

Mineralogical Magazine

PRINCIPAL EDITORS

R. H. MITCHELL P. A. WILLIAMS

Volume 76

(Nos. 494–501, 2012)

THE MINERALOGICAL SOCIETY

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

2012

CONTENTS

[No. 494, FEBRUARY 2012]

| | |
|---|-----|
| T. LLORENS and M. C. MORO: Fe-Mn phosphate associations as indicators of the magmatic-hydrothermal and supergene evolution of the Jálama batholith in the Navasfrías Sn-W District, Salamanca, Spain | 1 |
| W. A. CRICHTON, J. B. PARISE, H. MÜLLER, J. BREGER, W. G. MARSHALL and M. D. WELCH: Synthesis and structure of magnesium hydroxide fluoride, Mg(OH)F: a topological intermediate between brucite- and rutile-type structures | 25 |
| A. V. STEPANOV, G. K. BEKENOVA, V. L. LEVIN and F. C. HAWTHORNE: Natrotitanite, ideally (Na _{0.5} Y _{0.5})Ti(SiO ₄)O, a new mineral from the Verkhnee Espe deposit, Akjailyautas mountains, Eastern Kazakhstan district, Kazakhstan: description and crystal structure | 37 |
| F. C. HAWTHORNE, M. A. COOPER, Y. A. ABDU, N. A. BALL, M. E. BACK and K. T. TAIT: Davidlloydite, ideally Zn ₃ (AsO ₄) ₂ (H ₂ O) ₄ , a new arsenate mineral from the Tsumeb mine, Otjikoto (Oshikoto) region, Namibia: description and crystal structure | 45 |
| M. S. RUMSEY, S. V. KRIVOVICHEV, O. I. SIDRA, C. A. KIRK, C. J. STANLEY and J. SPRATT: Rickturnerite, Pb ₇ O ₄ [Mg(OH) ₄](OH)Cl ₃ , a complex new lead oxochloride mineral | 59 |
| D. ATENCIO, A. C. ROBERTS, M. A. COOPER, L. A. D. MENEZES FILHO, J. M. V. COUTINHO, J. A. R. STIRLING, K. E. VENANCE, N. A. BALL, E. MOFFATT, M. L. S. C. CHAVES, P. R. G. BRANDÃO and A. W. ROMANO: Carlosbarbosite, ideally (UO ₂) ₂ Nb ₂ O ₆ (OH) ₂ ·2H ₂ O, a new hydrated uranyl niobate mineral with tunnels from Jaguaráçu, Minas Gerais, Brazil: description and crystal structure | 75 |
| A. Y. BORISOVA, R. THOMAS, S. SALVI, F. CANDAUDAP, A. LANZANOVA and J. CHMELEFF: Tin and associated metal and metalloid geochemistry by femtosecond LA-ICP-QMS microanalysis of pegmatite–leucogranite melt and fluid inclusions: new evidence for melt–melt–fluid immiscibility | 91 |
| J. GÖTZE, L. NASDALA, U. KEMPE and E. LIBOWITZKY: The origin of black colouration in onyx agate from Mali | 115 |
| A. YU. LIKHACHEVA, S. V. RASHCHENKO AND YU. V. SERYOTKIN: The deformation mechanism of a pressure-induced phase transition in dehydrated analcime | 129 |
| S. V. TITKOV, S. V. KRIVOVICHEV AND N. I. ORGANOVA: Plastic deformation of natural diamonds by twinning: evidence from X-ray diffraction studies | 143 |
| <i>CNMNC Newsletter 12</i> | |
| P. A. WILLIAMS, F. HATERT, M. PASERO and S. J. MILLS: New minerals and nomenclature modifications approved in 2011 | 151 |
| C. M. B. HENDERSON and W. J. PIEROZYNSKI: An experimental study of Sr, Ba and Rb partitioning between alkali feldspar and silicate liquid in the system nepheline–kalsilite–quartz at 0.1 GPa <i>P</i> (H ₂ O): a revisitiation and reassessment | 157 |
| G. BALASSONE, F. BELLATRECCIA, A. MORMONE, C. BIAGIONI, M. PASERO, C. PETTI, N. MONDILLO and G. FAMELI: Sodalite-group minerals from the Somma–Vesuvius volcanic complex, Italy: a case study of K-feldspar-rich xenoliths | 191 |
| D. MARSHALL, V. PARDIEU, L. LOUGHREY, P. JONES and G. XUE: Conditions for emerald formation at Davdar, China: fluid inclusion, trace element and stable isotope studies | 213 |

