

# THE CANADIAN MINERALOGIST

## CONTENTS, VOLUME 25

The mineralogy of precious metals: new developments and metallurgical implications	L.J. CABRI	1
Tin-bearing chalcopyrite from the Izumo vein, Toyoha mine, Hokkaido, Japan	K. KASE	9
A second occurrence of falkmanite: Pinnacles mine, Broken Hill, New South Wales	K.G. MCQUEEN	15
Geochemistry of the Kambalda iron-nickel sulfides: implications for models of sulfide-silicate partitioning	A. COWDEN & P. WOOLRICH	21
Massive-sulfide fabrics at Kambalda and their relevance to the inferred stability of monosulfide solid-solution	A. COWDEN & N.J. ARCHIBALD	37
The relationship of olivine cumulates and mineralization to cyclic units in part of the Upper Critical Zone of the western Bushveld Complex	R.N. SCOOCH & W.J. DE KLERK	51
Re-evaluation of chemical variation in the Insizwa Complex, Transkei	P.C. LIGHTFOOT, A.J. NALDRETT & C.J. HAWKESWORTH	79
Lamellae of baddeleyite and Fe-Cr-spinel in ilmenite from the Basistoppen sill, eastern Greenland	H.R. NASLUND	91
Compositional zoning in zincian spinel	P.G. SPRY	97
The construction of phase diagrams by means of dual networks	D.S. O'HANLEY	105
A chemographic analysis of magnesian serpentinites using dual networks	D.S. O'HANLEY	121
Microanalyse de phengite au microscope électronique à balayage par dispersion d'énergie: étude statistique des résultats	M. DESJARDINS & R. BERTRAND	135
Phengite-3T in high-pressure metamorphosed granitic orthogneisses, Seward Peninsula, Alaska	B.W. EVANS & B.E. PATRICK	141
Origin of pegmatitic granite segregations, Willow Creek, Black Hills, South Dakota	C.K. SHEARER, J.J. PAPIKE, J.A. REDDEN, S.B. SIMON, R.J. WALKER & J.C. LAUL	159
Diomignite: natural $\text{Li}_2\text{B}_4\text{O}_7$ from the Tanco pegmatite, Bernic Lake, Manitoba	D. LONDON, M.E. ZOLENSKY & E. ROEDDER	173
Thornasite, a new hydrous sodium thorium silicate from Mont St-Hilaire, Quebec	V.E. ANSELL & G.Y. CHAO	181
Quelques minéraux rares d'uranium des bassins d'Otish et de Mistassini, Québec	G. SASSANO & M. ROCHELEAU	185
Book reviews		
Strike-Slip Deformation, Basin Formation, and Sedimentation (K.T. Biddle & N. Christie-Blick)	B.D. RICKETTS	195
Roles of Organic Matter in Sediment Diagenesis (D.L. Gautier, ed.)	I. HUTCHEON	195
Thermodynamic Relations in Open Systems (G. Tunell)	K.L. CURRIE	196
The Magic of Minerals (D. Medenbach & H. Wilk)	I. HUTCHEON	196
The Stillwater Complex, Montana: Geology and Guide (G.K. Czamanske & M.L. Zientek, eds.)	D.H. WATKINSON	197
Quantitative Data File for Ore Minerals (A.J. Criddle & C.J. Stanley)	P. BAYLISS	197
Referees for 1986		199

