

Bibliography of North American Geology, 1969

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UNITED STATES DEPARTMENT OF THE INTERIOR

ROGERS C. B. MORTON, *Secretary*

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V. E. McKelvey, *Director*

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BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY

1969

INTRODUCTION

The current annual volume of the "Bibliography of North American Geology" lists publications that appeared during 1969 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. Numbers from 00001 through 09624 will be found in *Abstracts of North American Geology* as follows:

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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, Elizabeth Hambleton, 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 (1940-1949), 1195 (1950-59), 1196 (1960), 1197 (1961), 1232 (1962), 1233 (1963), 1234 (1964), 1235 (1965), 1266 (1966), 1267 (1967), 1268 (1968), and 1269 (1969).

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- Michigan, White Pine area, Rb-Sr: Chaudhuri, Sambhudas. 10266
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Worldwide, geography of minerals: Voskuil, Walter H. 03540

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College courses, introductory, effects of ESCP, prediction: Paull, R. A. 10471

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- Fourth grade, Nebraska: Carlson, Marvin P. 02632
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- Coastal environment, Univ. of Washington courses: Sternberg, Richard W. 07107
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- Laboratory manual, earth science: Stewart, John C. 08218
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- General description, Manitoba, Opachuanau-Southern Indian Lakes area: Hinds, R. W. 10689
- General description, Manitoba, Rat Lake area: Schledewitz, D. C. P. 10687
- General description, Manitoba, Southern Indian Lake, central area: Frohlinger, Thomas G. 10690
- General description, Manitoba, Torrance Lake-Missi Rapid area: Cranstone, J. R. 10691
- General description, Mexico, Coahuila, Sierra de la Paila: Wilbert, William P. 12725
- General description, Nebraska, Precambrian, history: Lidiak, Edward G. 00449
- General description, New Hampshire, seacoast region: Novotny, Robert F. 04763
- General description, Ontario, Eayrs Lake-Starnes Lake area: Kaye, L. 11078
- General description, Ontario, Minnitaki Lake area, Precambrian: Johnston, F. J. 03668
- General description, Ontario, Western Lake St. Joseph area: Clifford, P. M. 11076
- General description, Quebec, Manicouagan structure: Murtaugh, J. C. 06168
- General description, Quebec, Oka carbonatite complex: Gold, D. P. 12654

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- General description, Saskatchewan, Kelly Lake area: Johnston, W. G. Q. 10563
- General description, Saskatchewan, Waddy Lake area, eastern: Johnston, W. G. Q. 12214
- General description, Utah, Bingham mining district: Moore, William J. 02057
- General description, Washington, Chiwaukum Mts.: Plummer, Charles Carlton. 08036
- Geochemistry, Montana, Stillwater complex, trace elements: Mowatt, Thomas C. 12266
- Geochemistry, New Hampshire, Belknap Mtn. complex: Gaudette, H. E. 00100
- Geochemistry, North Carolina, Farrington complex: Wagener, H. D. 12049
- Geochemistry, Texas, Big Bend region, trace elements: Gunn, Bernard M. 11103
- Geochemistry, United States, southeastern, plutons: Price, Van. 01438
- Geologic thermometry, Colorado, Buckskin Gulch intrusive: Kuntz, Mel A. 02068
- Magnetic properties, Montana, Boulder batholith: Hanna, W. F. 07619
- Mineral composition, Saskatchewan, Beckett Lake area: Scott, B. P. 12213
- Petrology, absolute age, Arizona, Dos Cabezas Mts.: Erickson, Rolfe Craig. 04641
- Petrology, Appalachians, southeastern, Piedmont: Butler, J. Robert. 07310
- Petrology, Maryland, Harford County: Southwick, David L. 08837
- Petrology, North Carolina, South Carolina, intrusions: Butler, J. Robert. 01512
- Petrology, Ontario, Muskrat Dam Lake area: Ayres, L. D. 11077
- Petrology, Oregon, plutonic clasts in conglomerate: Taubeneck, William H. 00794
- Petrology, Saskatchewan, Deschambault Lake area: Padgham, W. A. 10567
- Petrology, Saskatchewan, Ena Lake area, east half: Koster, F. 10558
- Petrology, Saskatchewan, Flin Flon area: Byers, A. R. 10556
- Petrology, Saskatchewan, Harper Lake area, south half: Koster, F. 10565
- Petrology, Saskatchewan, Maribelli Lake area, west half: Gracie, A. J. 10566
- Petrology, Saskatchewan, Morell Lake area, west half: Chadwick, Brian. 10569
- Petrology, Saskatchewan, Nekweaga Bay area: Chadwick, Brian. 10564
- Petrology, Saskatchewan, Nemei Lake area, east half: Pyke, M. W. 10561
- Petrology, Saskatchewan, Pelican Narrows, Birch Portage areas: Pyke, M. W. 10559
- Petrology, Saskatchewan, Trade Lake area: Chakrabarti, A. K. 11915
- Petrology, Snoqualmie composite batholith, Washington: Erikson, Erik H., Jr. 05886
- Petrology, Virgin Islands, St. John, drill core: Hekinian, Roger. 06737
- Petrology, zircon morphology, Idaho, Harpster quadrangle: Myers, Paul Edward. 04651
- Popular account: Zim, Herbert S. 10622
- Porosity, volume and size, Virginia: Sherwood, W. Cullen. 04691
- Textures, Maine, Wiscasset quadrangle: Hatheway, Richard B. 00138

