

THE CANADIAN MINERALOGIST

**Journal of the
Mineralogical Association
of Canada**



Volume 14 (1976)

THE CANADIAN MINERALOGIST

Volume 14, 1976

Subject Index

PART 1

Preface	J. R. KRAMER & A. R. GRAHAM	1
Trace-element geochemistry of detrital sediments from Newfoundland inlets and the adjacent continental margin: application to provenance studies, mineral exploration, and Quaternary marine stratigraphy	R. M. SLATT & D. R. SASSEVILLE	3
The metal-adsorption chemistry of busierite	D. S. JEFFRIES & W. STUMM	16
Trace-element geochemistry of piston cores from western Michigan coastal lakes	R. WHEELER & C. DUNNING	23
Experimental modelling of inter-elemental relationship in natural ferromanganese materials	V. SUBRAMANIAN	32
Some factors affecting the synthesis of cryptocrystalline strengite from an amorphous phosphate complex	N. D. WARRY & J. R. KRAMER	40
Ecological consequences of acidic and heavy-metal discharges from the Sudbury smelters	L. M. WHITBY, P. M. STOKES, T. C. HUTCHINSON & G. MYSLIK	47
Pt, Pd, Au and Ir content of Kelly Lake bottom sediments	J. H. CROCKET & Y. TERUTA	57
Geological factors affecting biological activity in Precambrian Shield lakes	N. CONROY & W. KELLER	62
Sediment geochemistry of Sudbury-area lakes	R. G. SEMKIN & J. R. KRAMER	73
Fibrous cummingtonite in Lake Superior	J. R. KRAMER	91
Referees for 1975, including volume 13		99
Membership list, Mineralogical Association of Canada		100

PART 2

A numerical approach toward the classification of complex, orthorhombic, rare-earth AB_2O_6 -type Nb-Ta-Ti oxides	RODNEY C. EWING	111
Agrellite, a new rock-forming mineral in regionally metamorphosed alpaaitic alkalic rock	J. GITTINS, M. G. BOWN & D. STURMAN	127
Structure crystalline de la lemoynite, $(Na,K)_2CaZr_2Si_{10}O_{26} \cdot 5-6H_2O$	YVON LE PAGE & GUY PERRAULT	132
Refinement of the crystal structure of dyscrasite, and its implications for the structure of allargentum	J. DOUGLAS SCOTT	139
A refinement of the crystal structure of adamite	F. C. HAWTHORNE	143
Ordering of transition metal ions in olivine	D. WALSH, GABRIELLE DONNAY & J. D. H. DONNAY	149
Synthesis and properties of jarosite-type compounds	J. E. DUTRIZAC & S. KAIMAN	151
Mixed-layer kaolinite-montmorillonite from soils near Dawson, Yukon Territory	H. KODAMA, N. MILES, S. SHIMODA & J. E. BRYDON	159
Certified compositional reference materials for the earth sciences	G. H. FAYE & R. SUTARNO	164
Reactions in cubanite and chalcopyrite	J. E. DUTRIZAC	172
A microprobe-homogeneous intergrowth of galena and matildite from the Nipissing mine, Cobalt, Ontario	J. DOUGLAS SCOTT	182
Silver-bearing wittichenite-chalcopyrite-bornite intergrowths and associated minerals in the Mangualde pegmatite, Portugal	I. S. OEN & C. KIEFT	185
Crystal chemistry and re-examination of nomenclature of sulfosalts in the aikinite-bismuthinite series	D. C. HARRIS & T. T. CHEN	194
Low-temperature optical absorption and Mössbauer spectra of staurolite and spinel	B. L. DICKSON & G. SMITH	206
Ferrous-ferric interaction on adjacent face-sharing antiprismatic sites in vesuvianites: evidence for ferric ion in eight coordination	P. G. MANNING	216
Preparation of manuscripts		221

PART 3

Preface	A. D. EDGAR	225
Water and magma genesis: the association hypersolvus granite—subsolvus granite	R. F. MARTIN & B. BONIN	228
Plutonism and plate dynamics: the origin of Circum-Pacific batholiths	L. W. YOUNKER & T. A. VOGEL	238
Some geologic constraints on models for magma generation in orogenic environments	A. R. MCBIRNEY	245
Experimental testing of 'equilibrium' partial melting of peridotite under water-saturated, high-pressure conditions	D. H. GREEN	255
Interaction between sea water and oceanic layer two as a function of time and depth — I. Field evidence	F. AUMENTO, W. S. MITCHELL, M. FRATTA	269
Corona-bearing pyroxene granulite xenoliths and the lower crust beneath Nunivak Island, Alaska	D. M. FRANCIS	291
The structure of Povlen-type chrysotile	A. P. MIDDLETON & E. J. W. WHITTAKER	301
Electron microscopic studies of serpentinites	B. A. CRESSEY & J. ZUSSMAN	307
The structure of Unst-type 6-layer serpentines	S. H. HALL, S. GUGGENHEIM, P. MOORE, S. W. BAILEY	314
Pekoite, $\text{CuPb}_{11}\text{S}_{18}$, a new member of the bismuthinite-aikinite mineral series: its structure and relationship with natural- and synthetically-formed members	W. G. MUMME & J. A. WATTS	322
The crystal chemistry of the amphiboles: IV. X-ray and neutron refinements of the crystal structure of tremolite	F. C. HAWTHORNE & H. D. GRUNDY	334
The crystal chemistry of the amphiboles: V. The structure and chemistry of arfvedsonite	F. C. HAWTHORNE	346
Synthesis and fluorine-hydroxyl exchange in the amblygonite series	S. E. LOH & W. S. WISE	357
Phase relations involving arsenopyrite in the system Fe-As-S and their application	U. KRETSCHMAR & S. D. SCOTT	364
Zemannite, a zinc tellurite from Moctezuma, Sonora, Mexico	J. A. MANDARINO, E. MATZAT, S. J. WILLIAMS	387
Formation of ralstonite during low-temperature acid digestion of shales	B. HITCHON, L. R. HOLLOWAY, P. BAYLISS	391
Howlite and ulexite from Carboniferous gypsum and anhydrite beds in western Newfoundland — ADDENDUM	V. S. PAPEZIK & C. C. K. FONG	393
Fibrous cummingtonite in Lake Superior — Discussion	P. E. CHAMPNESS, G. W. LORIMER & J. ZUSSMAN	394
Fibrous cummingtonite in Lake Superior — Reply	J. R. KRAMER	395
Proceedings of the Twenty-First Annual Meeting, Mineralogical Association of Canada		396
The Hawley Award and the 1976 Award winner Ralph Kretz		398

PART 4

Preface	A. R. GRAHAM	401
Baricite, the magnesium analogue of vivianite, from Yukon Territory, Canada	B. D. STURMAN & J. A. MANDARINO	403
Falcondoite, nickel analogue of sepiolite	G. SPRINGER	407
Two new palladium-arsenic-bismuth minerals from the Stillwater Complex, Montana	L. J. CABRI, T. T. CHEN, J. M. STEWART & J. H. G. LAFLAMME	410
Forbesite — a mixture of cobaltoan annabergite and arsenolite	M. E. MROSE, R. R. LARSON & P. A. ESTEP	414
An unusual "thucholite" from Elliot Lake, Ontario	S. KAIMAN & J. L. HORWOOD	422
Mineralogy of the zippeite group	C. FRONDEL, J. ITO, R. M. HONEA & A. M. WEEKS	429
New data for köttigite and parasymplectite	B. D. STURMAN	437
Diaspore in a pyrophyllite deposit on the Avalon Peninsula, Newfoundland	V. S. PAPEZIK & H. F. KEATS	442
Sulfide mineralogy of the Main Irruptive, Sudbury, Ontario	J. M. DUKE & A. J. NALDRETT	450
Experimental study on the serpentization of iron-bearing olivines	JUDITH B. MOODY	462
X-ray and optical characterization of the forsterite-fayalite-tephroite series with comments on knebelite from Bluebell mine, British Columbia	D. J. MOSSMAN & D. J. PAWSON	479

Mineralogy of Indian kimberlites — a thermal and X-ray study	P. KRESTEN & D. K. PAUL	487
Refractive indices versus alkali contents in beryl: general limitations and applications to some pegmatite types	P. CERNY & F. C. HAWTHORNE	491
The Gladstone-Dale relationship. Part I: derivation of new constants	J. A. MANDARINO	498
A note on choice of end members in representing certain systems and on a possible alternative to Vegard's rule	ADOLPH PABST	503
Epitaxie sur maclé	J.-L. ROBERT & J. D. H. DONNAY	508
Crystal structure of miserite, a Zoltai Type 5 structure	J. D. SCOTT	515
The crystal structure of mawsonite, $\text{Cu}_6\text{Fe}_2\text{SnS}_8$	J. T. SZYMANSKI	529
The ordering scheme for metal atoms in the crystal structure of hammarite, $\text{Cu}_2\text{Pb}_2\text{Bi}_4\text{S}_8$	H. HORIUCHI & B. J. WUENSCH	536
The crystal structures of tantalite, ixiolite, and wodginite from Bernic Lake, Manitoba. I. Tantalite and ixiolite	J. D. GRICE, R. B. FERGUSON & F. C. HAWTHORNE	540
The crystal structures of tantalite, ixiolite, and wodginite from Bernic Lake, Manitoba. II. Wodginite	R. B. FERGUSON, F. C. HAWTHORNE & J. D. GRICE	550
The crystal structure of alloclasite, CoAsS , and the alloclasite-cobaltite transformation	J. D. SCOTT & W. NOWACKI	561
A graphical derivation of the crystallographic rotation axes	J. D. H. DONNAY & GABRIELLE DONNAY	567
Crystallization of pyrite from deoxygenated aqueous sulfide solutions at elevated temperature and pressure	A. G. WIKJORD, T. E. RUMMERY & F. E. DOERN	571
A possible unit cell for glaukosphaerite	J. L. JAMBOR	574
Native lead at Keno Hill, Yukon	R. W. BOYLE	577
Additional physical, optical and X-ray data for pekoite	W. G. MUMME & J. A. WATTS	578
Index for Volume 14		579

THE CANADIAN MINERALOGIST

Volume 14, Index

This index was prepared by Dr. A. G. Plant of the Geological Survey of Canada.