[No. 495, APRIL 2012]

| | |
|---|-----|
| Continuing the Carbonatite Controversy | |
| H. DOWNES, F. WALL, A. DEMÉNY and C. SZABÓ: Preface | 255 |
| A. R. WOOLLEY and D. K. BAILEY: The crucial role of lithospheric structure in the generation and release of carbonatites: geological evidence | 259 |
| D. K. BAILEY and S. KEARNS: New forms of abundant carbonatite–silicate volcanism: recognition criteria and further target locations | 271 |

CONTENTS

| | |
|--|-----|
| K. R. MOORE: Experimental study in the Na ₂ O–CaO–MgO–Al ₂ O ₃ –SiO ₂ –CO ₂ system at 3 GPa: the effect of sodium on mantle melting to carbonate-rich liquids and implications for the petrogenesis of silicocarbonatites | 285 |
| C. DE IGNACIO, M. MUÑOZ and J. SAGREDO: Carbonatites and associated nephelinites from São Vicente, Cape Verde Islands | 311 |
| A. E. BRADY and K. R. MOORE: A mantle-derived dolomite silicocarbonatite from the southwest coast of Ireland | 357 |
| A. C. J. M. BAMBI, A. COSTANZO, A. O. GONÇALVES and J. C. MELGAREJO: Tracing the chemical evolution of primary pyrochlore from plutonic to volcanic carbonatites: the role of fluorine | 377 |
| L. TORRÓ, C. VILLANOVA, M. CASTILLO, M. CAMPENY, A. O. GONÇALVES and J. C. MELGAREJO: Niobium and rare earth minerals from the Virulundo carbonatite, Namibe, Angola | 393 |
| I. P. SOLOVOVA and A. V. GIRNIS: Silicate–carbonate liquid immiscibility and crystallization of carbonate and K-rich basaltic magma: insights from melt and fluid inclusions | 411 |
| Book review | 441 |

[No. 496, JUNE 2012]

