

# Bibliography of North American Geology, 1966

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**UNITED STATES DEPARTMENT OF THE INTERIOR**

**WALTER J. HICKEL, *Secretary***

**GEOLOGICAL SURVEY**

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# BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY

1966

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## INTRODUCTION

The current annual volume of the "Bibliography of North American Geology" lists publications that appeared during 1966 concerning the geology of the North American continent, Greenland, the West Indies and adjacent islands, Hawaii, Guam, and other island possessions but not the trust territories of the United States. Articles by American authors published in foreign journals are cited if they deal with North American localities or are of a general nature, but not if they deal only with foreign areas. Articles on North America by foreign authors are included regardless of place of publication, while those of a general nature are included only if they appeared in North American journals.

The citations are listed alphabetically by author, with full title and publication data. There follows a subject index to the papers cited. Geologic names in the index are those used by the individual authors, and their listing here does not imply approval by the Geological Survey. The list of serial publications cited in the bibliography follows on p. VII.

The numbers assigned to the abstracts in this publication are for reference in using the index; they are not order numbers. Publications cited are available in most geological libraries or through interlibrary loan. A list of journals commonly cited in bibliographies of the Survey may be obtained by writing to the U.S. Geological Survey, Washington, D.C. 20242.

The principal contributors to this volume were James W. Clarke, Georgianna D. Conant, Howard R. Cramer, Bettie S. Hackman, Virginia M. Jussen, Elisabeth S. Loud, Mildred C. Mead, Virginia S. Neuschel, and Dorothy B. Vitaliano.

The "Bibliography of North American Geology" comprises the following bulletins: 746-747 (1785-1918), 823 (1919-28), 937 (1929-39), 1049 (1940-49), 1195 (1950-59), 1196 (1960), 1197 (1961), 1232 (1962), 1233 (1963), 1234 (1964), and 1235 (1965).



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- Acad. Nat. Sci. Philadelphia Notulae Naturae** — Notulae Naturae of the Academy of Natural Sciences of Philadelphia. Philadelphia, Pa.
- Acad. Nat. Sci. Philadelphia Proc.** — Proceedings of the Academy of Natural Sciences of Philadelphia. Philadelphia, Pa.
- Acad. Sci. Comptes Rendus** — Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Paris, France.
- Acad. Sci. Fennicae Annales** — Annales Academiae Scientiarum Fennicae (Suomalaisen Tiedeakatemia Toimituksia). Helsinki, Finland.
- Acad. Sci. USSR Doklady, Earth Sci. Sec.** — Doklady of the Academy of Sciences of the U.S.S.R., Earth Science Sections. Translation of Akademiya Nauk SSSR Doklady published by the American Geological Institute. Washington, D.C.
- Acta Cryst.** — Acta Crystallographica. Published for the International Union of Crystallography by Munksgaard. Copenhagen, Denmark.
- Acta Zool. Fennica** — Acta Zoologica Fennica. Societas pro Fauna et Flora Fennica. Helsinki, Finland.
- Actualités Marines** — Actualités Marines. Ministère de l'Industrie et du Commerce Québec, Division des Pêcheries. Quebec, Quebec, Canada.
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- Akad. Nauk SSSR Doklady** — Akademiya Nauk SSSR Doklady. Moscow, U.S.S.R.
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- Am. Jour. Botany** — American Journal of Botany. Botanical Society of America. Baltimore, Md.
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- Am. Mus. Novitates** — American Museum Novitates. American Museum of Natural History. New York, N. Y.

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- Alteration, deuteric, weathering, Nevada: Scott, Robert. 06760  
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- Absolute age, anomalous K-Ar, fluid inclusions as source: Funkhouser, J. G. 07929
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- Petroleum, potential, Cambrian and Ordovician rocks: Swann, David H. 00425
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- Geologic, ground water, Penobscot River basin, lower: Prescott, Glenn C., Jr. 08339  
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- Gulf of Maine, hydrographic, seismic, magnetic surveys: Malloy, R. J. 03376

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- Cambrian(?) - Devonian, Chamberlain Lake region: Hall, Bradford A. 07982  
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- Silurian, Spragueville Formation, Aroostook County, nomenclature: Pavlides, Louis. 04730  
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- Electron probe: Smith, J. V. 02987

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- Texas, Packsaddle Schist: Billings, Gale K. 13665

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- Solid solutions, infrared spectroscopy: Peters, Tj. 04381

*Andesite*

- Southern Cascade Mountains, Washington, Tieton Volcano: Swanson, Donald A. 06195

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- Pennsylvania, Martinsburg Slate: Stevens, George R. 13063

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- Saskatchewan, Birch Portage: Radcliffe, Dennis. 05861

*Astrophyllite*

- Colorado, Mount Rosa area: Gross, Eugene B. 04180

*Basalt*

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Mid-Atlantic Ridge: Muir, I. D. 05081  
Northwest Territories, Yellowknife Group: Baragar, W. R. A. 00066

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- Alberta: Babet, Pauline H. 08660

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- Greenland: Karup-Moller, S. 06521

*Beryl*

- Saskatchewan, Colorado: Radcliffe, Dennis. 05861

*Biotite*

- Potassium, granite and metasediments, New England: Lange, Ian M. 07230

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- Alpine serpentinites: Hostetler, P. B. 00350

*Bytownite*

- Oceanic basalt: Bottinga, Y. 04208



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New York, central, Lower Devonian: Borst, Roger L. 07715

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Ontario: Brady, J. G. 13800

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Silica rich, California: Gude, Arthur J., 3d. 04372

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Virginia: Mitchell, Richard S. 08060

*Chrysoprase*: Faust, George T. 00836*Clay minerals*

United States, Great Basin playas: Guven, Necip. 04361

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Mexico, San Luis Potosi, Guadalcázar area: delCampo H., Roberto Martin. 07494

