal structure 2687
- H. BEURLIN, A. MÜLLER, D. SILVA and M. R. R. DA SILVA: Petrogenetic significance of LA-ICP-MS trace-element data on quartz from the Borborema Pegmatite Province, northeast Brazil 2703

CONTENTS

[No. 493, DECEMBER 2011]

L. BINDI, F. NESTOLA, U. KOLITSCH, A. GUASTONI and F. ZORZI: Fassinaite, $Pb_2^{2+}(S_2O_3)(CO_3)$, the first mineral with coexisting thiosulphate and carbonate groups: description and crystal structure	2721
S. J. MILLS, C. MA and W. D. BIRCH: A contribution to understanding the complex nature of peisleyite	2733
J. PLÁŠIL, K. FEJFAROVÁ, M. NOVÁK, M. DUŠEK, R. ŠKODA, J. HLOUŠEK, J. ČEJKA, J. MAJZLAN, J. SEJKORA, V. MACHOVIČ and D. TALLA: Běhounekite, $U(SO_4)_2(H_2O)_4$, from Jáchymov (St Joachimsthal), Czech Republic: the first natural U^{4+} sulphate	2739
F. CÂMARA, E. SOKOLOVA and F. C. HAWTHORNE: From structure topology to chemical composition. XII. Titanium silicates: the crystal chemistry of rinkite, $Na_2Ca_4REETi(Si_2O_7)_2OF_3$	2755
I. E. GREY, N. V. Y. SCARLETT, P. BORDET and H. E. A. BRAND: Jarosite–butlerite intergrowths in non-stoichiometric jarosites: crystal chemistry of monoclinic natrojarosite–hydroniumjarosite phases	2775
G. CRUCIANI, M. FRANCESCHELLI and H.-J. MASSONNE: Low-temperature metamorphic evolution of a pre-Variscan gabbro: a case study from the Palaeozoic basement of northwest Sardinia, Italy	2793
A. N. ZAITSEV, A. R. CHAKHMOURADIAN, O. I. SIIDRA, J. SPRATT, C. T. WILLIAMS, C. J. STANLEY, S. V. PETROV, S. N. BRITVIN and E. A. POLYAKOVA: Fluorine-, yttrium- and lanthanide-rich cerianite-(Ce) from carbonatitic rocks of the Kerimasi volcano and surrounding explosion craters, Gregory Rift, northern Tanzania	2813
P. ELLIOTT and A. PRING: The crystal structure of gatehouseite	2823
I. V. ROZHDESTVENSKAYA, E. MUGNAIOLI, M. CZANK, W. DEPMEIER, U. KOLB and S. MERLINO: Essential features of the polytypic charoite-96 structure compared to charoite-90	2833
F. DEMARTIN, C. M. GRAMACCIOLI, I. Campostrini and C. CASTELLANO: Cossaite, $(Mg_{0.5}, \square)Al_6(SO_4)_6(HSO_4)F_6 \cdot 36H_2O$, a new mineral from La Fossa crater, Vulcano, Aeolian Islands, Italy	2847
A. R. KAMPF, R. T. DOWNS, R. M. HOUSLEY, R. A. JENKINS and J. HYRŠL: Anorpiment, As_2S_3 , the triclinic dimorph of orpiment	2857
P. KÓNYA and S. SZAKÁLL: Occurrence, composition and paragenesis of the zeolites and associated minerals in the alkaline basalt of a maar-type volcano at Haláp Hill, Balaton Highland, Hungary	2869
<i>CNMNC Newsletter 11</i>	
P. A. WILLIAMS, F. HATERT, M. PASERO and S. J. MILLS: New minerals and nomenclature modifications approved in 2011	2887
Alphabetical Index	2895
Book Reviews Index	2901
Referees	2902