Typing was kindly done by A. Farrell

Author Index

- AUMENTO, F., Mitchell, W.S. & Fratta, M. Interaction between sea water and oceanic layer two as a function of time and depth - 1. Field evidence, 269
- BAILEY, S.W. with Hall, S.H., 314
- BAYLISS, P. with Hitchon, B., 391
- BONIN, B. with Martin, R.F., 228
- BOWN, M.G. with Gittins, J., 120
- BOYLE, R.W. Native lead at Keno Hill, Yukon, 577
- BRYDON, J.E. with Kodama, H., 159
- CABRI, L.J., Chen, T.T., Stewart, J.M. & Laflamme, J.H.G. Two new palladium-arsenic-bismuth minerals from the Stillwater Complex, Montana, 410
- ČERNÝ, P. & Hawthorne, F.C. Refractive indices versus alkali contents in beryl: general limitations and applications to some pegmatitic types, 491
- CHAMPNESS, P.E., Lorimer, G.W. & Zussman, J. Fibrous cummingtonite in Lake Superior: discussion, 394
- CHEN, T.T. with Cabri, L.J., 410
- _____ with Harris, D.C., 194
- CONROY, N. & Keller, W. Geological factors affecting biological activity in Precambrian Shield lakes, 62
- CRESEY, B.A. & Zussman, J. Electron microscopic studies of serpentinites, 307
- CROCKET, J.H. & Teruta, Y. Pt, Pd, Au and Ir content of Kelley Lake bottom sediments, 58
- DICKSON, B.L. & Smith, G. Low-temperature optical absorption and Mössbauer spectra of staurolite and spinel, 206
- DOERN, F.E. with Wikjord, A.G., 571
- DONNAY, G. with Donnay, J.D.H., 567
- _____ with Walsh, D., 149
- DONNAY, J.D.H. & Donnay, G. A graphical derivation of the crystallographic rotation axes, 567
- _____ avec Robert, J.-L., 508
- _____ with Walsh, D., 149
- DUKE, J.M. & Naldrett, A.J. Sulfide mineralogy of the Main Irruptive, Sudbury, Ontario, 450
- DUNNING, C. with Wheeler, R., 23
- DUTRIZAC, J.E. Reactions in cubanite and chalcopyrite, 172
- _____ & Kaiman, S. Synthesis and properties of jarosite-type compounds, 151
- EDGAR, A.D. Preface, Symposium on water and magma genesis, 225
- ESTEP, P.A. with Mrose, M.E., 414
- EWING, R.C. A numerical approach toward the classification of complex, orthorhombic, rare-earth, A_2O_6 -type Nb-Ta-Ti oxides, 111
- FAYE, G.H. & Sutarno, R. Certified compositional reference materials for the earth sciences, 164
- FERGUSON, R.B., Hawthorne, F.C. & Grice, J.D. The crystal structures of tantalite, ixiolite and wodginite from Bemic Lake, Manitoba II. Wodginite, 550
- _____ with Grice, J.D., 540
- FONG, C.C.K. with Papezik, V.S., 393
- FRANCIS, D.M. Corona-bearing pyroxene granulite xenoliths and the lower crust beneath Nunivak Island, Alaska, 291
- FRATTA, M. with Aumento, F., 269
- FRONDEL, C., Ito, J., Honea, R.M. & Weeks, A.M. Mineralogy of the zippelite group, 429
- GITTINS, J., Bown, M.G. & Sturman, D. Agrellite, a new rock-forming mineral in regionally metamorphosed aegaptic alkaline rocks, 120
- GRAHAM, A.R. Preface, Issue dedicated to Professor L.G. Berry, 401
- _____ with Kramer, J.R., 1
- GREEN, D.H. Experimental testing of "equilibrium" partial melting of peridotite under water-saturated, high-pressure conditions, 255
- GRICE, J.D., Ferguson, R.B. & Hawthorne, F.C. The crystal structures of tantalite, ixiolite and wodginite from Bemic Lake, Manitoba I. Tantalite and ixiolite, 540
- _____ with Ferguson, R.B., 550
- GRUNDY, H.D. with Hawthorne, F.C., 334
- GUGGENHEIM, S. with Hall, S.H., 314
- HALL, S.H., Guggenheim, S., Moore, P. & Bailey, S.W. The structure of Unst-type 6-layer serpentines, 314
- HARRIS, D.C. & Chen, T.T. Crystal chemistry and re-examination of nomenclature of sulfosalts in the aikinite-bismuthinite series, 194
- HAWTHORNE, F.C. A refinement of the crystal structure of adamite, 143
- _____ The crystal chemistry of the amphiboles: V. The structure and chemistry of arfvedsonite, 346
- _____ & Grundy, H.D. The crystal chemistry of the amphiboles: IV. X-ray and neutron refinements of the crystal structure of tremolite, 334
- _____ with Černý, P., 491
- _____ with Ferguson, R.B., 550
- _____ with Grice, J.D., 540
- HITCHON, B., Holloway, L.R. & Bayliss, P. Formation of ralstonite during low-temperature acid digestion of shales, 391
- HOLLOWAY, L.R. with Hitchon, B., 391
- HONEA, R.M. with Frondel, C., 429
- HORIUCHI, H. & Wuensch, B.J. The ordering scheme for metal atoms in the crystal structure of hammarite, $Cu_2Pb_2Bi_2S_9$, 536
- HORWOOD, J.L. with Kaiman, S., 422
- HUTCHINSON, T.C. with Whitby, L.M., 47
- ITO, J. with Frondel, C., 429
- JAMBOR, J.L. A possible unit cell for glaukosphaerite, 574
- JEFFRIES, D.S. & Stumm, W. The metal-adsorption chemistry of busserite, 16
- KAIMAN, S. & Horwood, J.L. An unusual "thucholite" from Elliot Lake, Ontario, 422
- _____ with Dutrizac, J.E., 151
- KEATS, H.F. with Papezik, V.S., 442
- KELLER, W. with Conroy, N., 62
- KIEFT, C. with On, I.S., 185
- KODAMA, H., Miles, N., Shimoda, S. & Brydon, J.E. Mixed-layer kaolinite-montmorillonite from soils near Dawson, Yukon Territory, 159
- KRAMER, J.R. Fibrous cummingtonite in Lake Superior, 91
- _____ Fibrous cummingtonite in Lake Superior: reply, 395
- _____ & Graham, A.R. Preface, Symposium on environmental aspects of mineralogy and sedimentary geochemistry, 1
- _____ with Semkin, R.G., 73
- _____ with Warry, N.D., 40
- KRESTEN, P. & Paul, D.K. Mineralogy of Indian kimberlites - a thermal and X-ray study, 487
- KRETSCHMAR, U. & Scott, S.D. Phase relations involving arsenopyrite in the system Fe-As-S and their application, 364
- LAFLAMME, J.H.G. with Cabri, L.J., 410
- LARSON, R.R. with Mrose, M.E., 414
- LE PAGE, Y. & Perrault, G. Structure cristalline de la leymonite, $(Na,K)_2CaZr_2Si_10O_{26} \cdot 5-6H_2O$, 132
- LOH, S.E. & Wise, W.S. Synthesis and fluorine-hydroxyl exchange in the amblygonite series, 357
- LORIMER, G.W. with Champness, P.E., 394
- MANDARINO, J.A. The Gladstone-Dale relationship - Part I: derivation of new constants, 498
- _____ Matzat, E. & Williams, S.J. Zemannite, a zinc tellurite from Moctezuma, Sonora, Mexico, 387
- _____ & Sturman, B.D. Kulanite, a new barium iron aluminum phosphate from the Yukon Territory, Canada, 127

— with Sturman, B.D., 403

MANNING, P.G. Ferrous-ferric interaction on adjacent face-sharing antiprismatic sites in vesuvianites: evidence for ferric ion in eight coordination, 216

MARTIN, R.F. & Bonin, B. Water and magma genesis: the association hypersolvus granite-subsolvus granite, 228

MATZAT, E. with Mandarino, J.A., 307

McBIRNEY, A.R. Some geologic constraints on models for magma generation in orogenic environments, 245

MIDDLETON, A.P. & Whittaker, E.J.W. The structure of Povlen-type chrysotile, 301

MILES, N. with Kodama, H., 159

MITCHELL, W.S. with Aumento, F., 269

MOODY, J.B. An experimental study on the serpentinization of iron-bearing olivines, 462

MOORE, P. with Hall, S.H., 314

MOSSMAN, D.J. & Pawson, D.J. X-ray and optical characterization of the forsterite-fayalite-tephroite series with comments on knebelite from Bluebell mine, British Columbia, 479

MROSE, M.E., Larson, R.R. & Estep, P.A. Forbesite — a mixture of cobaltoan annabergite and arsenolite, 414

MUMME, W.G. & Watts, J.A. Pekoite, $CuPbBi_3S_8$, a new member of the bismuthinite-aikinite mineral series: its crystal structure and relationship with naturally- and synthetically-formed members, 322

— & — Additional physical, optical and X-ray data for pekoite, 578

MYSLIK, G. with Whitby, L.M., 47

NALDRETT, A.J. with Duke, J.M., 450

NOWACKI, W. with Scott, J.D., 561

OEN, I.S. & Kieft, C. Silver-bearing wittichenite-chalcopyrite-bornite intergrowths and associated minerals in the Mangualde pegmatite, Portugal, 185

PABST, A. A note on choice of end members in representing certain systems and on a possible alternative to Vegard's rule, 503

PAPEZIK, V.S. & Fong, C.C.K. Howlite and ulexite from Carboniferous gypsum and anhydrite beds in western Newfoundland — addendum, 393

— & Keats, H.F. Diaspore in a pyrophyllite deposit on the Avalon Peninsula, Newfoundland, 442