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Arizona and Utah, new mineral: Young, E. J. 05451

*Dolomite*

Concrete aggregate usage: Biggs, Donald L. 07351

Ohio, Ten Mile Creek Formation: Hatfield, Craig B. 07125

*Eclogite*

Arizona and New Mexico, Navajo Reservation, diatremes: O'Hara, M. J. 00838

*Epidiymite*

Greenland, Ilimaussaq intrusion: Semenov, E. I. 12603

*Eudidyimite*

Greenland, Ilimaussaq intrusion: Semenov, E. I. 12603

*Feldspar*

Maine, pelitic schist: Evans, Bernard W. 02500

*Garnet*

Arizona and New Mexico, Navajo Reservation, diatremes: O'Hara, M. J. 00838

Maine, pelitic schist: Evans, Bernard W. 02500

*Gas*

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Hawaii, lava lake, spectroscopy, absorption spectra: Naughton, J. J. 03829

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Quebec, Gaspe Peninsula, new nickel carbonate: Kohls, D. W. 04206

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Quebec, Wakefield area: Chao, G. Y. 07591

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*Genthite*

Pennsylvania, Lancaster County: Faust, George T. 00836

*Glaucinite*

Infrared absorption spectra, Si-O peak shift: Manghnani, M. H. 03824

*Glaucinite, authigenic*

Texas, Lake Mound: Parry, W. T. 01996

*Gneiss*

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Colorado, Sawatch Range, Precambrian intrusions: Barker, Fred. 11637

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Alberta, Peace River district: Jones, John F. 08166

Arizona, Avra and Altar Valleys: White, Natalie D. 08598

Florida, Escambia, Santa Rosa Counties: Musgrove, Rufus H. 06597

Kansas, Neosho County: Jungmann, William L. 05832

Kentucky: Hopkins, H. T. 06719

Maine, Penobscot River basin, lower: Prescott, Glenn C., Jr. 08339

Maryland, Charles County: Slaughter, T. H. 06588

Maryland, Prince Georges County: Mack, Frederick K. 01911

Massachusetts, Ipswich River basin: Sammel, E. Z. 06589

Michigan, Branch County: Giroux, P. R. 06686

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Montana, northeastern, Missouri River valley: Hopkins, W. B. 06373

Nevada, Humboldt River basin: Eakin, Thomas E. 05992

Nevada, Kings River valley: Malmberg, G. T. 06012

Nevada-Oregon, Quinn River valley area: Huxel, C. J., Jr. 07607

North Carolina, Hertford-Elizabeth City area: Harris, William H. 05999

North Dakota, Barnes County: Kelly, T. E. 05867

North Dakota, Cass County: Klausung, Robert L. 05869

North Dakota, Eddy and Foster Counties: Trapp, Henry, Jr. 05868

Ohio, Portage County: Winslow, John D. 08648

Rhode Island, Pawtuxet River basin: Gonthier, Joseph B. 12998

Texas, Gaines County: Rettman, P. L. 08360

Utah, hot springs: Heylman, Edgar B. 02566

Wyoming, Great Divide and Washakie Basins area: Welder, George E. 06869

*Hendricksite*

New Jersey, Franklin: Frondel, Clifford. 03408

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Greenland, Gardar province, compilation: Watt, W. Stuart. 12400

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North America: Lister, Gordon F. 02699

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Potassium, granite and metasediments, New England: Lange, Ian M. 07230

*Kobellite*

British Columbia, Yukon: Harris, D. C. 07586

*Laterites*

Hawaii: Walker, James L. 06481

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Wyoming, Leucite Hills: Yagi, Kenzo. 05030

*Lignite*

Ash: Elder, J. L. 05079

*Limestone*

Illinois, high-purity: Lamar, J. E. 05060

Kansas, Cherokee County, Keokuk Limestone: Waugh, Truman C. 06191

Kansas, variance: Galle, O. Karmic. 00699

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Electron probe analysis, element correlations: Burns, R. G. 04204

*Meteorites*

Chondrites: Mason, Brian. 11574

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Farmington hypersthene chondrite, electron-probe and chemical: Buseck, Peter R. 00361

*Mica*

Maine, pelitic schist: Evans, Bernard W. 02500

*Morrison Formation*

Colorado, Dillon: Wahlstrom, Ernest E. 05537

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Vermont, Lincoln Mtn. quadrangle, schist, microprobe: Albee, A. L. 12049

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Relation to ion-exchange constants: Truesdell, A. H. 00346

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World-wide treatment: Leveson, David J. 01938

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X-ray emission, cf. chemical: Howie, R. A. 04882

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Vermont, Lincoln Mtn. quadrangle, schist, microprobe: Albee, A. L. 12049

*Pegmatites*

Saskatchewan, Birch Portage: Radcliffe, Dennis. 05861

*Perrierite*

Virginia: Mitchell, Richard S. 08060

*Phillipsite*

Oregon, Tertiary lake beds: Regis, A. J. 02602

*Phosphate rock*

U.S., western, Phosphoria Formation: Gulbrandsen, R. A. 05286

*Phosphorite*

Montana, Belt Series: Gulbrandsen, R. A. 03483

*Phyllite*

Virginia, central Piedmont, paragonite-bearing: Milici, R. C. 04773

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Papezik, V. S. 07559

*Arsenides of Co, Ni*

Ontario, Cobalt area, textures: Petruk, W.  
07563

*Arsenopyrite analogs*

Synthesis, 35-50 kbar, properties: Banus, Mario  
D. 07275

*Awaruite*

Origin, occurrence in serpentinites: Chamberlain, J. A. 06028

*Axinite*

Mexico, Baja California, new occurrence:  
Pough, Frederick H. 00176  
Minnesota, manganoan, composition variation:  
French, Bevan M. 12617