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- Complementariness of orogenic andesite and alpine peridotite: Osborn, E. F. 02745
- Fall of meteorites: Rao, A. S. P. 05727

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- Bromine, fractionation, analysis: Lieberman, Kenneth Warren. 07312
- Carbon isotopes, biochemistry: Degens, E. T. 10431
- Ferriodipside, phase equilibria: Huckenholz, H. G. 09416
- Greenland, Skaergaard intrusion, sulfur isotope variation: Sasaki, Akira. 12700
- Greenland, Skaergaard intrusion, Zr, Hf: Brooks, C. Kent. 02479
- Montana, Stillwater Complex, chemical variations: Bowes, D. R. 06848
- Montana, Stillwater complex, pyroxenes, transition elements: Mowatt, Thomas C. 02060
- North Carolina, Farrington complex, transition metals: Carpenter, John R. 01515
- Petrographic mixing equations, least-squares approximation of proportions: Bryan, W. B. 00479
- Rock-forming mineral phenocrysts, K, Rb, Sr, Ba partition coefficients: Schnetzler, Charles C. 11593
- Strontium isotopes, contamination indicators: Powell, J. L. 02847
- Yttrium, ytterbium, abundances: Fleischer, M. 10219

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- Absolute age, Connecticut, Stony Creek Granite: Hills, F. Allan. 11123
- Absolute age, Kansas, Rose Dome Granite: Bickford, M. E. 00351
- Absolute age, New Mexico, Questa mine: Laughlin, A. W. 09310
- Absolute age, Oklahoma, northeastern, Precambrian, Rb-Sr: Denison, R. E. 06126
- Absolute age, petrology, Virginia, Robertson River Fm.: Lukert, Michael T. 13154
- Absolute age, Wisconsin, Precambrian: Chaudhuri, S. 12600
- Alteration, New Hampshire, Conway Granite: Brimhall, Willis H. 06475
- Alteration, rheomorphism by gabbro, Labrador: Elders, W. A. 01319
- Crystallization, Maine, Tunk Lake granite, sphene zoning: Karner, F. R. 06990
- General description, Alabama, Piedmont plutons: Bentley, Robert D. 01405
- General description, Missouri, St. Francois Mts.: Tolman, Carl F. 06900
- General description, New Mexico, Sangre de Cristo Mts.: Budding, A. J. 12517
- General description, Virginia, Petersburg Granite: Goodwin, B. K. 12523
- Genesis, association with zones of stress and shearing: McConnell, R. B. 00006
- Geochemistry, absolute age, Wyoming, Sweetwater Granite: Rosholt, J. N. 02231
- Geochemistry, metals, rare and W, Sn, Ta, criteria for parent granite: Beus, Alexei A. 02399
- Geochemistry, standard sample, Au analyses, accuracy: Fritze, K. 05902
- Geochemistry, Washington, Golden Horn batholith: Stull, Robert John. 08039
- Gravity study, Wyoming, Laramie Mts., Sherman batholith: Bothner, Wallace A. 11233
- Mineral composition, United States, midwestern: Hill, T. E., Jr. 12722
- Mineralogy, Georgia, Monticello area, quartz-leached graphic: Salotti, Charles A. 04175