PAUL, D.K. with Kresten, P., 487

PAWSON, D.J. with Mossman, D.J., 479

PERRAULT, G. avec Le Page, Y., 132

ROBERT, J.L. & Donnay, J.D.H. Epitaxie sur nacle, 508

RUMMERY, T.E. with Wikjord, A.G., 571

SASSEVILLE, D.R. with Slatt, R.M., 3

SCOTT, J.D. Refinement of the crystal structure of dyscrasite, and its implications for the structure of allargentum, 139

— A microprobe-homogeneous intergrowth of galena and matildite from the Nipissing mine, Cobalt, Ontario, 182

— Crystal structure of miserite, a Zoltai Type 5 structure, 515

— & Nowacki, W. The crystal structure of alloclasiaite, $CoAs_2$, and the alloclasiaite-cobaltite transformation, 561

SCOTT, S.D. with Kretschmar, U., 364

SEMKIN, R.G. & Kramer, J.R. Sediment geochemistry of Sudbury-area lakes, 73

SHIMODA, S. with Kodama, H., 159

SLATT, R.M. & Sasseville, D.R. Trace-element geochemistry of detrital sediments from Newfoundland inlets and the adjacent continental margin: application to provenance studies, mineral exploration, and Quaternary marine stratigraphy, 3

SMITH, G. with Dickson, B.L. 206

SPRINGER, G. Falcondoite, nickel analogue of sepiolite, 407

STEWART, J.M. with Cabri, L.J., 410

STOKES, P.M. with Whitby, L.M., 47

STUMM, W. with Jeffries, D.S., 16

STURMAN, B.D. New data for köttigite and parasymplectite, 437

— & Mandarino, J.A. Baričite, the magnesium analogue of vivianite, from Newfoundland inlets and the Yukon Territory, Canada, 402

— with Gittins, J., 120

— with Mandarino, J.A., 127

SUBRAMANIAN, V. Experimental modelling of inter-elemental relationship in natural ferromanganese materials, 32

SUTARNO, R. with Faye, G.H., 164

SZYMANSKI, J.T. The crystal structure of mawsonite, $Cu_2Fe_2Sn_6S_8$, 529

TERUTA, Y. with Crocket, J.H., 58

VOGEL, T.A. with Younker, L.W., 238

WALSH, D., Donnay, G. & Donnay, J.D.H. Ordering of transition metal ions in olivine, 149

WARRY, N.D. & Kramer, J.R. Some factors affecting the synthesis of cryptocrystalline strengite from an amorphous phosphate complex, 40

WATTS, J.A. with Mumme, W.G., 322, 578

WEEKS, A.M. with Frondel, C., 429

WHEELER, R. & Dunning, C. Trace-element geochemistry of piston cores from western Michigan coastal lakes, 23

WHITBY, L.M., Stokes, P.M., Hutchinson, T.C. & Myslik, G. Ecological consequence of acidic and heavy-metal discharges from the Sudbury smelters, 47

WHITTAKER, E.J.W. with Middleton, A.P., 301

WIKJORD, A.G., Rummery, T.E. & Doern, F.E. Crystallization of pyrite from deoxygenated aqueous sulfide solutions at elevated temperature and pressure, 571

WILLIAMS, S.J. with Mandarino, J.A., 387

WISE, W.S. with Loh, S.E., 357

WUENSCH, B.J. with Horiuchi, H., 536

YOUNKER, L.W. & Vogel, T.A. Plutonism and plate dynamics: the origin of Circum-Pacific batholiths, 238

ZUSSMAN, J. with Champness, P.E., 394

— with Cressey, B.A., 307

Subject Index

- Additional physical, optical and X-ray data for pekoite (Mumme & Watts), 578
- A graphical derivation of the crystallographic rotation axes (Donnay & Donnay), 567
- Agrillite, a new rock-forming mineral in regionally metamorphosed epaaitic alkaik rocks (Gittins, Bown & Sturman), 120
- A microprobe-homogeneous intergrowth of galena and matildite from the Nipissing mine, Cobalt, Ontario (Scott), 182
- An experimental study on the serpentinization of iron-bearing olivines (Moody), 462
- A note on choice of end members in representing certain systems and on a possible alternative to Vegard's rule (Pabst), 503
- A numerical approach toward the classification of complex, orthorhombic, rare-earth, AB_2O_6 -type Nb-Ta-Ti oxides (Ewing), 111
- An unusual "thucholite" from Elliot Lake, Ontario (Kaiman & Horwood), 422
- A possible unit cell for glaukosphaerite (Jambor), 574
- Application for membership and order form, Mineralogical Association of Canada, 110
- A refinement of the crystal structure of adamite (Hawthorne), 143
- Arsenopyrite geothermometer, 382

Barite, the magnesium analogue of vivianite, from Yukon Territory, Canada (Sturman & Mandarino), 403
 Certified compositional reference materials for the earth sciences (Faye & Sutamo), 164

CHEMICAL ANALYSIS (see also Electron microprobe analysis and Geochemistry)

Minerals

adamite, 143; agrellite, 122; ammonium jarosite, 154; arfvedsonite, 347; arsenopyrite, 370; barite, 405; brucite, 468; buserite, 17; carbonaceous nodules, 423; cobalt bloom, 420; cobaltoan annabergite, 417; cobalt-zippelite, 434; erythrite, 417, 420; falcondoite, 408; forbesite, 418; hydronium jarosite, 154; jarosite compounds, 154; knebelite, 482; köttigite, 438; kulanite, 131; lead jarosite, 154; lemoynite, 133; magnesium-zippelite, 435; mercury jarosite, 154; miserite, 516; native lead, 577; nickel-zippelite, 434; potassium jarosite, 154; ralstonite, 392; silver jarosite, 154; sodium jarosite, 154; sodium-zippelite, 433; synthetic cobalt-zippelite, 434; synthetic jarosites, 154; synthetic nickel-zippelite, 434; synthetic sodium-zippelite, 433; synthetic zinc-zippelite, 435; synthetic zippelite, 432; tremolite, 335; zemannite, 388; zinc-zippelite, 435; zippelite, 432

Rocks

Bermuda seamount tholeiites, 277; Deep Sea Drilling Project, Leg 37, 281; detrital sediments, 5; diaspore nodule, 443; ferromanganese materials, 33; lake sediments, 23, 59, 73; Mid-Atlantic Ridge pillow basalts, 271, 277; oxidation state of iron in experimental runs, 257; pyrophyllite rock, 443; pyroxene-granulite xenoliths, 295; quartz-rich norite, 455; reference materials for the earth sciences, 164; rhyolite, 443; soils, 50; soil sample, 162
 Corona-bearing pyroxene granulite xenoliths and the lower crust beneath Nunivak Island, Alaska (Francis), 291
 Crystal chemistry and re-examination of nomenclature of sulfosalts in the aikinite-bismuthinite series (Harris & Chen), 194
 Crystallization of pyrite from deoxygenated aqueous sulfide solutions at elevated temperature and pressure (Wikjord, Rummery & Doern), 571

CRYSTAL STRUCTURE

adamite, 143; allargentum, 139; alloclasite, 561; arfvedsonite, 346; chrysotile, 301; cobaltite, 564; dyscrasite, 139; evelite, 147; hammarite, 536; ixiolite, 540; lemoynite, 132; manganotantalite, 540; mawsonite, 529; miserite, 515; olivenite, 147; paradamite, 147; pekoite, 322; Polven-type chrysotile, 301; sarkinite, 147; serpentine, 314; staurolite, 214; synthetic members of bismuthinite-aikinite series, 326; tantalite, 540; tremolite, 334; Unst-type 6-layer serpentine, 314; wadginite, 550
 Crystal structure of miserite, a Zoltau Type 5 structure (Scott), 515
 Diaspore in a pyrophyllite deposit on the Avalon Peninsula, Newfoundland (Papezik & Keats), 442

D. T. A.

barite, 404; chalcopyrite, 177; cubanite, 174; falcondoite, 408; kimberlite, 489; kulanite, 130; synthetic bornite, 176; synthetic chalcopyrite, 176; synthetic $CuFe_2S_3$, 174

Ecological consequence of acidic and heavy-metal discharges from the Sudbury smelters (Whitby, Stokes, Hutchinson & Myslik), 47

ELECTRON MICROPROBE ANALYSIS

agrellite, 122; Ag-selenide, 192; Ag-telluride intergrowth, 192; aikinite, 197; alloclasite, 562; amphibole, 260, 264; arfvedsonite, 347; arsenopyrite, 370, 379, 381, 382; bornite, 192; brucite, 468; carbonaceous nodules, 424; chalcopyrite, 192, 455; clinopyroxene, 260, 264, 293, 294; cummingtonite fibres, 93; diaspore, 444; dyscrasite, 139; emplectite, 192; falcondoite, 408; galena-matildite intergrowth, 183; gladiote, 197; gréigite, 455; hammarite, 197; ilmenite, 260; knebelite, 482; köttigite, 438; krupkaite, 197; lindstromite, 197; matildite, 192; mawsonite, 530; miserite, 516; olivine, 264, 293; orthopyroxene, 260, 264, 294; palladobismutharsenide, 411; parasymplectite, 440; pekoite, 197, 324, 578; pentlandite,

455; phases in Fe-As-S system, 371; plagioclase, 293; pyrite, 455; pyrophyllite, 444; pyrrhotite, 455; raumelsbergite, 415; spinel, 207, 293, 294; stannoidite, 192; staurolite, 207; synthetic arsenopyrite, 377; synthetic palladobismutharsenide, 411; unnamed Pd-As-Bi, 411; vesuvianite, 217; violarite, 455; wittichenite, 192; wadginite, 552; zemannite, 388