*Baddeleyite*

Inclusion in tektite, Georgia: King, Elbert A., Jr.  
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*Barite*

Structure, Michigan, Keweenaw County, Cliff  
vein: Williams, S. A. 08604

*Bastnaesite*

Montana, Road Gulch area: Staatz, Mortimer H.  
01806

*β-cristobalite*

X-ray data, thermal expansion: Aumento, F.  
04337

*Bellingerite*

Structure, X-ray diffraction data: Kaplan,  
Seymour Fred. 06683

*Berryite*

Colorado, Missouri mine, sulphosalt, new: Harris, Donald Clayton. 03993  
Structure, new mineral: Nuffield, E. W. 08285

*Bertrandite*

Structure, unit-cell data, phase equilibria study:  
Stanley, Donald Alvora. 08742

*Beryl*

Properties, crystal chemistry: Radcliffe, Dennis.  
05861

*Billingsleyite*

Antimony analogue: Keighin, C. W. 05366

*Binnite*

Structure, refinement: Wuensch, B. J. 04181

*Biotite*

Composition, statistical analysis, technique:  
Webb, William M. 04141  
New England, analyses, K/Rb ratios: Lange,  
Ian M. 07230  
Polytypes, X-ray studies: Ross, Malcolm. 02832  
Radioactivity, alpha, unknown origin: Gentry,  
Robert V. 07936

*Bloedite*

California, San Luis Obispo County, Soda Lake:  
Eadie, Arthur F. 03461  
New Mexico, southeastern: Madsen, Beth M.  
01805

*Boehmite*

Thermal decomposition: Callister, William D.,  
Jr. 11593

*Bonattite*

Cell parameters and crystal structure: Zahrob-  
sky, R. 02609

*Borates*

General description, California, Sterling mine:  
Masimer, George E. 03995  
Hydrated, infrared spectra: Weir, C. E. 13178

*Borazon*

Synthetic, high pressure-temperature synthesis:  
Smouse, DeForrest. 07475

**Mineral data***Bornite*

Polymorphism, phase equilibria: Morimoto, N.  
05186

Thermal stability, x-bornite phase: Yund,  
Richard A. 05733

*Boulangerite*

Ontario, Madoc area, wire-like form: Caesar,  
Floyd. 13213

*Bredigite*

Texas, Culberson County, physical properties:  
Bridge, Thomas E. 06525

*Bromellite*

Synthetic, optical properties: Newkirk, H. W.  
08275

*Brookite*

North Carolina, Shelby area, pegmatite:  
Hanahan, John, Jr. 12615

*Brucite*

California, New Idria serpentinite, alteration,  
weathering: Mumpton, F. A. 07245

Composition and properties in Alpine serpen-  
tinites: Hostettler, P. B. 00350

Genesis from dolomite, contact metamorphism:  
Turner, Francis J. 12864

Pseudomorph after periclase, kink pattern  
development: Turner, Francis J. 12724

Thermal decomposition, electron and optical  
microscopes: Gordon, Ronald S. 11596

*Bytownite*

Composition: Bottinga, Y. 04208

*Cacoclasite*

General description, name abandoned: Jambor,  
J. L. 06030

*Cacoxenite*

Arkansas, Ouachita Mountains: Fisher, D.  
Jerome. 07899

*Calcite*

Colorado, Fremont County: Heinrich, E. Wil-  
liam. 04335

Conversion from aragonite: Dodd, J. Robert.  
07861

Deformation twinning, experimental: Turner,  
Francis J. 12472

Diagenesis, pyritization, mollusk shells: Brown,  
Philip R. 08669

Dissolution rates, sea water, Pacific: Peterson,  
M. N. A. 07114

Elastic twinning, experimental: Williams, A. J.  
12470

Equilibria with aragonite, experimental study:  
Froese, E. 07580

Experimental studies, ultraviolet, gamma-ray  
glow curves: Vaz, J. E. 04336

Michigan, intergrowth with pyrite: Zimmer, Paul  
W. 12597

Oyster shells, Mg, Sr distribution, temperature  
dependence: Lerman, Abraham. 11964

Pennsylvania, Thomasville area, scalenohedral,  
popular account: Broughton, Paul. 03975

Quantitative determination, X-ray diffraction:  
Bromberger, S. H. 00264

Shattercones, shock damage: Simons, P. Y.  
12133

*Carbonates*

Epitaxial growth: McCauley, James W. 12828

Identification in rocks, staining technique:  
Dickson, J. A. D. 00232

Luminescence petrography, electron-excited  
method: Sippel, Robert F. 12135

New Mexico, Carlsbad Caverns, geochemistry:  
Thraillkill, John. 13114

**Mineral data***Carnegieite*

Synthesis from kaolinite and sodium carbonate: Kubo, Yasushi. 00825

*Cassiterite*

Electron probe analyses: Ribbe, P. H. 12163

*Catapleite*

Quebec, Saint-Hilaire area: Machairas, Georges. 12958

*Catoptrite*

Structure: Moore, Paul B. 08071

*Chabazite*

California, San Bernardino County, composition: Gude, Arthur J., 3d. 04372  
Geochemistry, ion-exchange equilibria: Ames, L. L., Jr. 07578

*Chalcopyrite*

Synthesis: Barnard, W. M. 04553  
Synthesis, hydrothermal: Barnard, Walther M. 04129

*Cheralite*

Structure, monazite-type: Rao, N. Nagaraja. 11262

*Chert*

Ontario, southwestern: Ingham, K. W. 11254

*Chevkinite*

Virginia, composition, unit-cell data: Mitchell, Richard S. 08060

*Chlorite*

Determination, soils, mineral deposits, thermal gravimetric method: Alexiades, C. A. 12050  
Iron, structure, orthorhombic: Shirozu, Haruo. 11264  
Optical absorption spectra of iron: White, William B. 04383