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- Petrology, absolute age, Montana, Sand Creek sill: Daugherty, Franklin W. 02099
- Petrology, composition, Wyoming, Laramie batholith: Condie, Kent C. 11178
- Petrology, feldspar characteristics, New Jersey: Goodspeed, Robert M. 11815
- Petrology, Greenland, Bjorneoer: Kalsbeek, F. 12502
- Petrology, post Cambro-Ordovician, Franklin Mts., Texas: Hoffer, Jerry M. 04434
- Petrology, red-feldspar porphyry, Quebec, Gaspé Peninsula: Boone, Gary M. 02776
- Physical properties, comparative analysis, engineering applications: Voight, Barry. 11647
- Physical properties, frictional characteristics, high confining pressure: Hsu, K. Jinghwa. 00979
- Physical properties, frictional under high confining pressure: Byerlee, James D. 04495
- Physical properties, in place cf. laboratory: Orange, Arnold S. 04513
- Physical properties, in place cf. laboratory: Simmons, Gene. 03708
- Physical properties, mechanical anisotropy, cause and evaluation: Douglass, P. M. 04862
- Physical properties, microstructural techniques: Willard, R. J. 00967
- Physical properties, strength, determination: Hoskins, John R. 11386
- Physical properties, strength, loading ends, effect of variables: Hoskins, John R. 12675
- Physical properties, velocity anisotropy, stress induced: Nur, Amos. 06556
- Structural features, oriented inclusions, Cadillac Mtn. pluton, Maine: Chapman, Carleton A. 05379
- Texture, New Jersey, myrmekite genesis: Goodspeed, Robert M. 00101
- Textures, Montana, Flint Creek Range: Allen, Jack C., Jr. 02118
- Textures, rapakivi, Idaho, Snake River Mts.: Goodspeed, G. E. 00684

Granitic

- Absolute age, Guatemala, Chiquimula pluton: Long, Leon E. 07420
- Absolute age, Maine, southern: Christopher, Peter A. 11173
- Absolute age, Missouri, St. Francois Mts.: Anderson, Jay Earl, Jr. 03507
- Absolute age, North Carolina, South Carolina, plutons: Fullagar, Paul D. 01411
- Composition, absolute age, Alaska: Reed, Bruce L. 00010
- General description, absolute age, plutons, California, Inyo Mts.: Ross, Donald C. 00531
- General description, Minnesota, Mesabi Range: Viswanathan, S. 10659
- Genesis by anatexis, Colorado, Comanche Peak area: Beck, Lawrence D. 06971
- Genesis, experimental studies: Luth, W. C. 07968
- Genesis, model studies: Butler, James Robert. 07960
- Geochemistry, North Carolina, Salisbury pluton: Lemmon, Robert E. 01467
- Geochemistry, standard samples, analysis technique: Parker, A. 11540
- Geochemistry, Th, U, K abundance, Boulder batholith, Montana: Tilling, Robert I. 04441
- Petrology, absolute age, Colorado, Florissant quadrangle: Wobus, Reinhard A. 02150

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- Petrology, alteration, Greenland, Akuliaruseq area: Persoz, Francis. 11542
- Petrology, Colorado, Glen Haven quadrangle: Bucknam, Robert Campbell. 05562
- Petrology, Massachusetts, Mansfield quadrangle: Lyons, Paul Christopher. 07331
- Petrology, Nevada, western tricoounty area: Moore, James G. 05210
- Petrology, North Carolina, Lilesville batholith: Waskom, John D. 01558
- Petrology, Oregon, clasts in conglomerate: Taubeneck, William H. 00793
- Petrology, Texas, Llano uplift: Cook, L. P. 11870
- Structural features, mineral layering, Twin Lakes Granodiorite, Colorado: Wilshire, H. G. 11692
- Textures, identity change number: Wadsworth, William B. 02148

Granitization

- Process, shear melting: McConnell, R. B. 00006
- South Carolina, Laurens County, Master's Kiln: Snipes, David S. 01545

Granodiorite

- Geochemistry, melting relations: Gibbon, D. L. 01322
- Petrology, Jamaica, Above Rocks Granodiorite: Reed, A. J. 10829
- Petrology, Montana, Mt. Powell batholith: Allen, Jack C., Jr. 12219
- Petrology, Washington, Cloudy Pass batholith and plugs: Cater, Fred W. 03667
- Physical properties, Montana, Philipsburg batholith, specific gravity: Ehinger, Robert F. 12239