| | |
|---|-----|
| J. PLÁŠIL, K. FEJFAROVÁ, R. SKÁLA, R. ŠKODA, N. MEISSER, J. HLOUŠEK, I. ČISAŘOVÁ, M. DUŠEK, F. VESELOVSK, J. ČEJKA, J. SEJKORA and P. ONDRUŠ: The crystal chemistry of the uranyl carbonate mineral grimselite, (K,Na) ₃ Na[(UO ₂)(CO ₃) ₃](H ₂ O), from Jáchymov, Czech Republic | 443 |
| T. ARMBRUSTER, B. LAZIC, I. O. GALUSKINA, E. V. GALUSKIN, E. GNOS, K. M. MARZEC and V. M. GAZEEV: Trabzonite, Ca ₄ [Si ₃ O ₉ (OH)]OH: crystal structure, revised formula, new occurrence and relation to killalaite | 455 |
| F. CÁMARA, E. SOKOLOVA and F. C. HAWTHORNE: Kazanskyite, Ba□TiNbNa ₃ Ti(Si ₂ O ₇) ₂ O ₂ (OH) ₂ (H ₂ O) ₄ , a Group-III Ti-disilicate mineral from the Khibiny alkaline massif, Kola Peninsula, Russia: description and crystal structure | 473 |
| U. KOLITSCH, S. MERLINO and D. HOLTSTAM: Molybdophyllite: crystal chemistry, crystal structure, OD character and modular relationships with britvinite | 493 |
| A. R. KAMPF, S. J. MILLS, M. S. RUMSEY, J. SPRATT and G. FAVREAU: The crystal structure determination and redefinition of matulaite, Fe ³⁺ Al ₇ (PO ₄) ₄ (PO ₃ OH) ₂ (OH) ₈ (H ₂ O) ₈ ·8H ₂ O | 517 |
| R. MACDONALD, B. BAGIŃSKI, P. KARTASHOV, D. ZOZULYA and P. DZIERZANOWSKI: Chevkinite-group minerals from Russia and Mongolia: new compositional data from metasomatites and ore deposits | 535 |
| L. BINDI, R. T. DOWNS, P. G. SPRY, W. W. PINCH and S. MENCHETTI: A chemical and structural re-examination of fettelite samples from the type locality, Odenwald, southwest Germany | 551 |
| R. L. KIMBER, C. BOOTHMAN, P. PURDIE, F. R. LIVENS and J. R. LLOYD: Biogeochemical behaviour of plutonium during anoxic biostimulation of contaminated sediments | 567 |
| H. ROLLINSON, J. ADETUNJI, A. A. YOUSIF and A. M. GISMELSEED: New Mössbauer measurements of Fe ³⁺ /ΣFe in chromites from the mantle section of the Oman ophiolite: evidence for the oxidation of the sub-oceanic mantle | 579 |
| O. I. SHIDRA, N. V. CHUKANOV, I. V. PEKOV, S. V. KRIVOVICHEV, A. MAGGANAS, A. KATERINOPOULOS and P. VOUDOURIS: Pb ₂ (AsO ₂ OH)Cl ₂ , a new phase from the Lavrion ancient slags, Greece: occurrence and characterization | 597 |
| F. NEUHOLD, U. KOLITSCH, H.-J. BERNHARDT and C. L. LENGAUER: Arsenohopeite, a new zinc arsenate mineral from the Tsumeb mine, Namibia | 603 |
| M. ZEMA, A. M. CALLEGARI, S. C. TARANTINO, E. GASPARINI and P. GHIGNA: Thermal expansion of alunite up to dehydroxylation and collapse of the crystal structure | 613 |
| S. J. MILLS, J. SEJKORA, A. R. KAMPF, I. E. GREY, T. J. BASTOW, N. A. BALL, P. M. ADAMS, M. RAUDSEPP and M. A. COOPER: Krásnoite, the fluorophosphate analogue of perhamite, from the Huber open pit, Czech Republic and the Silver Coin mine, Nevada, USA | 625 |
| T. MIYAZOE, M. ENAMI, T. NISHIYAMA and Y. MORI: Retrograde strontium metasomatism in serpentinite mélange of the Kurosegawa Zone in central Kyushu, Japan | 635 |
| P. C. PIILONEN, A. M. McDONALD, G. POIRIER, R. ROWE and A. O. LARSEN: The mineralogy and crystal chemistry of alkaline pegmatites in the Larvik Plutonic Complex, Oslo rift valley, | |