*Chromite*

Composition, in meteorites, Ti-Cr-Mg bearing: Buseck, Peter R. 08672  
Geochemistry: Ulmer, Gene C. 04784

*Chrysoprase*

Description: Faust, George T. 00836

*Chrysotile*

Microporosity, rate of dehydroxylation: Naumann, A. W. 03413  
Structure, hollow tube, verification and experimental filling: Clifton, R. A., Jr. 00823

*Chrysotile asbestos*

Morphology, nitrogen adsorption data: Naumann, A. W. 04379

*Cinnabar*

Solubility, hydrothermal sulfide solutions: Dickson, F. W. 07856

*Clay minerals*

Dehydration reactions, metastable and stable: Roy, R. 13176

*Clinoamphiboles*

Compositions, cell parameters, relationships: Colville, Patricia A. 06545

*Clino-anthophyllite*

Calcium deficient lamellae in tremolite, new polymorph: Bown, M. G. 02384

*Clinoenstatite*

Synthetic, low, cell dimensions, densities: Stephenson, D. A. 06008

*Clinohumite*

Composition, optical properties: Salotti, Charles A. 02605

*Clinoptilolite*

Cesium, strontium sorption, distribution coefficients: Hawkins, Daniel B. 11979

*Clinopyroxene*

Composition, electron-probe analysis, cf. chemical: Smith, J. V. 04888

**Mineral data***Clinopyroxene*

Unit-cell dimensions and ionic substitutions: Viswanathan, K. 00818

*Cobaltite-arsenopyrite system*

Structure, disordering, polymorphism: Gammon, John B. 06310

*Coconinoite*

Composition and properties, new: Young, E. J. 05451

*Coesite*

Arizona, Meteor Crater, isolation from sandstone, method: Bohn, Ernst. 12364

*Cohenite*

Genesis in meteorites: Brett, Robin. 01918

*Colemanite*

Structure, nonpolar and ferroelectric phases: Hainsworth, F. N. 07201

*Cookeite*

Crystal structure: Lister, Judith Smith. 08237

*Copper minerals*

Structure, native, azurite, cuprite, chalcocite, Michigan: Williams, S. A. 08604

*Copper-iron sulfides*

Synthetic, phase relations: Yund, Richard A. 05733

*Copper-silver sulfides*

Geochemistry: Skinner, Brian J. 03059

*Cordierite*

Composition, BeO in pegmatitic: Newton, Robert C. 06711  
Crystal chemistry, Fe<sup>3+</sup>, electron spin resonance spectra: Hedgecock, N. E. 07189  
Crystal structure, polymorphism: Meagher, E. P. 11946

*Corundum*

Elastic properties, high-temperature: Soga, Naohiro. 08466  
Synthetic, habit modification, La<sub>2</sub>O<sub>3</sub> effect: Chase, A. B. 11590

*Cristobalite*

Alabama, Paleocene-Eocene beds, formation: Reynolds, William R. 08361

*Cumengeite*

Critical review, properties, structure: Fabregat Guinchard, Francisco J. 07887

*Cummingtonite*

Quebec, iron-formation, composition, cell dimensions: Viswanathan, K. 13186  
Structure, refinement: Fischer, Karl B. 12337

*Cymrite*

Alaska, Ruby Creek: Runnels, Donald D. 05368

*Danburite*

Mexico, San Luis Potosi, Charcas lead mine: Pough, Frederick H. 00176

*Datolite*

Structure, Michigan, Keweenaw County, Cliff vein: Williams, S. A. 08604

*Dawsonite*

Occurrence, properties: Smith, John Ward. 04880

*Deerite*

California, Laytonville quarry: Chesterman, Charles W. 07787  
Low spin ferrous iron: Carmichael, I. S. E. 07778

*Diamond*

Composition, properties, occurrence: Fisher, P. J. 07900

Reaction with boron: Dickinson, S. K., Jr. 02388

Structure, internal: Seal, M. 06426

*Diaspore*

Dehydration curve: Weber, Jon N. 00498

**Mineral data***Dicalcium silicates*

Texas, Culberson County, physical properties: Bridge, Thomas E. 06525

*Dietzite*

Structure, X-ray diffraction data: Kaplan, Seymour Fred. 06683

*Digenite*

Cell edges, temperature-composition variation: Roseboom, Eugene H., Jr. 01321  
Polymorphism, phase equilibria: Morimoto, N. 05186

*Diopside*

Optical absorption spectra of iron: White, William B. 04383

*Djerfisherite*

Alkali copper-iron sulfide, Kota Kota meteorite, new: Fuchs, Louis H. 01556

*Djurleite*

Synthetic: Roseboom, Eugene H., Jr. 01321

*Dolomite*

Arkansas, Joachim-Plattin Formations, post-lithification genesis: Freeman, Tom. 13133  
Crystal growth: Peterson, M. N. A. 12518  
Morphology, inclusions, carbon isotopes, California: Spotts, J. H. 03410  
Quantitative determination, X-ray diffraction: Bromberger, S. H. 00264  
Shattercones, shock damage: Simons, P. Y. 12133  
Texas, Lynn and Terry Counties, Lake Mound sediments: Parry, W. T. 12171

*Durangite*

Critical review, properties, structure: Fabregat Guinchard, Francisco J. 07886

*Enstatite*

Meteorites: Reid, Archibald McMillan. 02185  
Optical absorption spectra of iron: White, William B. 04383

*Epididymite*

Greenland, Ilimaussaq intrusion: Semenov, E. I. 12603  
Optical properties, dispersion, Greenland: Petersen, Ole V. 08319

*Epidote*

Composition, variation: Myer, George H. 12531  
Optical absorption spectra of iron: White, William B. 04383

Physical and chemical data, zoning relations with plagioclase: Myer, George Henry. 02196