Electron microscopic studies of serpentinites (Cressey & Zussman), 307

Environmental aspects of mineralogy and sedimentary geochemistry, symposium, 1

Epitaxial sur macle (Robert & Donnay), 508

EXPERIMENTAL

General

activity of FeAs in arsenopyrite, 377; amlygonite series, 357; arsenopyrite, 364; buserite, 17; effect of confining pressure on arsenopyrite composition, 378; epitaxial overgrowth, 508; epitaxial sur macle, 508; equilibrium melt compositions, 259; "equilibrium" partial melting of peridotite, 259; experimental methods, 255; Fe-Mn-Ni hydroxides, 33; ferromanganese materials, 32; fluorine-hydroxyl exchange in the amlygonite series, 360; giekkite, 508; granite-water system, 233; hyper-solvus granite-subsolvus granite, 233; jarosite, 151; origin of batholiths, 239; peridotite, 255; problems and comparisons in experimental methods, 255; pyrite crystallization, 571; pyrolite, 260; serpentinization of iron-bearing olivines, 462; stability of $Fe(OH)_2$, 472; stability relations of iron phosphates and hydroxides, 44; synthesis of agrellite, 124; synthesis of arsenopyrite, 365; synthesis of cryptocrystalline strengite, 40; synthesis of jarosite-type compounds, 151; synthesis of members of $CuPbBiS_3$ - Bi_2S_3 series, 327; synthesis of members of the amlygonite series, 359; synthesis of members of the solid-solution series $CuPbBiS_3$ - Bi_2S_3 , 327; synthesis of ralstonite, 392; synthesis of zippelite-type phases, 430; synthetic Mg-Ge-serpentine, 315; synthetic Pd_2As , 411; synthetic $Pd_1.97As_0.80Bi_0.23$, 411; Tutton's salts, 498; water and magma genesis, 225; water-saturated melting of pyrolite, 260

System

$AgBiS_2$ -PbS, 503; $AgSbTe_2$ -PbTe, 506; Ag_2S - Cu_2S - Bi_2S_3 , 192; Al_2O_3 - H_2O , 446; Al_2O_3 - SiO_2 - H_2O , 446; Cu-Au, 505; Cu-Fe-Bi-S, 186; Cu-Fe-S, 172; $CuFe_2S_2$ -FeS, 179; Cu_2S - Bi_2S_3 - $CuFeS_2$, 186; Cu_2S -PbS- Bi_2S_3 , 198; Fe-As-S, 364; $NaAlSi_3O_8$ $KAlSi_3O_8$ - H_2O , 232; Na_2O - CaO - SiO_2 -F, 124

Experimental modelling of inter-elemental relationship in natural ferromanganese materials (Subramanian), 32
 Experimental testing of "equilibrium" partial melting of peridotite under water-saturated, high-pressure conditions (Green), 255
 Falcondoite, nickel analogue of sepiolite (Springer), 407
 Ferrous-ferric interaction on adjacent face-sharing antiprismatic sites in vesuvianites: evidence for ferric ion in eight coordination (Manning), 216
 Fibrous cummingtonite in Lake Superior (Kramer), 91
 Fibrous cummingtonite in Lake Superior: discussion (Chambers, Lorimer & Zussman), 394
 Fibrous cummingtonite in Lake Superior: reply (Kramer), 395
 Forbesite - a mixture of cobaltoan annabergite and arsenolite (Mrose, Larson & Estep), 414
 Formation of ralstonite during low-temperature acid digestion of shales (Hitcho, Holloway & Bayliss), 391

GEOCHEMISTRY

aquatic ecosystems, 47; basalt glasses, 286; Bermuda seamount, 269; beryl in pegmatites, 495; biogeochemistry, 47; biological activity in Precambrian Shield lakes, 62; discharges from smelters, 47; ferromanganese materials, 32; halmyrolysis, 286; interaction between sea water and oceanic layer two, 269; island arc environments, 266; lake sediments, 23, 58, 73; magma generation, 245; metal-adsorption chemistry of buserite, 16; Mid-Atlantic Ridge, 269; peridotite, 266; pillow basalts, 269; reference materials for the earth sciences, 164; sedimentary geochemistry, 1; sediment nitrogen, 78; sediment organic carbon, 78; sediment phosphorus, 78; shelf sedimentary facies, 10; strengite, 40; sulfur in the Main Irruptive, Sudbury, 458; surficial sediments, 12; terrestrial

ecosystems, 47; tholeiites, 269; trace-element enrichment in marine sediments, 9; trace-elements in detrital sediments, 3; trace-elements in lake sediments, 23, 58, 73; water and magma genesis, 225

GEOGRAPHICAL LOCALITIES

Australia

arsenopyrite, 381; dyscrasite, 139; gladiolite, 323, 578; glaukosphaerite, 574; junoite, 578; krupkaite, 322; pekoite, 322, 578; serpentine, 314; siderite, 139; staurolite, 207; wodginite, 551

Austria

arsenopyrite, 382

Bermuda

tholeiites, 277

Bolivia

arsenopyrite, 381

Brazil

aikinite, 196; gladiolite, 196; native bismuth, 196; pekoite, 196; phenakite, 196

*Canada**British Columbia*

amphibole, 165; arsenopyrite, 381, 484; barite, 165; biotite, 165; bornite, 165; calcite, 165, 484; chalcopyrite, 165; clay minerals, 165; galena, 484; hematite, 165, 484; iron-platinum alloy, 166; knebelite, 481; kutnahorite, 484; limestone, 484; loellingite, 381; magnetite, 165, 484; molybdenite, 165; olivine, 479; orthoclase, 165; plagioclase, 165, 484; platinum-group minerals, 166; pyrite, 165, 484; pyrrhotite, 484; quartz, 165, 484; rutile, 165; sericite, 165; sphalerite, 484; ultramafic rock, 165

Labrador

aenigmatite, 121, 347; albite, 121; amphibole, 347; arfvedsonite, 121, 347; jadeitic pyroxene, 121; microcline, 121; nepheline, 121, 347; Red Wine Complex, 121, 347; serpentine, 314; titanite aegirine, 121; titanite ferro-omphacite, 121

Maine

aikinite, 196; ambygonite, 358, 362; arsenopyrite, 381; beryl, 496; brugnatellite, 307; chrysotile, 308; dunite, 307, 308; gladiolite, 196; gustavite, 196; ixioilite, 540; lizardite, 307, 308; magnetite, 308; microlite, 542; montebrazite, 362; pegmatite, 542; pekoite, 196; pyrite, 381; pyroxenite, 308; tantalite, 540; wodginite, 540, 550

New Brunswick

arsenopyrite, 165, 381; beryl, 166; biotite, 166; bismuth, 165, 166; bismuthinite, 166; cassiterite, 165, 166; chalcopyrite, 165, 166; chlorite, 165, 166; feldspar, 165, 166; fluorite, 166; galena, 165, 166; kaolinite, 165; molybdenite, 165, 166; muscovite, 165; pyrite, 165, 166; pyrrhotite, 166; quartz, 165, 166; rutile, 165, 166; sphalerite, 165; stannite-kesterite, 165; topaz, 165, 166; wolframite, 165, 166

Newfoundland

arsenopyrite, 381; barite, 444; detrital sediments, 3; diaspore, 442; howlite, 393; kaolinite, 443; muscovite, 443; pyrophyllite, 442; quartz, 443; rhyolitic flows, 442; rutile, 444; ulexite, 393

Northwest Territories

amphibole, 166; arsenopyrite, 381; calcite, 166; chalcopyrite, 166; clay minerals, 166; dolomite, 166; feldspar, 166; liabigite, 433; mica, 166; pyroxene, 166; pyrrhotite, 166; quartz, 166; scheelite, 166; uranopillite, 433; zippeite, 433

Nova Scotia

arsenopyrite, 382; detrital sediments, 4; howlite, 393; ulexite, 393

Ontario

aikinite, 196; alloclase, 561; amphibole, 454; annabergite, 416; arsenopyrite, 370, 382, 453; brannerite, 167; calcite, 182, 424; carbon, 166, 422; cassiterite, 166; chalcopyrite, 166, 424, 453; chlorite, 166; chrysotile, 424; cobaltoan annabergite, 417; cubanite, 173, 424; cummingtonite fibres, 91; diaspore, 445; erythrite, 417; feldspar, 424; fibrous cummingtonite, 394, 395; gabbro, 452; galena, 166, 422; galena-matildite intergrowth, 182; grlegite, 457; hypersthene, 454; lake samples, 48, 64; lake

sediments, 45, 58, 73; lindstromite, 196; lizardite, 466; magnetite, 454; marcasite, 453; matildite, 182; mawsonite, 530; michenerite, 167; micropegmatite, 452; moncheite, 167; native bismuth, 182; natural vegetation, 48; norite, 452; pilolite, 424; plagioclase, 454; platinum-group minerals, 167; pyrite, 166, 424, 453; pyrophyllite, 445; pyrrhotite, 166, 424, 453; quartz, 166, 182, 424, 454; siderite, 166; silver, 166; soil samples, 48; sperryllite, 167; sphalerite, 166, 422, 453; stephanite, 166; syenite, 167; tetrahedrite, 166; thuchoilite, 422, 433; uraniferous carbon, 422; uraninite, 422; violarite, 453; vivianite, 45; zippeite, 433

Quebec

aegirine, 516; aegirine-augite, 121; agrellite, 121, 516; aikinite, 196; albite, 121; amphibole, 166, 308; antigorite, 308; arfvedsonite, 121; arsenopyrite, 382; biotite, 121, 166, 308; bismuth, 165; bismuthinite, 165; britholite, 121; brucite, 308; calcite, 121, 165; chalcopyrite, 165; chlorite, 165, 166, 308; chrysotile, 308, 466; clinohumite, 121; cosalite, 196; diopside, 121; eudialyte, 121, 516; feldspar, 166; fluorite, 121, 165; gabbro, 167; galena, 121, 165; garnet, 165; harzburgite, 308; hematite, 166; hiortdahlite, 121; kataphorite, 121; K-feldspar, 165; Kipawa Complex, 121; knebelite, 484; krupkaite, 196; lemoynite, 132; lizardite, 308; magnetite, 166, 308; microcline, 121; misserite, 121, 516; molybdenite, 165; mosandrite, 121; muscovite, 165; muscovite granite, 165; Na-feldspar, 165; nepheline, 121; norbergite, 121; nordmarkite, 484; phlogopite, 121; picrolite, 302; Povlen-type clinochrysotile, 302; pyrite, 165; pyrolusite, 166; quartz, 165, 166; rutile, 165; serpentine, 302; unnamed CaZrSi₂O₇, 121; vlasovite, 121; wöhlerite-group minerals, 121; zircon, 121