CONTENTS

| | |
|--|-----|
| Norway. Part 1. Magmatic and secondary zircon: implications for petrogenesis from trace-element geochemistry | 649 |
| I. V. PEKOV, M. E. ZELENSKI, N. V. ZUBKOVA, V. O. YAPASKURT, N. V. CHUKANOV, D. I. BELAKOVSKIY and D. YU. PUSHCHAROVSKY: Calciolangbeinite, $K_2Ca_2(SO_4)_3$, a new mineral from the Tolbachik volcano, Kamchatka, Russia | 673 |
| M. D. RUIZ-CRUZ and C. SANZ DE GALDEANO: Diamond and coesite in ultrahigh-pressure–ultrahigh-temperature granulites from Ceuta, Northern Rif, northwest Africa | 683 |
| E. V. GALUSKIN, J. KUSZ, T. ARMBRUSTER, R. BAILAU, I. O. GALUSKINA and B. TERNES: A reinvestigation of mayenite from the type locality, the Ettringer Bellerberg volcano near Mayen, Eifel district, Germany | 707 |
| <i>Letter</i> | |
| A. M. KASSI, A. K. KASI, A. TAWAB KHAN and A. SALAM KHAN: Comments on the eruption of basaltic magma at Tor Zavar, Balochistan, Pakistan on 27 January 2010, with a discussion of the geochemical and petrological constraints on its petrogenesis | 717 |
| N. V. CHUKANOV, R. SCHOLZ, S. M. AKSENOV, R. K. RASTSVETAEVA, I. V. PEKOV, D. I. BELAKOVSKIY, K. KRAMBROCK, R. M. PANIAGO, A. RIGHI, R. F. MARTINS, F. M. BELOTTI and V. BERMANEC: Metavivianite, $Fe^{2+}Fe^{3+}(PO_4)_2(OH)_2 \cdot 6H_2O$: new data and formula revision | 725 |
| A. GUASTONI, L. BINDI and F. NESTOLA: Debattistiite, $Ag_9Hg_{0.5}As_6S_{12}Te_2$, a new Te-bearing sulfosal from Lengenbach quarry, Binn valley, Switzerland: description and crystal structure | 743 |
| T. BALIĆ-ŽUNIĆ, A. GARAVELLI, D. MITOLO, P. ACQUAFREDDA and E. LEONARSEN: Jakobssonite, $CaAlF_5$, a new mineral from fumaroles at the Eldfell and Hekla volcanoes, Iceland | 751 |
| A. GUASTONI, F. NESTOLA, C. FERRARIS and G. PARODI: Xenotime-(Y) and Sn-rich thortveitite in miarolitic pegmatites from Baveno, Southern Alps, Italy | 761 |
| S. J. MILLS, A. R. KAMPF, A. M. McDONALD, G. FAVREAU and P.-J. CHIAPPERO: Forêtite, a new secondary arsenate mineral from the Cap Garonne mine, France | 769 |
| <i>Review</i> | |
| D. R. BROOKSHAW, R. A. D. PATTRICK, J. R. LLOYD and D. J. VAUGHAN: Microbial effects on mineral–radionuclide interactions and radionuclide solid-phase capture processes | 777 |
| <i>CNMNC Newsletter 13</i> | |
| P. A. WILLIAMS, F. HATERT, M. PASERO and S. J. MILLS: New minerals and nomenclature modifications approved in 2012 | 807 |
| Obituary | 819 |

[No. 497, AUGUST 2012]

| | |
|--|-----|
| J. P. DAVIDSON and G. DIEGO GATTA: Mark Welch Special issue | 823 |
| F. CÂMARA, F. NESTOLA, L. BINDI, A. GUASTONI, F. ZORZI, L. PERUZZO and D. PEDRON: Tazzoliite: a new mineral with a pyrochlore-related structure from the Euganei hills, Padova, Italy | 827 |
| M. A. COOPER and F. C. HAWTHORNE: Refinement of the crystal structure of zoned philipsbornite–hidalguito from the Tsumeb mine, Namibia, and hydrogen bonding in the $D^{2+}G_3^{3+}(T^{5+}O_4)(TO_3OH)(OH)_6$ alunite structures | 839 |
| A. R. KAMPF, S. J. MILLS, R. M. HOUSLEY, P. A. WILLIAMS and M. DINI: Alcaparrosaite, $K_3Ti^{4+}Fe^{3+}(SO_4)_4O(H_2O)_2$, a new hydrophobic Ti^{4+} sulfate from Alcaparrosa, Chile | 851 |
| E. SOKOLOVA: Further developments in the structure topology of the astrophyllite-group minerals | 863 |
| R. TURNER, O. I. SHIDRA, M. S. RUMSEY, S. V. KRIVOVICHEV, C. J. STANLEY and J. SPRATT: Hereroite and vladkrivovichevite: two novel lead oxychlorides from the Kombat mine, Namibia | 883 |
| P. LEVERETT, J. K. REYNOLDS, A. J. ROPER and P. A. WILLIAMS: Tripuhyite and schafarzikite: two of the ultimate sinks for antimony in the natural environment | 891 |
| F. BELLATRECCIA, G. DELLA VENTURA, G. D. GATTA, M. CESTELLI GUIDI and S. HARLEY: Carbon dioxide in pollucite, a feldspathoid with the ideal composition $(Cs,Na)_{16}Al_{16}Si_{32}O_{96} \cdot nH_2O$ | 903 |
| W. A. CRICHTON, M. MERLINI, H. MÜLLER, J. CHANTEL and M. HANFLAND: The high-pressure monazite-to-scheelite transformation in $CaSeO_4$ | 913 |