*Epistilbite*

Cell parameters and crystal structure: Kane, W. T. 02593

*Euchroite*

Crystal structure, refinement, hydrogen bonding: Finney, J. J. 03662

*Eudidymite*

Greenland, Ilimaussaq intrusion: Semenov, E. I. 12603

*Eulytite*

Structure: Segal, D. J. 00030

*Feldspar*

Alkali, composition, possible deviations from stoichiometry, X-ray data: Luth, W. C. 08720  
Alkali, Greenland, southern, dikes: Scharbert, H. G. 06688  
Al-Si order-disorder relations: Dietrich, R. V. 02590  
California, Little Chief porphyry: McDowell, S. Douglas. 13085  
Electron-probe analyses: Smith, J. V. 02987  
General description, varieties, characteristics, determination: Roche C., Luis A. 04176

**Mineral data***Feldspar*

Greenland, southern, Gardar gabbro dikes: Bridgwater, D. 11766

Maine, Isle au Haut, granophyre, deuteric alteration, chessboard albite: Soeria-Atmadja, R. 13811

New England, analyses, K/Rb ratios: Lange, Ian M. 07230

Northwest Territories, Muskox intrusion, composition, distribution: Pouliot, G. 12519

Properties, elasticity, compressional wave velocity: Christensen, Nikolas I. 04769  
Rb-Fe covariance: Billings, Gale K. 01453

*Feldspar group*

General description: Roche C., Luis A. 11904

*Fergusonite*

Montana, Road Gulch area: Staatz, Mortimer H. 01806

*Ferrierite*

Structure: Vaughan, Philip A. 06431

*Ferrimolybdate*

North Carolina, Halifax County, origin from weathering: Furbish, William J. 11330

*Ferropargasite*

Synthesis, stability relations: Gilbert, M. Charles. 05713

*Ferroselite*

Wyoming, Powder River basin: Granger, H. C. 05483

*Fluellite*

Structure: Guy, Brian B. 07975

*Fluorite*

Thermoluminescence and age: Blanchard, F. N. 00820

*Forsterite*

Elastic properties, high-temperature: Soga, Naohiro. 08466  
Kinetics, mechanism of formation: Brindley, G. W. 12683

*Francolite*

Nova Scotia, Joggins area, microsaure teeth: Stevenson, L. S. 07568

*Franklinite*

Magnetic properties, New Jersey: Barsanov, G. P. 07684

New Jersey, exsolution growths: Frondel, Clifford. 11224

*Gahnite*

New Jersey, exsolution in franklinite: Frondel, Clifford. 11224

*Galena*

Twinning, (441), origin by mine blasting: Lyall, Kenneth D. 00499

*Garnet*

Arizona and New Mexico, Navajo Reservation, diatremes: O'Hara, M. J. 00838

British Columbia, Cassiar district, tin content: Mulligan, R. 07562

Cuba, Pinar del Rio, X-ray analyses: Cech, Frantisek. 07414

Eclogite, chemical zoning, microprobe study: Evans, Bernard W. 12000

End-members, miscibility: Sinkankas, John. 12502

Manganese zoning, semiquantitative interpretation: Hollister, Lincoln S. 04077

Zoned, electron probe analysis: Hollister, Lincoln S. 07652

*Garnierite group*

Description and history of terminology: Faust, George T. 00836

*Gaspéite*

Composition and properties, Quebec, new: Kohls, D. W. 04206

**Mineral data***Geikielite*

Quebec, Wakefield area: Chao, G. Y. 07591

*Gemstones*

Properties, natural and synthetic, handbook of identification: Liddicoat, Richard T., Jr. 01912

*General*

Identification tables, hand specimen properties: Dietrich, R. V. 03574

New and discredited minerals, changes in nomenclature, index: Fleischer, Michael. 07909

Phase equilibria, high-pressure reactions, compilation: Clark, Sydney P., Jr. 04531

Thermodynamic properties, tables of constants, selected: Robie, Richard A. 04536

*Genthite*

Description: Faust, George T. 00836

*Gibbsite*

Genesis by desilication of halloysite, Hawaii: Uehara, Gore. 03129

*Glaucodot*

Structure, composition, varietal names: Gammon, John B. 06310

*Glaucosite*

Authigenic, physical properties and chemical analysis, Lake Mound, Texas: Parry, W. T. 01996

Genesis and value in geologic studies: Triplehorn, D. M. 02816

Genesis, properties, X-ray diffraction data: Bell, David L. 06403

Pellets, morphology, structure, origin: Triplehorn, D. M. 04035

*Graphite*

Equilibrium with coexisting gas phase: French, Bevan M. 01411

Optical anisotropy: Ergun, Sabri. 06676

Properties: Walker, P. L., Jr. 12395

*Greenockite*

Michigan, Nonesuch Shale: White, Walter S. 05393

*Gypsum*

Geochemical cycle with anhydrite: Murray, Raymond C. 07180

Nevada, Clayton Playa, crystals, alteration: Moiola, R. J. 11225

Solubility, aqueous sodium chloride: Power, Wilson H. 03996

Structures, kink pattern development during deformation: Turner, Francis J. 12724