Saskatchewan

pitchblende, 167

Yukon Territory

anglesite, 577; apatite, 128; arrojadite, 128; augelite, 128; baricite, 403; beudantite, 577; bindheimite, 577; boulangierite, 577; bourmonite, 577; brazilianite, 128; cerussite, 577; childrenite, 577; chlorite, 160; chlorite-vermiculite, 160; galena, 128; jamesonite, 577; kaolinite, 160; kulianite, 127, 403; lazulite, 128, 403; limonite, 577; litharge, 577; ludlamite, 128; massicot, 577; meneghinite, 577; metavanadate, 128; mica, 160; mixed-layer kaolinite-montmorillonite, 159; native gold, 577; native lead, 577; native silver, 577; native zinc, 577; plumbojarosite, 577; quartz, 128, 160, 403; siderite, 128, 403; sideritic iron-formation, 128, 403; soil samples, 159; vivianite, 128, 403; wad, 577; wardite, 128

Chile

annabergite, 415; arsenic, 381; arsenolite, 414; arsenopyrite, 381; chloanthite, 414; cobaltoan annabergite, 414; dlorite, 415; forbesite, 414; pyrite, 381; rammsbergite, 415;

China

arsenolite, 416

Circum-Pacific Region

andesite, 246; basalt, 246; granitic batholiths, 238; rhyolite ignimbrites, 246; volcanic belts, 245

Corsica

alkali feldspars, 230; fayalite, 230; granite, 231; hastingsite, 230; hypersolvus granite, 230; quartz, 230

Czechoslovakia

aikinite, 196; bravoite, 196; chalcopyrite, 196; chloanthite, 434; galena, 196; gypsum, 433; johannite, 429; nickeline, 434; nickel-zippeite, 434; pyrite, 196; rezbanyite, 196; smaltite, 434; sodium-zippeite, 433; sphalerite, 196; uraninite, 434; uranopillite, 433; zippeite, 429

Dominican Republic

falcondoite, 407; garnierite, 407; harzburgite, 407; laterite, 407; serpentine, 407

England

brucite, 308; chrysotile, 308; lizardite, 308; peridotite, 308

INDEX FOR VOLUME 14

France

alioclasite, 562; ambygonite, 358; subsolvus granite, 235

Germany

arsenolite, 420; calcium sulfate deposits, 393; cobalt bloom, 420; erythrite, 420; köttigite, 437; uraninite, 433; zippeite, 433

Greenland

arfvedsonite, 347; ralstonite, 392

Hungary

arsenopyrite, 381; cosalite, 202; pyrrhotite, 381; rezbanyite, 202

India

apatite, 488; calcite, 488; chlorite, 488; diaspore, 445; kimberlite, 487; olivine, 488; palygorskite, 488; phlogopite, 488; pyrophyllite, 445; serpentine, 488; smectite, 488; vermiculite, 488

Japan

clay minerals, 159; diaspore, 445; mawsonite, 530; parasymplesite, 439; picrotrochite, 480; pyrophyllite, 445

Madagascar (Malagasy Republic)

beryl, 496; betafite, 112

Mexico

adamite, 143; aikinite, 196; arsenopyrite, 382; chalcopyrite, 196; hodrushite, 196; mixed-layer kaolinite-montmorillonite, 159; parasymplesite, 437; sphalerite, 196; tennantite, 196; tetradymite, 196; wittichenite, 196; wollastonite, 196; zemannite, 387

Mid-Atlantic Ridge

basalt glasses, 286; pillow basalts, 271

Morocco

alioclasite, 562; diaspore, 445; pyrophyllite, 445

New Caledonia

sepiolite, 407

Niger

albite, 236; granite, 236; microcline, 236; quartz, 236

Nigeria

albite-biotite granite, 236; albite-riebeckite granite, 236

Norway

euxenite, 112; lizardite, 466; polycrase, 112;

Pakistan

vesuvianite, 216

Portugal

acanthite, 192; Ag-selenide, 187; Ag-sulfide, 187; Ag-telluride, 187; arsenopyrite, 186; bornite, 185; chalcocite, 187; chalcopyrite, 185; covellite, 187; emplectite, 191; feldspar, 185; galena, 187; hessite, 192; ioellingite, 186; matildite, 191; mawsonite, 186; mica, 185; molybdenite, 186; native bismuth, 186; naumannite, 192; phosphate-bearing pegmatite, 185; quartz, 185; sphalerite, 185; stannoidite, 186; telluride and sulfide of silver, 187; tennantite, 185; tetradymite, 191; wittichenite, 185

Rhodesia

ambygonite, 358

Romania

alioclasite, 561; calcite, 562; glaucodot, 561; gold, 562

Scotland

brucite, 307; dunite, 307; lizardite, 307; serpentine, 314

South Africa

chalcopyrite, 173

Swazi Land

euxenite, 112; Povlen-type orthochrysothite, 302; serpentine, 302

Sweden

aikinite, 194; ambygonite, 358; gladite, 194; hammarite, 194, 536; lindströmite, 194; rezbanyite, 194

Switzerland

harzburgite, 308; lizardite, 308; magnetite, 308; quartz-sericite schist, 207; schweizerite, 302; serpentine, 314; staurolite, 207

U. S. A.

aegirine, 515, 516; aikinite, 196; alaskaitite, 196; ambygonite, 358; amphibole, 166; andersonite, 433; antlerite, 434; arsenopyrite, 382; basalts, 291; bayleyite, 435; Bieberite, 434; bismuthinite, 196;

bornite, 434; calcite, 166, 410; calcium sulfate deposits, 393; chalcantinite, 434; chalcopyrite, 166, 196, 434; chlorite, 166; clay minerals, 166; clinopyroxene, 291; cobaltocalcite, 434; cobalt-zippeite, 434; cummingtonite fibres, 91; diaspore, 445; dolomite, 166; epsomite, 434; erythrite, 434; feldspar, 166; gabbro, 231; galenobismutite, 196; gersdorffite, 434; gilpinite, 435; granite, 231; gypsum, 434, 435; hammarite, 196; hematite, 166; Johannite, 434, 435; kaolinized montmorillonite, 159; hydrogarnet, 166; hypersolvus granite, 231; krupkaite, 196; lake sediments, 23; magnesium-zippeite, 434; magnetite, 166; mica, 166; miserite, 515; nickel-zippeite, 434; nodular hydrocarbon, 422; nordmarkitic granite, 231; olivine, 291, 463; orthoclase, 515; orthopyroxene, 291; palladoarsenide, 410; pallado-bismutharsenide, 410; pavonite-like mineral, 196; plagioclase, 291; pyrite, 434; pyrophyllite, 445; pyroxene granulite xenoliths, 291; quartz, 166, 196; rabbitite, 434; rosasite, 574; scheelite, 166; schroëckingerite, 435; sepiolite, 407; serpentine, 314; siderotil, 434; sodium-zippeite, 433, 434; sphalerite, 166, 434; spinel, 291; staurolite, 207; subsolvus granite, 231; syenite, 231; tremolite, 335; undetermined (Pd,Te,Bi) mineral, 410; unnamed Pd₉₄As_{0.78}Bi_{0.28}, 410; uraconite, 435; uraninite, 434, 435; uranopilite, 434; vesuvianite, 216; wollastonite, 515; zeunerite, 434; zinc-zippeite, 435; zippeite, 433

U. S. S. R.

aegirine, 516; aeschynite, 112; aikinite, 196; alio-clasite, 561; ambygonite, 358; basalts, 392; calcium sulfate deposits, 393; chalcopyrite, 180; fluorite, 392; krupkaite, 196; miserite, 516; orthoclase, 516; palladium stibiostannoarsenide, 412; palladoarsenide, 412; pectolite, 516; ralstonite, 392; rezbanyite, 202; wollastonite, 516

Yugoslavia

arsenopyrite, 382; sepiolite, 407; serpentine, 314; vivianite, 404

Zaire

glaukosphaerite, 574

Geological factors affecting biological activity in Precambrian Shield lakes (Conroy & Keller), 62

Hawley Award, 398

Howlite and ulexite from Carboniferous gypsum and anhydrite beds in western Newfoundland - addendum (Papezik & Fong), 393

INFRARED SPECTRA

agrellite, 124; arsenolite, 418; cobaltoan annabergite, 418; Fe-Mn hydroxide coprecipitates, 34; forbesite, 418; mixed-layer kaolinite-montmorillonite, 161; ralstonite, 392; tremolite, 345

Interaction between sea water and oceanic layer two as a function of time and depth - I. Field evidence (Aumento, Mitchell & Fratta), 269

Kulanite, a new barium iron aluminum phosphate from the Yukon Territory, Canada (Mandarin & Sturman), 127

L.G. Berry issue, 401

L.G. Berry issue, announcement, 109

Low-temperature optical absorption and Mössbauer spectra

of staurolite and spinel (Dickson & Smith), 206

Membership List, Mineralogical Association of Canada, 100

MICROHARDNESS

agrellite, 123; aikinite, 202; baricite, 403; falcondoite, 407; galena-matildite intergrowth, 182; hammarite, 202; köttigite, 438; krupkaite, 202; kulanite, 128; lindströmite, 202; palladobismutharsenide, 411; parasymplesite, 440

MINERALOGICAL ASSOCIATION OF CANADA

Application for membership and order form, 110;

L.G. Berry issue, announcement, 109;

Membership List, 100;

Preparation of manuscripts, 221;

Proceedings of the Twenty-First Annual Meeting, May

1976, 396;

Referees for 1975, including volume 13, 99;

The Hawley Award and the 1976 Award Winner Ralph Kretz,

398

Mineralogy of Indian kimberlites — a thermal and X-ray study (Kresten & Paul), 487