CONTENTS

| | |
|---|------|
| D. P. DOBSON, R. MCCORMACK, S. A. HUNT, M. W. AMMANN, D. WEIDNER, L. LI and L. WANG: The relative strength of perovskite and post-perovskite NaCoF ₃ | 925 |
| G. DIEGO GATTA, P. LOTTI, V. KAHLENBERG and U. HAEFEKER: The low-temperature behaviour of cancrinite: an <i>in situ</i> single-crystal X-ray diffraction study | 933 |
| A. K. KLEPPE, M. D. WELCH, W. A. CRICHTON and A. P. JEPHCOAT: Phase transitions in hydroxide perovskites: a Raman spectroscopic study of stottite, FeGe(OH) ₆ , to 21 GPa | 949 |
| G. O. LEPORE, T. BOFFA BALLARAN, F. NESTOLA, L. BINDI, D. PASQUAL and P. BONAZZI: Compressibility of β-As ₄ S ₄ : an <i>in situ</i> high-pressure single-crystal X-ray study | 963 |
| S. J. MILLS and F. NESTOLA: Elasticity and high-pressure structure of arsenoflorencite-(La): insights into the high-pressure behaviour of the alunite supergroup | 975 |
| F. NESTOLA, D. PASQUAL, M. D. WELCH and R. OBERTI: The effects of composition upon the high-pressure behaviour of amphiboles: compression of gedrite to 7 GPa and a comparison with anthophyllite and proto-amphibole | 987 |
| S. A. T. REDFERN, S. E. SMITH and E. R. MADDRELL: High-temperature breakdown of the synthetic iodine analogue of vanadinite, Pb ₅ (VO ₄) ₃ I: an apatite-related compound for iodine radioisotope immobilization? | 997 |
| C. M. B. HENDERSON, F. R. RICHARDSON and J. M. CHARNOCK: The Highwood Mountains potassic igneous province, Montana: mineral fractionation trends and magmatic processes revisited | 1005 |

[No. 498, OCTOBER 2012]