Wyoming, Absaroka Mts., Recent: Fisher, Frederick S. 12268

*Halite*

Structures, sedimentary, Saskatchewan: Wardlaw, N. C. 01590

*Halloysite*

Replaced by gibbsite, Hawaii: Uehara, Gore. 03129

*Hatchite*

Unit cell dimensions: Berry, L. G. 07592

*Heazlewoodite*

Origin, occurrence in serpentinites: Chamberlain, J. A. 06028

Synthesis: Cole, W. F. 00822

*Hedenbergite*

Transformation to ilvaite, Quebec: Machairas, G. 08091

*Hematite*

Crystal structure refinement: Blake, R. L. 02147

Geochemistry, water adsorption, anion effects: Jurinak, J. J. 06747

Magnetic resonance, pure and doped crystals: Searle, Clark Wellington. 06162

**Mineral data***Hematite*

New Jersey, exsolution in franklinite: Frondel, Clifford. 11224

Reduction kinetics, hydrogen at high pressures: McKewan, W. M. 12378

Structure, Michigan, Keweenaw County, Cliff vein: Williams, S. A. 08604

*Hendricksite*

X-ray, optical data, New Jersey, Franklin: Frondel, Clifford. 03408

*Hetaerolite*

New Jersey, exsolution in franklinite: Frondel, Clifford. 11224

*Heulandite*

Crystal structure: Merkle, Arthur B. 11949

*Howieite*

California, Laytonville quarry: Chesterman, Charles W. 07787

*Huhnerkobelite*

Classification in isomorphous series, X-ray data: Fisher, D. Jerome. 04190

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*Hyalite opal*

Properties, iris-effect, Mexico, San Luis Potosi: Sinkankas, John. 05591

*Hydroxyapatite*

Synthetic, properties, structure: McConnell, Duncan. 07224

*Hydrozincite*

Lattice parameters, synthetic compounds: Jamboer, J. L. 07594

*Hypersthene*

Pleochroism, origin: Burns, Roger G. 02386

*Illite*

Cesium sorption capacities: Gaudette, H. E. 07932

*Ilmenite*

Alteration products: Temple, A. K. 01318

Composition, in meteorites, Mn-Cr bearing: Buseck, Peter R. 08672

*Ilvaite*

Formation from hedenbergite, Quebec: Machairas, G. 08091

*Inesite*

Infrared absorption spectra, classified as pyroxenoid: Ryall, William R. 04382

*Iron-bearing minerals*

Properties, Mossbauer resonance absorption spectrums: Herzenberg, C. L. 00977

*Iron-titanium minerals*

Quebec, Lake St. John anorthosite, composition: Anderson, Alfred T., Jr. 12054

*Iron-titanium oxide*

Ontario, Hearst area, physical and chemical properties: vanLoan, Paul R. 07569

*Jadeite*

California, Panoche Pass area: Coleman, R. G. 13540

Crystal structure, refinement: Prewitt, C. T. 04357

*Jennite*

California, Crestmore, new mineral: Carpenter, A. B. 00349

*Jordanite*

Structure, substructure: Wuensch, B. J. 04707

*Jordisite*

New Mexico, Ambrosia Lake area sandstone: Granger, Harry C. 01804

*Kamacite*

X-ray properties, superstructure, transitional phase: Ramsden, A. R. 12522

*Kamarezeite*

Identity with brochantite: Mrose, Mary E. 11223

**Mineral data***Kaolin*

- Deuteration, 20° C: Ledoux, Robert L. 12550  
X-ray diffraction, infrared spectroscopy, swelling: Ledoux, Robert L. 12545

*Kernite*

- Structure: Giese, R. F., Jr. 03738

*Kirschsteinite*

- Composition, Gnome nuclear explosion debris: Kahn, J. S. 03412

*Kobellite*

- Composition: Harris, D. C. 07586

*Kyanite*

- Enthalpy of formation: Holm, J. L. 04008  
Inversion pressure at 750° C: Newton, Robert C. 00370

*Labradorite*

- Authigenic, Cuba, barite concretion: Kralik, Jiri. 08194

*Larnite*

- Texas, Culberson County, physical properties: Bridge, Thomas E. 06525

*Larsenite*

- Crystal structure, refinement: Prewitt, C. T. 02601

*Laueite*

- Crystal structure: Moore, Paul B. 02380

*Laumontite*

- Structure, Michigan, Keweenaw County, Cliff vein: Williams, S. A. 08604

*Lautarite*

- Structure, X-ray diffraction data: Kaplan, Seymour Fred. 06683

*Leonite*

- New Mexico, southeastern: Madsen, Beth M. 01805

*Leucite*

- P-T stability, system kalsilite-silica-water: Scarfe, C. M. 04380

*Leucosene*

- Definition: Temple, A. K. 01318

*Livingstonite*

- Critical review, properties, structure: Fabregat Guinchard, Francisco J. 07888

*Loewellite*

- New Mexico, southeastern: Madsen, Beth M. 01805

*Lorandite*

- Crystal structure refinement: Knowles, Charles R. 02594

*Ludlamite*

- Crystal structure, paramagnetic: Abrahams, S. C. 11765  
Structure, ferromagnetic and crystal: Abrahams, S. C. 11756

*Lyndochite*

- Composition, assignment to aeschynite-priorite series: Fleischer, Michael. 06710

*Mackayite*

- Mexico, Sonora, Moctezuma mine: Gaines, Richard V. 13496

*Mackinawite*

- Occurrence, distinction from vallerite: Milton, Charles. 06666  
Replacement origin: Vaasjoki, O. 00087  
Replacement origin, Fe-S phase relations, stability field: Clark, A. Horrell. 12358  
Replacement origin, upper stability temperature, Ni content effect: Vaasjoki, O. 07108

*Magnesite*

- Properties, thermal decomposition, experiments: Ricketts, John A. 03398  
Replacement of dolomite: Rosenberg, P. E. 00100

**Mineral data***Magnetite*

- Magnetic properties, domain structure: Hanss, Robert Edward. 02197  
Paleomagnetism, stress dependency: Soffel, H. 13004

- Remanent magnetism, stability, thermal cycles: Kobayashi, Kazuo. 13487

- Silicate iron-formations: Hashimoto, Tsutomu. 06399

*Manganese minerals*

- Trace elements, crystal chemistry in sea-floor nodules: Burns, Roger G. 02460

*Marcasite*

- Inversion to pyrite by grinding, discredited: Izard, John E. 01016

*Margarite*

- Structure: Takeuchi, Y. 04929

*Mckinstryite*

- Properties, new mineral: Skinner, Brian J. 08446

*Melanophlogite*

- Crystal structure: Appleman, Daniel E. 02382

*Metajennite*

- California, Crestmore, new mineral: Carpenter, A. B. 00349

*Metastrengite*

- Crystal structure: Moore, Paul B. 02380  
Crystal structure, cf. strengite and phosphophyllite: Moore, Paul B. 00345