Mineralogy of the zippeite group (Fronde! Ito, Honea & Weeks), 429

MINERALS

Mineral Data

adamite, 143; aeschynite, 111; agrellite, 120; Ag-selenide, 192; Ag-sulfide, 192; Ag-telluride, 192; aikinite, 194; allargentum, 139; allosclasis, 561; amblygonite, 362; annabergite, 415; arfvedsonite, 346; arsenolite, 418; arsenopyrite, 370, 379; baricite, 403; beryl, 491; bismuthinite, 203; bjarebyite, 128; blomstrandine, 111; bornite, 192; brucite, 468; buserite, 16; carbon, 423; carbonaceous nodules, 425; chalcocopyrite, 172, 192, 456; chrysotile, 301, 307, 466; clinopyroxene, 293; cobalt bloom, 420; cobaltite, 564; cobaltoan annabergite, 417; cobalt-zippeite, 434; columbite, 541; cubanite, 417; cummingtonite, 91; diaspore, 444; dyscrasite, 139; eckermannite-arfvedsonite series, 352; emplectite, 192; erythrite, 420; euxenite, 111; eveite, 147; falcondoite, 407; forbesite, 414; galena, 182, 192; galena-matildite intergrowth, 182; gladiolite, 194, 324; glaukosphaerite, 574; griegite, 455; hammarite, 194, 536; ixioleite, 540; jarosite, 151; knebelite, 482; kottigitte, 437; krupkaite, 194; kulanite, 127; lemoynite, 132; lindströmite, 194; lizardite, 307, 466; magnesium-zippeite, 434; manganotantalite, 540; matildite, 182, 192; mawsonite, 529; miserite, 515; mixed-layer kaolinite-montmorillonite, 159; native lead, 577; nickel-zippeite, 434; olivenite, 147; olivine, 149, 293, 463, 481; orthopyroxene, 293; palladobismuth-arsenide, 410; paradamite, 147; parasymplectite, 437; pekoite, 194, 322, 578; pentlandite, 455; phosphosiderite, 45; plagioclase, 293; polycrase, 111; Povlen-type chrysotile, 301, 307; priorite, 111; pyrite, 455; pyrophyllite, 444; pyrrhotite, 455; ralstonite, 391; rammsbergite, 415; rezbanite, 201; rosasite, 574; sarkinite, 147; schilnerite, 182; serpentine, 307, 314; sodium-zippeite, 433; spinel, 206, 293; stannoidite, 192; staurolite, 206; strengite, 45; tantalite, 540; tennantite, 192; tetraehedrite, 192; tremolite, 334; unnamed Pd₂Ag_{0.78}Bi_{0.28}, 410; Unst-type 6-layer serpentine, 314; vesuvianite, 216; violarite, 455; vivianite, 404; wittichenite, 192; wodginitite, 541, 550; zemannite, 387; zinc-zippeite, 435; zippeite, 432; zippeite group, 429

Mineral Occurrences

acanthite, Portugal, 192; adamite, Mexico, 143; aegirine, Que. 516, U.S.A. 515, 516, U.S.S.R. 516; aegirine-augite, Que. 121; aenigmatite, Lab. 121, 347; aeschynite, U.S.S.R. 112; agrellite, Que. 121, 516; Ag-selenide, Portugal, 187; Ag-sulfide, Portugal, 187; Ag-telluride, Portugal, 187; aikinite, Brazil, 196, Czechoslovakia, 196, Man. 196, Mexico, 196, Ont. 196, Que. 196, Sweden, 194, U.S.A. 196, U.S.S.R. 196, alaskaitite, U.S.A. 196; albite, Lab. 121, Niger, 236, Que. 121; alkali feldspars, Corsica, 230; allosclasis, France, 562, Morocco, 562, Ont. 561, Roumania, 561, U.S.S.R. 561; amblygonite, France, 358, Man. 358, 362, Rhodesia, 358, Sweden, 358, U.S.A. 358, U.S.S.R. 358; amphibole, B.C. 165, Lab. 347, N.W.T. 166, Ont. 454, Que. 166, 308, U.S.A. 166; andersonite, U.S.A. 433; anglesite, Y.T. 577; annabergite, Chile, 415, Ont. 416; antigorite, Que. 308; antierite, U.S.A. 434; apatite, India, 488, Y.T. 128; arfvedsonite, Greenland, 347, Lab. 121, 347, Que. 121; arrojadite, Y.T. 128; arsenic, Chile, 381; arsenolite, Chile, 414, China, 416, Germany, 402; arsenopyrite, Australia, 381, Austria, 382, Bolivia, 381, B.C. 381, 484, Chile, 381, Hungary, 381, Man. 381, Mexico, 382, N.B. 165, 381, Nfld. 381, N.W.T. 381, N.S. 382, Ont. 370, 382, 453, Portugal, 186, Que. 382, U.S.A. 382, Yugoslavia, 382; augelite, Y.T. 128; baricite, Y.T. 403; barite, B.C. 165, Nfld. 444; bayleyite, U.S.A. 435; beryl, Madagascar, 496, Man. 496, N.B. 166; betafite, Madagascar, 112; beudantite, Y.T. 577; bieberite, U.S.A. 434; bindheimite, Y.T. 577; biotite, B.C. 165, N.B. 166, Que. 121, 166, 308; bismuth, N.B. 165, 166, Que. 165; bismuthinite, N.B. 166, Que. 165, U.S.A. 196; bornite,

B.C. 165, Portugal, 185, U.S.A. 434; boulangierite, Y.T. 577; bourmonite, Y.T. 577; brannerite, Ont. 167; bravoite, Czechoslovakia, 196; brazilianite, Y.T. 128; britholite, Que. 121; brucite, England, 308, Que. 308, Scotland, 307; brunatellite, Man. 307; calcite, B.C. 165, 484, India, 488, N.W.T. 166, Ont. 182, 424, Que. 121, 165, Roumania, 562, U.S.A. 166, 410; carbon, Ont. 166, 422; cassiterite, N.B. 165, 166, Ont. 166; cerussite, Y.T. 577; chalcocopyrite, U.S.A. 434; chalcocite, Portugal, 187; chalcopyrite, B.C. 165, Czechoslovakia, 196, Mexico, 196, N.B. 165, 166, N.W.T. 166, Ont. 166, 424, 453, Portugal, 185, Que. 165, South Africa, 173, U.S.A. 166, 196, 434, U.S.S.R. 180; childrenite, Y.T. 128; chloanthite, Chile, 414, Czechoslovakia, 434; chlorite, India, 488, N.B. 165, 166, Ont. 166, Que. 165, 166, 308, U.S.A. 166, Y.T. 160; chlorite-vermiculite, Y.T. 160; chrysotile, England, 308, Man. 308, Ont. 424, Que. 308, 466; clay minerals, B.C. 165, Japan, 159, N.W.T. 166, U.S.A. 166; clinohumite, Que. 121; clinopyroxene, U.S.A. 291; cobalt bloom, Germany, 420; cobaltoan annabergite, Chile, 414, Ont. 417; cobaltocalcite, U.S.A. 434; cobalt-zippeite, U.S.A. 434; cosalite, Hungary, 202, Que. 196; covellite, Portugal, 187; cubanite, Ont. 173, 424; cummingtonite fibres, Ont. 91, U.S.A. 91; diaspore, India, 445, Japan, 445, Morocco, 445, Nfld. 442, Ont. 445, U.S.A. 445; diopside, Que. 121; dolomite, N.W.T. 166, U.S.A. 166; dyscrasite, Australia, 139; emplectite, Portugal, 191; epsomite, U.S.A. 434; erythrite, Germany, 420, Ont. 417, U.S.A. 434; eudialyte, Que. 121, 516; euxenite, Norway, 112, Swaziland, 112; falcondoite, Dominican Republic, 407; fayalite, Corsica, 230; feldspar, N.B. 165, N.W.T. 166, Ont. 424, Portugal, 185, Que. 166, U.S.A. 166; fibrous cummingtonite, Ont. 394, 395; fluorite, N.B. 165, Que. 121, 165, U.S.S.R. 392; forbesite, Chile, 414; galena, B.C. 484, Czechoslovakia, 196, N.B. 165, 166, Ont. 166, 422, Portugal, 187, Que. 121, 165, Y.T. 577; galena-matildite intergrowth, Ont. 182; galenobismutite, U.S.A. 196; garnet, Que. 165; garnierite, Dominican Republic, 407; gersdorffite, U.S.A. 434; gilpinite, U.S.A. 435; gladiolite, Australia, 323, 578, Brazil, 196, Man. 196, Sweden, 194; glaucodot, Roumania, 561; glaukosphaerite, Australia, 574, Zaire, 574; gold, Roumania, 562; griegite, Ont. 457; gustavite, Man. 196; gypsum, Czechoslovakia, 433, U.S.A. 434, 435; hammarite, Sweden, 194, 536, U.S.A. 196; hastingsite, Corsica, 230; hematite, B.C. 165, 484, Que. 166, U.S.A. 166; hessite, Portugal, 192; hiortdahlite, Que. 121; hodrushite, Mexico, 196; howlite, Nfld. 393, N.S. 393; hydrogarnet, U.S.A. 166; hypersthene, Ont. 454; iron-platinum alloy, B.C. 166; ixioleite, Man. 540; jadeitic pyroxene, Lab. 121; jamesonite, Y.T. 577; johannite, Czechoslovakia, 429, U.S.A. 434, 435; junoite, Australia, 578; kaolinite, N.B. 165, Nfld. 443, Y.T. 160; kaolinized montmorillonite, U.S.A. 159; kataphorite, Que. 121; K-feldspar, Que. 165; knebelite, B.C. 481, Que. 484; kottigitte, Germany, 437; krupkaite, Australia, 322, Que. 196, U.S.A. 196, U.S.S.R. 196; kulanite, Y.T. 127, 403; kutnahorite, B.C. 484; lazulite, Y.T. 128, 403; lemoynite, Que. 132; liebigite, N.W.T. 433; limonite, Y.T. 577; lindströmite, Ont. 196, Sweden, 194; litharge, Y.T. 577; lizardite, England, 308, Man. 307, 308, Norway, 466, Ont. 466, Que. 308, Scotland, 307, Switzerland, 308; loellingite, B.C. 381, Portugal, 186, lizardite, Y.T. 128; magnesium-zippeite, U.S.A. 434; magnetite, B.C. 165, 484, Man. 308, Ont. 454, Que. 166, 308, Switzerland, 308, U.S.A. 166; marcasite, Ont. 453; massicot, Y.T. 577; matildite, Ont. 182, Portugal, 191; mawsonite, Japan, 530, Ont. 530, Portugal, 186; meneghinite, Y.T. 577; metavivianite, Y.T. 128; mica, N.W.T. 166, Portugal, 185, U.S.A. 166, Y.T. 160; michenerite, Ont. 167; microcline, Lab. 121, Niger, 236, Que. 121; microllite, Man. 542; miserite, Que. 121, 516, U.S.A. 515, U.S.S.R. 516; mixed-layer kaolinite-montmorillonite, Mexico, 159, Y.T. 159; molybdenite, B.C. 165, N.B. 165, 166, Portugal, 186, Que. 165; moncheite, Ont. 167; montebrazite, Man. 362; mosandrite, Que. 121; muscovite, N.B. 166, Nfld. 443, Que. 165; Na-feldspar, Que. 165;