Woodhouseite and svanbergite in hydrothermal ore deposits: apatite destruction during advanced argillic alteration	R.E. STOFFREGEN & C.N. ALPERS	201
Hinsdalite and other products of oxidation at the Daisy Creek stratabound copper-silver prospect, northwestern Montana	C.R. STANLEY	213
Formation of a jarosite deposit on Cretaceous shales in the Fort Norman area, Northwest Territories	F.A. MICHEL & R.O. VAN EVERDINGEN	221
Vinciennite in the Maggie porphyry copper deposit, British Columbia	J.L. JAMBOR & D.R. OWENS	227
Stannoidite-bearing tin ore: mineralogy, texture and physicochemical environment of formation	M. SHIMIZU & N. SHIKAZONO	229
Effect of substitutions on the cell dimension of tetrahedrite	N.E. JOHNSON, J.R. CRAIG & J.D. RIMSTIDT	237
Shandite, $\text{Ni}_3\text{Pb}_2\text{S}_2$ , in a serpentinitized metadunite from the Isua supracrustal belt, West Greenland	R.F. DYMEK	245
Nb-Cr-rutile in the Orapa kimberlite, Botswana	R.P. TOLLO & S.E. HAGGERTY	251
Host rock and fluid control on carbonate assemblages in the Golden Mile Dolerite, Kalgoorlie gold deposit, Australia	G.N. PHILLIPS & I.J. BROWN	265
Varioles in Archean basalts: products of spherulitic crystallization	A.D. FOWLER, L.S. JENSEN & S.A. PÉLOQUIN	275
Calcic myrmekite: possible evidence for the involvement of water during crystallization of andesine	R.F. DYMEK & C. SCHIFFRIES	291
The Deloro anorogenic igneous complex, Madoc, Ontario. I. Geochemistry and feldspar mineralogy of the felsic plutonic rocks	A.M. ABDEL-RAHMAN & R.F. MARTIN	321
Quantitative phase-analysis of Rb-enriched maximum microcline and low albite by X-ray powder diffractometry	R.B. FERGUSON & N.A. BALL	337
Transformations of Al-interlayered montmorillonite upon aging	K. TAZAKI	347
Procedures involving the IMA Commission on New Minerals and Mineral Names, and guidelines on mineral nomenclature	E.H. NICKEL & J.A. MANDARINO	353
Book reviews		379
Mineral Resources Appraisal (D.P. Harris)	R.L. MOORE	
Earth Resources (B.J. Skinner)	T.A. OLIVER	
Electronic structure and the chemical reactivity of the surface of galena	J.A. TOSSELL & D.J. VAUGHAN	381
Structural disorder in lindströmite: a bismuthinite — aikinite derivative	A. PRING & B.G. HYDE	393
La nickelaustinite $\text{Ca}(\text{Ni},\text{Zn})(\text{AsO}_4)(\text{OH})$ : nouvelle espèce minérale du district cobalto-nickelifère de Bou-Azzer, Maroc	F.P. CESBRON, D. GINDEROW, R. GIRAUD, P. PELISSON & F. PILLARD	401
Paraotwayite, a new nickel hydroxide mineral from Western Australia	E.H. NICKEL & J. GRAHAM	409

Chromian allanite from Outokumpu, Finland	P.J. TRELOAR & N.R. CHARNLEY	413
La moraesite de la mine de tourmaline de Humaita, Minas Gerais, Brésil	J.P. CASSE DANNE & J.D. CASSE DANNE	419
Bromellite from syenite pegmatite, southern Oslo region, Norway	A.O. LARSEN, A. ÅSHEIM & S.A. BERGE	425
Iron in titanite: a Mössbauer-spectroscopy study	K. HOLÉNYI & H. ANNERSTEN	429
Estimation des enthalpies de formation du $\alpha\text{Mg}_2\text{SiO}_4$ , $\beta\text{Mg}_2\text{SiO}_4$ et $\gamma\text{Mg}_2\text{SiO}_4$ à partir des structures cristallines	P. VIEILLARD	435
Thermodynamic properties of Fe-Mg titaniferous magnetite spinels	R.L. HILL & R.O. SACK	443
Compositional differences in chlorite from hydrothermally altered rocks and hydrothermal ore deposits	N. SHIKAZONO & H. KAWAHATA	465
Dachiardite from Yellowstone National Park, Wyoming	K.E. BARGAR, R.C. ERD, T.E.C. KEITH & M.H. BEESON	475
Relationship between rock type, metamorphic grade, and fluid-phase composition in the Grenville Supergroup, Limerick Township, Ontario	P.J. LEANDERSON & J.L. MUÑOZ	485
Prograde metamorphism of the Sudbury Igneous Complex	M.E. FLEET, R.L. BARNETT & W.A. MORRIS	499
Ultrabasic xenoliths from the Ham kimberlite, Somerset Island, Northwest Territories	B.C. JAGO & R.H. MITCHELL	515
A re-examination of the Pellotsalo microcline: mineralogical implications and genetic considerations	A. BLASI, C. DE POL BLASI & P.F. ZANAZZI	527
Rare-earth abundances in host granitic rocks and fracture-filling gypsum associated with saline groundwaters from a deep borehole, Atikokan, Ontario	J.E. MUNGALL, S.K. FRAPE, I.L. GIBSON & D.C. KAMINENI	539
La teneur en or du batholite de Flavrian, Rouyn-Noranda, Québec	G. PERRAULT, L. SABOURIN & P. TRUDEL	545
Distribution of major, minor and trace elements in coals of the Kootenay Group, Mount Allan, Alberta	F. GOODARZI & A.R. CAMERON	555
Sliding table for rapid evaluation of fission-track records and its application	E. MAKOVICKY & M. MAKOVICKY	567
Formal definitions of type mineral specimens	P.J. DUNN & J.A. MANDARINO	571
<b>Books Reviews</b>		
The Literature of Mineralogy (M. O'Donogue)	P. BAYLISS	573
The Carswell Structure Uranium Deposits, Saskatchewan	A.R. MILLER	573
Kimberlites: Mineralogy, Geochemistry and Petrology (R.H. Mitchell)	C.M. SCARFE	573
Distribution of selenium in high-temperature hydrothermal sulfide deposits at 13° North, East Pacific Rise	G. AUCLAIR, Y. FOUQUET & M. BOHN	577
Les micronodules dans les noyaux des nodules polymétalliques du Bassin Indien Central	E.-A. PERSEIL	589
Iron-phosphate layers in sediments of Lake Ontario	P.G. MANNING & T. MAYER	603
Behavior of iron, nickel, cobalt and sulfur during serpentization, with reference to the Hayachine ultramafic rocks of the Kamaichi mining district, northeastern Japan	Y. SHIGA	611
The ore mineralogy of the Otish Mountains uranium deposit, Quebec: skippenite, $\text{Bi}_2\text{Se}_2\text{Te}$ , and watkinsonite, $\text{Cu}_2\text{PbBi}_4(\text{Se},\text{S})_8$ , two new mineral species	Z. JOHAN, P. PICOT & F. RUHLMANN	625
A study of sphalerite from the carbonate-hosted Pb-Zn sulfide deposits of the eastern Chalkidiki Peninsula, northern Greece	S.I. KALOGEROPOULOS & G.S. ECONOMOU	639
The silver-mercury-antimony minerals of Sala, Sweden	C. KIEFT, J. HOLMGREN & G. ERIKSSON	647
Gold and telluride mineralization at the Goldlund mine, northwestern Ontario. I. Ore mineralogy	S.D. GIDDINGS & D. PERKINS	659