*Meteoritic minerals*

- Shocked, X-ray diffraction study: Jaeger, R. R. 13424

*Mica*

- Composition, neutron activation analysis, technique: Eichholz, G. G. 02414  
Decrepitation stages: Hutchison, W. W. 08050  
Experimental deformation: Borg, Iris. 13392  
Geochemistry, Hawaiian soils, ionic relations: Swindale, L. D. 05816  
Geochemistry, water content, wet-grinding gain: Rouxhet, P. G. 05016  
New Jersey, Franklin Furnace, zinc-bearing: Evans, B. W. 04219  
Polytypes, X-ray studies: Ross, Malcolm. 02832  
Synthetic, ammonium muscovite and phlogopite: Eugster, H. P. 02790

*Microcline*

- Composition, barium bearing, New Jersey, Franklin: Frondel, Clifford. 07924

*Microperthite*

- 201 spacing, Greenland, Kangerdlugssuaq intrusion: Kempe, D. R. C. 06712

*Moctezumalite*

- Mexico, Sonora, Mina Moctezuma, Cu telluro-selenide, new: Harris, Donald Clayton. 03993

*Molybdenite*

- Properties, optical: Clark, A. Horrell. 04136  
Properties, optical: Leow, J. H. 01961

*Monazite*

- Montana, Road Gulch area: Staatz, Mortimer H. 01806

- Synthetic, morphology, variation with thorium and rare earth content: Anthony, John W. 13187

*Monetite*

- California, Mono Lake: Cohen, Lewis H. 06546  
California, Mono Lake area, new: Ribbe, P. H. 04717

*Muscovite*

- California, Bass Lake quadrangle, barium-vanadium: Snetsinger, Kenneth G. 08462  
Electron microscope observation, distinction from phlogopite: Nakahira, M. 00040  
Geochemistry, potassium, extractability: Smith, S. J. 03353



**Mineral data***Muscovite*

- Maine, northwestern, basal spacings: Guidotti, C. V. 05842  
 Pseudomorph after staurolite, Maine: Guidotti, Charles V. 12080  
 Stability limit, upper: Velde, B. 04373  
 Structure, coexisting with paragonite: Burnham, Charles W. 05106  
 Vermont, Lincoln Mtn. quadrangle, microprobe analysis: Albee, A. L. 12049  
 Weathering, experimental study, K-depletion: Scott, A. D. 04949

*Myrmekite*

- Genesis: Castle, Robert O. 13251

*Narsarsukite*

- General description, X-ray diffraction data, genesis, Quebec: Rajasekaran, K. C. 06032

*Nepheline*

- Geochemistry, alteration: Smith, John Ward. 04880  
 Synthesis from kaolinite and sodium carbonate: Kubo, Yasushi. 00825  
 Thermodynamic properties: Barany, Ronald. 03983

*Nephrite*

- California, Mariposa County, properties: Evans, James R. 05503

*Newberyite*

- California, Mono Lake: Cohen, Lewis H. 06546  
 California, Mono Lake area, new: Ribbe, P. H. 04717

*Oldhamite*

- Meteorites, thermodynamic properties: Larimer, John William. 06143

*Olivine*

- Arizona and New Mexico, Navajo Reservation, diatremes: O'Hara, M. J. 00838  
 Composition and properties in Alpine serpentinites: Hostettler, P. B. 00350  
 Composition, electron probe and X-ray diffraction: Smith, J. V. 08454  
 Composition, Gnome nuclear explosion debris: Kahn, J. S. 03412  
 Dislocation deformation, experimental study: Young, Chapman. 13816  
 High-pressure transformations: Ringwood, A. E. 08732  
 Optical absorption spectra of iron: White, William B. 04383

*Omphacite*

- California, Franciscan Formation, veins: Essene, E. J. 12092  
 Structure, California: Clark, Joan R. 04713

*Opal*

- Mississippi-Alabama Eocene sand, genesis: Wermund, E. G. 01601

*Orpiment*

- Solubility, hydrothermal sulfide solutions: Dickson, F. W. 07856  
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*Orthoclase*

- Crystals, morphology in igneous rocks: Longshore, Judith Clark. 02827

*Orthoenstatite*

- Synthetic, cell dimensions, densities: Stephenson, D. A. 06008

*Orthopyroxene*

- Composition, X-ray emission microanalyses, cf. chemical: Howie, R. A. 04882  
 Meteorites, disordered, occurrence: Pollack, Sidney S. 05840

*Oxides*

- Sound velocity from refractive index: Anderson, Orson L. 04358

**Mineral data***Oxides*

- Thermodynamic properties, tables of constants, selected: Robie, Richard A. 04536

*Oxy-salts*

- Sound velocity from refractive index: Anderson, Orson L. 04358

*Pachnolite*

- Structure: Gerhard, F. Bruce, Jr. 07939

*Paradamite*

- Unit cell: Finney, J. J. 03415

*Paragonite*

- Structure, coexisting with muscovite: Burnham, Charles W. 05106  
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*Pascoite*

- Crystal structure, refinement, orthorhombic symmetry: Swallow, A. G. 03666

*Paulingite*

- Structure: Gordon, E. Kent. 04171

*Periclase*

- California, Crestmore area: Carpenter, Alden B. 12013  
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*Perrierite*