| | |
|--|------|
| S. J. MILLS, A. G. CHRISTY, A. R. KAMPF, R. M. HOUSLEY, G. FAVREAU, J.-C. BOULLIARD and V. BOURGOIN: Zincalstibite-9R: the first nine-layer polytype with the layered double hydroxide structure-type | 1053 |
| M. NAGASHIMA and T. ARMBRUSTER: Palenzonaite, berzeliite, and manganberzeliite: (As ⁵⁺ , V ⁵⁺ , Si ⁴⁺)O ₄ tetrahedra in garnet structures | 1063 |
| L. MELLUSO, R. K. SRIVASTAVA, C. M. PETRONE, V. GUARINO and A. K. SINHA: Mineralogy and magmatic affinity of the Jasra intrusive complex, Shillong Plateau, India | 1081 |
| O. D. OSBORNE, A. PRING, R. S. POPELKA-FILCOFF, J. W. BENNETT, A. STOPIC, M. D. GLASCOCK and C. E. LENEHAN: Comparison of the relative comparator and k ₀ neutron activation analysis techniques for the determination of trace-element concentrations in pyrite | 1101 |
| M. A. COOPER, Y. A. ABDU, N. A. BALL, F. C. HAWTHORNE, M. E. BACK, K. T. TAIT, J. SCHLÜTER, T. MALCHEREK, D. POHL and G. GEBHARD: Ianbruceite, ideally [Zn ₂ (OH)(H ₂ O)(AsO ₄)](H ₂ O) ₂ , a new arsenate mineral from the Tsumeb mine, Otjikoto (Oshikoto) region, Namibia: description and crystal structure | 1119 |
| I. V. PEKOV, N. V. CHUKANOV, S. N. BRITVIN, Y. K. KABALOV, J. GÖTTLICHER, V. O. YAPASKURT, A. E. ZADOV, S. V. KRIVOVICHEV, W. SCHÜLLER and B. TERNES: The sulfite anion in ettringite-group minerals: a new mineral species hielscherite, Ca ₃ Si(OH) ₆ (SO ₄)(SO ₃)·11H ₂ O, and the thaumasite–hielscherite solid-solution series | 1133 |
| L. BINDI, F. NESTOLA, A. GUASTONI, L. PERUZZO, M. ECKER and R. CARAMPIN: Raberite, Tl ₅ Ag ₄ As ₆ SbS ₁₅ , a new Tl-bearing sulfosalt from Lenggenbach quarry, Binn valley, Switzerland: description and crystal structure | 1153 |
| I. E. GREY, C. M. MACRAE, E. KECK and W. D. BIRCH: Aluminium-bearing strunzite derived from jahnsite at the Hagedorf-Süd pegmatite, Germany | 1165 |
| A. R. KAMPF, S. J. MILLS, M. S. RUMSEY, M. DINI, W. D. BIRCH, J. SPRATT, J. J. PLUTH, I. M. STEELE, R. A. JENKINS and W. W. PINCH: The heteropolymolybdate family: structural relations, nomenclature scheme and new species | 1175 |
| R. W. TURNER, O. I. SIDRA, S. V. KRIVOVICHEV, C. J. STANLEY and J. SPRATT: Rumseyite, [Pb ₂ OF]Cl, the first naturally occurring fluoroxychloride mineral with the parent crystal structure for layered lead oxychlorides | 1209 |
| S. J. MILLS, A. R. KAMPF, R. M. HOUSLEY, G. FAVREAU, M. PASERO, C. BIAGIONI, S. MERLINO, C. BERBAIN and P. ORLANDI: Omsite, (Ni,Cu) ₂ Fe ³⁺ (OH) ₆ [Sb(OH) ₆], a new member of the cualstibite group from Oms, France | 1219 |

CNMNC Newsletter 14

CONTENTS

| | |
|--|------|
| P. A. WILLIAMS, F. HATERT, M. PASERO and S. J. MILLS: New minerals and nomenclature modifications approved in 2012 | 1227 |
| F. C. HAWTHORNE: Bond topology and structure-generating functions: graph-theoretic prediction of chemical composition and structure in polysomatic T–O–T (biopyrribole) and H–O–H structures | 1235 |
| D. KOSSOFF, K. A. HUDSON-EDWARDS, W. E. DUBBIN, M. ALFREDSSON and T. GERAKI: Cycling of As, P, Pb and Sb during weathering of mine tailings: implications for fluvial environments | 1263 |

[No. 499, NOVEMBER 2012]

Goldschmidt Abstracts 2012 (available online only)