The jamesonite–benavidesite series	L.L.Y. CHANG, XILIN LI & CHUSHENG ZHENG	667
A sodian sulfatian fluorapatite from an epithermal calcite–quartz vein of the Kushikino mine, Kagoshima Prefecture, Japan	Y. SHIGA & Y. URASHIMA	673
Occurrence and petrological significance of loveringite in the Western Laouni layered complex, southern Hoggar, Algeria	J.-P. LORAND, J.-Y. COTTIN & G.C. PARODI	683
Crystal chemistry and genesis of Nb-, V-, and Al-rich metamorphic titanite from Egypt and Greece	R. BERNAU & G. FRANZ	695
Al,Si order and the internal texture of prehnite	M. AKIZUKI	707
Occupancy of T sites in the scapolite series: a multinuclear NMR study using magic-angle spinning	B.L. SHERRIFF, H.D. GRUNDY & J.S. HARTMAN	717
The crystal chemistry of sarcolite	A. MARAS & E. PARIS	731
Potassium- and fluorine-rich amphiboles from the Gatineau area, Quebec	D.D. HOGARTH, G.Y. CHAO & M.G. TOWNSEND	739
Rare-earth-rich eudialyte and dalyite from a peralkaline granite dyke at Straumsvola, Dronning Maud Land, Antarctica	C. HARRIS & R.S. RICKARD	755
Poudretteite, $KNa_2B_3Si_{12}O_{30}$ , a new member of the osumilite group from Mont Saint-Hilaire, Quebec, and its crystal structure	J.D. GRICE, T.S. ERCIT, J. VAN VELTHUIZEN & P.J. DUNN	763
The crystal structure of ehrleite, a tetrahedral sheet structure	F.C. HAWTHORNE & J.D. GRICE	767
The check-list for submission of proposals for new minerals to the Commission on New Minerals and Mineral Names, International Mineralogical Association	J.A. MANDARINO	775
Proceedings of the thirty-second annual meeting of the Mineralogical Association of Canada	S.M. BARR	785
The Hawley medals for 1987 to Stephen J. Guggenheim and Richard A. Eggleton		786
The Past Presidents' medal for 1987 to Peter L. Roeder		789
The Berry medal for 1987 to A. Ronald Graham		791
Book Reviews		794
Errata: Procedures involving the IMA Commission on New Minerals and Mineral Names, and guidelines on mineral nomenclature.	E.H. NICKEL & J.A. MANDARINO	796
Index, volume 25	J.D. SCOTT	799