- Virginia, composition, unit-cell data: Mitchell, Richard S. 08060

*Perthite*

- Oxygen isotopes, fractionation: Schwarcz, Henry P. 05412

*Phillipsite*

- Oregon, Tertiary lake beds, properties: Regis, A. J. 02602

*Phlogopite*

- Electron microscope observation, distinction from muscovite: Nakahira, M. 00040

*Phosphorite*

- Continental shelf sediments, Georgia, provenance: Pevear, David R. 03637

*Phyllosilicates*

- Infrared absorption, O-H bonds: Jorgensen, Per. 04950

*Pimelite*

- Description: Faust, George T. 00836

*Plagioclase*

- British Columbia, Shingle Creek porphyry, phenocrysts: Bostock, H. H. 06230  
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 Patchy zoning, origin: Vance, J. A. 04885  
 Structural state, metamorphosed volcanic rocks: Noble, Donald C. 00302  
 Vermont, Gile Mountain Formation, paragenesis: Crawford, Maria Luisa. 05745

*Planchelite*

- Crystal structure: Evans, Howard T., Jr. 03606

*Plessite*

- Composition, texture, mechanism of formation: Massalski, T. B. 05331

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X-ray properties, synthesis: Mumme, W. G. 00039

*Polybasite*

Mexico, Zacualpan, LaGuadalupe mine, gold-silver ore, new var.: Harris, Donald Clayton. 03993

*Polyhalite*

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*Polythionite*

Quebec, Saint Hilaire area, physical properties, associations: Perrault, G. 07558  
Synthesis, stability: Munoz, James Loomis. 05893

*Prehnite*

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*Pseudorutile*

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*Pyrite*

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Thermal decomposition, kinetics: Goats, A. W. 07949  
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*Pyroaurite*

Ontario, Langmuir township, occurrence: Mandarino, J. A. 07582

*Pyrochlore*

Crystal chemistry: Brisse, Francois. 11628

*Pyromorphite*

Synthetic, composition, structure: Baker, W. E. 05841

*Pyrophyllite*

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**Mineral data***Quartz*

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*Rinkite*

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*Roebbingite*

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*Roedderite*

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*Schroëckergerite*

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*Schwarzenbergite*

Structure, X-ray diffraction data: Kaplan, Seymour Fred. 06683

*Serandite*

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*Shattuckite*

Crystal structure: Evans, Howard T., Jr. 03606  
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*Silica*

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Crystal-chemical properties, computation of binding energy: Slaughter, M. 00434  
Crystal-chemical properties, model: Slaughter, M. 00433

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Properties, surface, chemical interpretation: Deju, R. A. 06509

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*Sillimanite*

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*Silver, native*

Ontario, Cobalt area, textures: Petruk, W. 07563

Structure, Michigan, Keweenaw County, Cliff vein: Williams, S. A. 08604

*Silver tellurides*

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*Silver-antimony minerals*

Properties, geochemistry, Ontario, Cobalt area: Soumanchi, S. 07577

*Skudderite*

Ontario, Cobalt area, textures: Petruk, W. 07563

*Soda pyroxene*

California, Franciscan rocks, glaucophane schist facies: Essene, E. J. 11998

*Spencite*

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*Spessartite*

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*Staurolite*

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*Stichtite*

Ontario, Langmuir township, occurrence: Mandarino, J. A. 07582

*Stilbite*

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Geochemistry, alkali metal cation exchange: Ames, L. L., Jr. 07544

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*Stishovite*

Arizona, Meteor Crater, isolation from sandstone, method: Bohn, Ernst. 12364

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*Sulfides*

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*Sulfur*

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*Sulvanite*

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Synthetic, cell dimensions, composition: Turnock, A. C. 05834

*Tapiolite*

Synthetic, cell dimensions, composition: Turnock, A. C. 05834

*Taranakite*

Synthetic, reaction with fertilizer: Liu, Po-Ling. 06331

*Tarbuttite*

Unit cell: Finney, J. J. 03415

*Tetrahedrite*

Structure, compared with binnite: Wuensch, B. J. 04181

*Thomsonite*

General description, distinction from prehnite: Dobell, J. P. 00312

*Thorite*

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Synthetic, X-ray diffraction data: McConnell, Duncan. 07224

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Buergerite, new var., Mexico: Donnay, Gabrielle. 00378

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*Tremolite*

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*Tremolite-ferroactinolite series*

Synthetic: Hellner, E. 02462

*Trilithionite*

Synthesis, stability: Munoz, James Loomis. 05893

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*Tsumebite*

Crystal structure and composition: Nichols, M. C. 02457

*Tsumebite, arsenate analog*

Structure and geochemistry: Bideaux, R. A. 02383

*Tugtupite*

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*Vivianite*

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*Whewellite*

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*Willemite*

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*Wollastonite*

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*Wulfenite*

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*Xanthophyllite*

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*Yeatmanite*

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*Yukonite*

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*Arsenic, native*

Newfoundland, Whalesback and Little Bay copper mines: Papezik, V. S. 07559

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Hawaii, cf. Oregon, weathering of basalt: Allen, V. T. 07234

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*Beryllium*

Greenland, southwestern, Ilimaussaq alkaline complex: Hansen, John. 05109

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New Mexico, Questa deposit, hydrothermal alteration: Gustafson, William G. 07974

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- Ordovician, Oklahoma, Arbuckle Formation,  
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- Ordovician, Oklahoma, Simpson Group, as-  
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- Tertiary, Caribbean region, distribution,  
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- Vermont, Highgate Formation, restudy: Creath,  
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*Orionina*

- Tertiary, Caribbean region, distribution,  
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- Recent, Panama, Colon Harbour area: Bold, W.  
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- Lithofacies, Michigan: White, Walter S. 05393
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- General description, Idaho, grade and recovery factors: Town, J. W. 03982
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- Density, uranium deposits, radioactivity data, computer processing: Dodd, P. H. 06704
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- Porosity, bulk density, data, tables: Daly, R. A. 04520
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