[No. 500, DECEMBER 2012]

| | |
|--|------|
| K. A. HUDSON-EDWARDS, N. J. G. PEARCE and R. WARRENDER: Frontiers in Environmental Geoscience 2011 – Introduction | 2641 |
| P. E. REILLER: Modelling metal–humic substances–surface systems: reasons for success, failure and possible routes for peace of mind | 2643 |
| J. SÁNCHEZ-ESPAÑA, I. YUSTA and G. A. LÓPEZ: Schwertmannite to jarosite conversion in the water column of an acidic mine pit lake | 2659 |
| I. NANCUCHEO, S. HEDRICH and D. B. JOHNSON: New microbiological strategies that enable the selective recovery and recycling of metals from acid mine drainage and mine process waters | 2683 |
| A. A. BOGUSH, O. G. GALKOVA and N. V. ISHUK: Geochemical barriers to elemental migration in sulfide-rich tailings: three case studies from Western Siberia | 2693 |
| M. BOUBY, N. FINCK and H. GECKEIS: Flow field-flow fractionation (FIFFF) coupled to sensitive detection techniques: a way to examine radionuclide interactions with nanoparticles | 2709 |
| N. FINCK, M. BOUBY, K. DARDENNE and H. GECKEIS: Characterization of Eu(III) co-precipitated with and adsorbed on hectorite: from macroscopic crystallites to nanoparticles | 2723 |
| J. D. PASTERIS, C. H. YODER, M. P. STERNLIEB and S. LIU: Effect of carbonate incorporation on the hydroxyl content of hydroxylapatite | 2741 |
| V. N. YAKOVENCHUK, E. KECK, S. V. KRIVOVICHEV, Y. A. PAKHOMOVSKY, E. A. SELIVANOVA, J. A. MIKHAILOVA, A. P. CHERNYATIEVA and G. YU. IVANYUK: Whiteite-(CaMnMn), CaMnMn ₂ Al ₂ [PO ₄] ₄ (OH) ₂ ·8H ₂ O, a new mineral from the Hagendorf-Süd granitic pegmatite, Germany | 2761 |
| F. DEMARTIN, I. CAMPOSTRINI, C. CASTELLANO, C. M. GRAMACCIOLI and M. RUSSO: D'ansite-(Mn), Na ₂₁ Mn ²⁺ (SO ₄) ₁₀ Cl ₃ and d'ansite-(Fe), Na ₂₁ Fe ²⁺ (SO ₄) ₁₀ Cl ₃ , two new minerals from volcanic fumaroles | 2773 |
| R. THOMAS and P. DAVIDSON: Evidence of a water-rich silica gel state during the formation of a simple pegmatite | 2785 |
| A. R. KAMPF, J. MARTY, B. P. NASH, J. PLÁŠIL, A. V. KASATKIN and R. ŠKODA: Calciodelrioite, Ca(VO ₃) ₂ (H ₂ O) ₄ , the Ca analogue of delrioite, Sr(VO ₃) ₂ (H ₂ O) ₄ | 2803 |
| M. A. COOPER and F. C. HAWTHORNE: The crystal structure of kraisslite, [⁴¹ Zn ₃ (Mn,Mg) ₂ (Fe ³⁺ ,Al)(As ³⁺ O ₃) ₂ [(Si,As ⁵⁺)O ₄] ₁₀ (OH) ₁₆ , from the Sterling Hill mine, Ogdensburg, Sussex County, New Jersey, USA | 2819 |
| J. PLÁŠIL, J. HAUSER, V. PETŘÍČEK, N. MEISSER, S. J. MILLS, R. ŠKODA, K. FEJFAROVÁ, J. ČEJKA, J. SEJKORA, J. HLOUŠEK, J.-M. JOHANNET, V. MACHOVIČ and L. LAPČÁK: Crystal structure and formula revision of deliensite, Fe[(UO ₂) ₂ (SO ₄) ₂ (OH) ₂](H ₂ O) ₇ | 2837 |
| Obituary | 2861 |
| Referees | 2863 |

[No. 501, DECEMBER 2012]

Special issue: Geological disposal of radioactive waste (available online only)