- native bismuth, Brazil, 196, Ont. 182, Portugal, 186; native gold, Y.T. 577; native lead, Y.T. 577; native silver, Y.T. 577; native zinc, Y.T. 577; naumannite, Portugal, 192; nepheline, Lab. 121, Que. 121; nickeline, Czechoslovakia, 434; nickel-zippelite, Czechoslovakia, 434; U.S.A. 434; nodular hydrocarbon, U.S.A. 422; norbergite, Que. 121; olivine, B.C. 479, India, 488, U.S.A. 291, 463; orthoclase, B.C. 165, U.S.A. 515, U.S.S.R. 516; orthopyroxene, U.S.A. 291; palladium stibioantimonarsenide, U.S.S.R. 412; palladoarsenide, U.S.A. 410, U.S.S.R. 412; pallado-bismutharsenide, U.S.A. 410; palygorskite, India, 488; parasymplectite, Japan, 439, Mexico, 437; pectolite, U.S.S.R. 516; pekoite, Australia, 322, 578, Brazil, 196, Man. 196; phenakite, Brazil, 196; phlogopite, India, 488, Que. 121; picrolite, Que. 302; picrotephroite, Japan, 480; ptilolite, Ont. 424; pitchblende, Sask. 167; plagioclase, B.C. 165, 484, Ont. 454, U.S.A. 291; platinum-group minerals, B.C. 166, Ont. 167; plumbogjarosite, Y.T. 577; polycrase, Norway, 112; Povlen-type clinochrysofite, Que. 302; Povlen-type orthochrysofite, Swaziland, 302; pyrite B.C. 165, 484, Chile, 381, Czechoslovakia, 196, Man. 381, N.B. 165, 166, Ont. 166, 424, 453, Que. 165, U.S.A. 434; pyrolysate, Que. 166; pyrophyllite, India, 445, Japan, 445, Morocco, 445, Nfld. 442, Ont. 445, U.S.A. 445; pyroxene, N.W.T. 166; pyrrhotite, B.C. 484, Hungary, 381, N.B. 166, N.W.T. 166, Ont. 166, 424, 453; quartz, B.C. 165, 484, Corsica, 230, N.B. 165, 166, Nfld. 443, Niger, 236, N.W.T. 166, Ont. 166, 182, 424, 454, Portugal, 185, Que. 165, 166, U.S.A. 166, 196, Y.T. 128, 160, 403; rabbitite, U.S.A. 434; ralstonite, Greenland, 392, U.S.S.R. 392; rammsbergite, Chile, 415; rezbanyite, Czechoslovakia, 196, Hungary, 202, Sweden, 194, U.S.S.R. 202; rosasite, U.S.A. 574; rutile, B.C. 165, N.B. 165, 166, Nfld. 444, Que. 165; scheelite, N.W.T. 166, U.S.A. 166; schroëckingerite, 435; schweizerite, Switzerland, 302; sepiolite, New Caledonia, 407, U.S.A. 407, Yugoslavia, 407; sericite, B.C. 165; serpentine, Australia, 314, Dominican Republic, 407, India, 488, Lab. 314, Que. 302, Scotland, 314, Swaziland, 302, Switzerland, 314, U.S.A. 314, Yugoslavia, 314; siderite, Australia, 139, Ont. 166, Y.T. 128, 403; siderotil, U.S.A. 434; silver, 166; smaltite, Czechoslovakia, 434; smectite, India, 488; sodium-zippelite, Czechoslovakia, 433, U.S.A. 433, 434; sperryllite, Ont. 167; sphalerite, B.C. 484; Czechoslovakia, 196, Mexico, 196, N.B. 165, Ont. 166, 422, 453, Portugal, 185, U.S.A. 166, 434; spinel, U.S.A. 291; stannite-kesterite, N.B. 165; stannoidite, Portugal, 186; staurolite, Australia, 207, Switzerland, 207, U.S.A. 207; stephanite, Ont. 166; tantalite, Man. 540; tennantite, Mexico, 196, Portugal, 185, tetradymite, Mexico, 196; tetrahedrite, Ont. 166, Portugal, 191; thucholite, Ont. 422, 423; titanian aegirine, Lab. 121; titanian ferro-omphacite, Lab. 121; topaz, N.B. 165, 166; tremolite, U.S.A. 335; ulexite, Nfld. 393, N.S. 393; undetermined (Pd,Te,Bi) mineral, U.S.A. 410; unnamed CaZrSi₂O₇, Que., 121; unnamed Pd₁94AsO₇8B₁₀28, U.S.A. 410; uraninite, U.S.A. 435; uraniferous carbon, Ont. 422; uraninite, Czechoslovakia, 434, Germany, 433, Ont. 422, U.S.A. 434, 435; uranopilite, Czechoslovakia, 433, N.W.T. 433, U.S.A. 434; vermiculite, India, 488; vesuvianite, Pakistan, 216, U.S.A. 216; violarite, Ont. 453; vivianite, Ont. 45, Yugoslavia, 404, Y.T. 128, 403; vlasovite, Que. 121; wad, Y.T. 577; wardite, Y.T. 128; wittichenite, Mexico, 196, Portugal, 185; wodginite, Australia, 551, Man. 540, 550; wöhlerite group minerals, Que. 121; wolframite, N.B. 165, 166; wollastonite, Mexico, 196, U.S.A. 515, U.S.S.R. 516; zemannite, Mexico, 387; zeunerite, U.S.A. 434; zinc-zippelite, U.S.A. 435; zippelite, Czechoslovakia, 429, Germany, 433, N.W.T. 433, Ont. 433, U.S.A. 433; zircon, Que. 121
- Mixed-layer kaolinite-montmorillonite from soils near Dawson, Yukon Territory (Kodama, Miles, Shimoda & Brydon), 159
- MOSSBAUER SPECTROSCOPY**
arvedsonite, 347; Fe-Mn hydroxide coprecipitates, 34; spinel, 210; staurolite, 213; synthetic FeAl₂O₄, 210
Native lead at Keno Hill, Yukon (Boyle), 577
New data for köttigite and parasymplectite (Sturman), 437
- NEW MINERALS**
agrellite, 120; barifite, 403; falcondoite, 407; kulanite, 127; palladobismutharsenide, 410; pekoite, 322, 578; zemannite, 387
- NOMENCLATURE**
aeschynite, 112; aikinite, 203; aikinite-bismuthinite series, 199, 322; blomstrandine, 112; buserite, 17; euxenite, 112; fibrous cummingtonite, 394, 395; forbesite, 414; glädite, 204; hammarite, 204; krupkaite, 204; lindströmite, 204; manganese oxides, 17; Nb-Ta-Ti oxides, 112; pekoite, 204; polycrase, 112; Povlen-type chrysofite, 301, 307; priferite, 112; rare-earth, A₂B₂O₇-type Nb-Ta-Ti oxides, 112; rezbanyite, 201; schweizerite, 301; sepiolite group, 409; serpentine polymorphs, 312; serpentine polytypes, 319; zippelite group, 429
- OPTICAL ABSORPTION SPECTRA**
olivine, 149; spinel, 207; staurolite, 212; vesuvianite, 216
- OPTICAL PROPERTIES**
General
agrellite, 124; aikinite-bismuthinite series, 199; barifite, 404; beryl, 491; carbonaceous nodules, 424; cobalt-zippelite, 434; falcondoite, 407; forsterite-fayalite-tephroite series, 479; Gladstone-Dale relationship, 498; knebelite, 482; köttigite, 438; kulanite, 129; magnesium-zippelite, 435; nickel-zippelite, 434; olivine, 481; parasymplectite, 439; sodium-zippelite, 433; synthetic cobalt-zippelite, 434; synthetic magnesium-zippelite, 435; synthetic manganese-zippelite, 436; synthetic nickel-zippelite, 434; synthetic sodium-zippelite, 433; synthetic zinc-zippelite, 435; synthetic zippelite, 433; unnamed zippelite, 435; uranocite, 435; vivianite, 404; zemannite, 388; zinc-zippelite, 435; zippelite, 433; zippelite group, 432
- Reflectance*
aikinite, 202; hammarite, 202; krupkaite, 202; lindströmite, 202; palladobismutharsenide, 411; unnamed Pd₁94AsO₇8B₁₀28, 411
- Ordering of transition metal ions in olivine (Walsh, Donnay & Donnay), 149
- Pekoite, CuPbBi₁₁S₁₉, a new member of the bismuthinite-aikinite mineral series: its crystal structure and relationship with naturally- and synthetically-formed members (Hummé & Watts), 322
- PETROLOGY**
agpaite alkalalic rocks, 121; arsenopyrite geothermometer, 382; basalts, 269; batholithic activity, 241; Circum-Pacific granitic batholiths, 238; compositions and rates of eruptions, 248; granite, 228; halmyrolysis, 269; hyper-solvus granite-subsolvus granite, 228; interaction between sea water and oceanic layer two, 269; island arc environments, 266; magma generation in orogenic environments, 245; Main Irruption, Sudbury, 450; Mid-Atlantic Ridge, 269; origin of batholiths, 239; origin of diaspore-pyrophyllite assemblage, 445; origin of xenoliths, 294; partial melting of peridotite, 255; peridotite, 255; pillow basalts, 269; plate dynamics, 238; plutonism, 238; pyrolyte, 260; pyrophyllite deposit, 442; pyroxene granulite xenoliths, 291; serpentinization, 462; solubility of sulfur, 458; source-peridotite geochemistry, 266; Stillwater Complex, 410; sulfur in the Main Irruption, 458; tholeiites, 269; volcanic belts, 246; water and magma genesis, 225
- Phase relations involving arsenopyrite in the system Fe-As-S and their application (Kretschmar & Scott), 364
- Plutonism and plate dynamics: the origin of Circum-Pacific batholiths (Younger & Vogel), 238
- Preface, Issue dedicated to Professor L.G. Berry (Graham), 401
- Preface, Symposium on environmental aspects of mineralogy and sedimentary geochemistry (Kramer & Graham), 1
- Preface, Symposium on water and magma genesis (Edgar), 225
- Preparation of manuscripts, 221
- Proceedings of the Twenty-first Annual Meeting of the Mineralogical Association of Canada (Černý), 396
- Pt, Pd, Au and Ir content of Kelley Lake bottom sediments (Crocket & Teruta), 58

- Publications received, 108, 397
 Reactions in cubanite and chalcopyrite (Dutrizac), 172
 Referees for 1975, including volume 13, 99
 Refinement of the crystal structure of dyscrasite, and its implications for the structure of allargentum (Scott), 139
 Refractive indices versus alkali contents in beryl: general limitations and applications to some pegmatitic types (Cerný & Hawthorne), 491
 Sedimentary geochemistry, 1
 Sediment geochemistry of Sudbury-area lakes (Semkin & Kramer), 73
 Silver-bearing wittichenite-chalcopyrite-bornite intergrowths and associated minerals in the Mangualde pegmatite, Portugal (Oen & Kieft), 185
 Some factors affecting the synthesis of cryptocrystalline strengite from an amorphous phosphate complex (Warry & Kramer), 40
 Some geologic constraints on models for magma generation in orogenic environments (McBirney), 245
 Structure cristalline de la lemosynite, (Na,K)2CaZr2Si10O26, 5-6H2O (Le Page & Perrault), 132
 Sulfide mineralogy of the Main Irruptive, Sudbury, Ontario (Duke & Naldrett), 450
 Synthesis and fluorine-hydroxyl exchange in the amblygonite series (Loh & Wise), 357
 Synthesis and properties of jarosite-type compounds (Dutrizac & Kaiman), 151
- TEXTURES**
 chrysotile fibres, 309; corona-bearing pyroxene granulite xenoliths, 291; deuteric sulfide texture, 457; diaspore-pyrophyllite nodule, 444; exsolution of gladiite in pekoite, 199, 323; galena-matildite intergrowth, 182; gladiite exsolution in pekoite, 199, 323; hypersolvus granite, 230; knebelite, 484; magmatic sulfide texture, 454; metamorphic sulfide texture, 457; Povlen-type chrysotile fibre, 312; serpentinite, 309; spinel-clinopyroxene symplectite, 293; subsolvus granite, 230; sulfide mineralogy of Main Irruptive, Sudbury, 453; synthetic CuFe2S3, 175; wittichenite-chalcopyrite-bornite intergrowths, 185
- Z. G. A.**
 baricite, 404; falcondoite, 408; kimberlite, 488; kulanite, 130
 The crystal chemistry of the amphiboles: IV. X-ray and neutron refinements of the crystal structure of tremolite (Hawthorne & Grundy), 334
 The crystal chemistry of the amphiboles: V. The structure and chemistry of arfvedsonite (Hawthorne), 346
 The crystal structure of allosclerite, CoAsS, and the allosclerite-cobaltite transformation (Scott & Nowacki), 561
 The crystal structure of mawsonite, Cu6Fe2SnS8 (Szymański), 529
 The crystal structures of tantalite, ixiolite and wodginite from Bernic Lake, Manitoba I. Tantalite and ixiolite (Grice, Ferguson & Hawthorne), 540
 The crystal structures of tantalite, ixiolite and wodginite from Bernic Lake, Manitoba II. Wodginite (Ferguson, Hawthorne & Grice), 550
 The Gladstone-Dale relationship - Part I: derivation of new constants (Mandarino), 498
 The metal-adsorption chemistry of busierite (Jeffries & Stumm), 16
 The ordering scheme for metal atoms in the crystal structure of hammarite, Cu2Pb2Bi4S9 (Horiuchi & Wuensche), 536
 The structure of Povlen-type chrysotile (Middleton & Whittaker), 301
 The structure of Unst-type 6-layer serpentines (Hall, Guggenheim, Moore & Bailey), 314
 Trace-element geochemistry of detrital sediments from Newfoundland inlets and the adjacent continental margin: application to provenance studies, mineral exploration, and Quaternary marine stratigraphy (Statt & Sasseville), 3
 Trace-element geochemistry of piston cores from western Michigan coastal lakes (Wheeler & Dunning), 23
 Two new palladium-arsenic-bismuth minerals from the Stillwater Complex, Montana (Cabri, Chen, Stewart & Laflamme), 410
- UNNAMED MINERALS (PHASES)**
 CaZrSi2O7, 121; Pd1.94As0.78Bi0.28, 410
 Water and magma genesis, symposium, 225
 Water and magma genesis: the association hypersolvus granite-subsolvus granite (Martin & Bonin), 228
 X-RAY DIFFRACTION (see also Crystal Structure)
- Cell Dimensions**
 adamite, 143; AgBiS2-PbS series, 504; agrellite, 123; AgSbSe2-PbTe series, 506; aikinite, 194, 197, 203, 329; allargentum, 141; allosclerite, 562; arfvedsonite, 347; baricite, 404; bismuthinite, 203, bjarebyite, 128; calcium fluoride, 368; cassiterite, 511; chrysotile, 466; cobaltite, 565; columbite, 541; Cu-Au series, 595; cummingtonite, 95; diaspore, 445; dyscrasite, 140; eveite, 147; falcondoite, 408; geikielite, 510; gladiite, 194, 197, 203, 324; glaukosphaerite, 574; hammarite, 194, 197, 203, 537; hypothetical beryl compositions, 495; ilmenite, 511; ixiolite, 541, 544; köttigite, 431; krupkaite, 194, 197, 203; kulanite, 128; lemosynite, 132; lindströmite, 194, 197, 203; lizardite, 466; mawsonite, 530; miserite, 517; olivenite, 147; olivine, 463; palladobismutharsenide, 411; paradamite, 147; parasymplectite, 439; pekoite, 194, 197, 203, 324, 578; potassium chloride, 324; pyrophyllite, 445; ralstonite, 391; rutile, 510; sarkinite, 147; selenian pekoite, 578; silver wire, 139; sodium chloride, 464; sodium zippeite, 431; synthetic amblygonite, 359; synthetic amblygonite-montebasite series, 359; synthetic ammonium jarosite, 156; synthetic chrysotile, 466; synthetic hydronium jarosite, 156; synthetic jarosites, 157; synthetic lead jarosite, 156; synthetic lizardite, 466; synthetic members of CuPbBiS3-Bi2S3 series, 329; synthetic mercury jarosite, 156; synthetic Mg-Ge serpentine, 318; synthetic montebasite, 359; synthetic palladobismutharsenide, 411; synthetic PdAs(α-form), 412; synthetic PdAs(β-form), 412; synthetic potassium jarosite, 156; synthetic olivine, 463; synthetic silver jarosite, 156; synthetic sodium jarosite, 156; synthetic sodium zippeite, 431; tantalite, 541, 543; tremolite, 335; unnamed Pd1.94As0.78Bi0.28, 411; Unst serpentine, 318; vivianite, 404; wodginite, 541, 552; zemannite, 388; zippeite group, 431
- Powder Data**
 agrellite, 123; aikinite-bismuthinite series, 199; arsenopyrite, 368; baricite, 404; bjarebyite, 128; chrysotile, 478; falcondoite, 408; forbesite, 415; forsterite-fayalite-tephroite series, 479; galena, 183; galena-matildite intergrowth, 183; glaukosphaerite, 574; jarosite group, 155; kimberlite, 487; knebelite, 482; köttigite, 438; kulanite, 128; lizardite, 477; magnesium zippeite, 431; matildite, 183; mawsonite, 535; miserite, 517; mixed-layer kaolinite-montmorillonite, 160; nickel zippeite, 431; olivine, 481; palladobismutharsenide, 412; parasymplectite, 440; pekoite, 578; phosphosiderite, 45; Povlen-type chrysotile, 302; selenian pekoite, 578; schimmerite, 183; strengite, 45; synthetic amblygonite-montebasite series, 359; synthetic ammonium jarosite, 156; synthetic chrysotile, 478; synthetic cobalt zippeite, 431; synthetic hydronium jarosite, 156; synthetic lead jarosite, 156; synthetic lizardite, 477; synthetic manganese zippeite, 431; synthetic members of CuPbBiS3-Bi2S3 series, 328; synthetic mercury jarosite, 156; synthetic Mg-Ge serpentine, 318; synthetic nickel zippeite, 431; synthetic palladobismutharsenide, 412; synthetic PdAs(α-form), 412; synthetic PdAs(β-form), 412; synthetic potassium jarosite, 156; synthetic silver jarosite, 156; synthetic sodium jarosite, 156; synthetic sodium zippeite, 431; synthetic zinc zippeite, 431; synthetic zippeite, 431; unnamed Pd1.94As0.78Bi0.28, 412; Unst serpentine, 318; zemannite, 388; zippeite, 431; zippeite group, 431
- X-ray and optical characterization of the forsterite-fayalite-tephroite series with comments on knebelite from Bluebell mine, British Columbia (Mossman & Pawson), 479
 Zemannite, a zinc tellurite from Moctezuma, Sonora, Mexico (Mandarino, Matzat & Williams), 387
 Zoning in arsenopyrite, 382