Ignimbrite

- Absolute age, Nevada, Fish Creek Mts. volcanics: McKee, Edwin H. 00649
- Fabric, directional, determination, X-ray absorption: Pinnell, Michael. 02246
- Foliation, genesis by compaction: Ragan, Donald M. 00819
- General description, Arizona, Chiricahua Mts.: Marjanemi, Darwin. 12134
- General description, Arizona, Galiuro Volcanics: Krieger, Medora H. 12126
- General description, history, Utah, Needles Range: Conrad, Omar G. 07043
- General description, Mexico, Sierra Madre Occidental: Mackin, J. Hoover. 11323
- Genesis, mechanism, form and distribution of deposits: Noble, Donald C. 11492
- Geochemistry, analyses, Texas, Brite Ignimbrite: Smith, J. P. 11948
- Geochemistry, shards, interstitial dust, chemical variations, Nevada: Scott, Robert B. 01419
- Petrology, Newfoundland, Avalon Peninsula: Papezik, V. S. 06695
- Petrology, Oregon, Cascade Range, basaltic: Taylor, Edward M. 00795
- Textures, snowflake, Texas, Davis Mts.: Anderson, Jay Earl, Jr. 04487

Kakortokite

- Petrology, Greenland, Ilimaussaq area: Brooks, C. K. 04976

Kimberlite

- Absolute age, Riley County, Kansas: Brookins, Douglas G. 00315
- Composition, Greenland, Nigerdlikasik area: Andrews, J. R. 04866

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- Composition, Sr in calcite: Brookins, D. G. 02682
- Genesis: MacGregor, Ian. 07427
- Geochemistry, inclusions, diopside types: Boyd, F. R. 01275
- Mineral composition, Colorado-Wyoming, Front Range, diatremes: McCallum, M. E. 11335
- Mineral composition, Kansas, Riley County: Brookins, Douglas G. 10490
- Petrology, bearing of phlogopite stability on origin: Yoder, H. S., Jr. 01268
- Petrology, Kansas, Riley County: Brookins, Douglas G. 00344
- Petrology, Kansas, Riley County: Dyer, Roger G. 00338
- Petrology, Utah, breccia dike: McGetchin, Thomas Richard. 04648
- Petrology, xenoliths, origin, depth: Jackson, Everett D. 09532

Lamprophyre

- Geochemistry, Colorado, Spanish Peaks, dike: Crelling, John Crawford. 02116
- Petrology, layering, net veining genesis, Labrador: Elders, Wilfred A. 05999

Limburgite

- Dominican Republic, analyses, cf. Haiti, south-central: MacDonald, William D. 08818

Mafic

- Absolute age, Stillwater Complex, Montana: Fenton, M. D. 02657
- General description, Manitoba, Bissett area: Scoates, R. F. J. 10676
- Petrology, absolute age, South Carolina, intrusions: Medlin, Jack Harold. 11471
- Petrology, California, Mount St. Helena complex: Bezore, Stephen P. 00707
- Petrology, Georgia, Gladesville pluton: Matthews, Vincent, 3d. 01444
- Petrology, inclusions in basalts: Kuno, Hisashi. 07062
- Petrology, Minnesota, Gabbro Lake quadrangle, Duluth Complex, lower: Phinney, W. C. 00322
- Petrology, nodules in basalt: Kuno, Hisashi. 08103
- Petrology, South Carolina, Union County, Bufalo complex: Medlin, J. H. 12024

Magnetic properties

- Remanent magnetization, stability: Larson, E. 02341

Mangerite

- Genesis, relation to rapakivi: Kranck, E. H. 09583

Melting

- Fractional, trace-element trends: Shaw, D. M. 04352
- Hawaii, Oahu, mantle, chemical, mineralogical trends: Beeson, M. H. 06838
- Partial fusion, geometric analysis on phase diagram: Presnall, D. C. 06943

Monzonite

- Absolute age, Wisconsin, Precambrian: Chaudhuri, S. 12600
- Alteration, British Columbia, Adamant pluton: Fox, P. E. 03961
- Petrology, California, Inyo batholith: Sylvester, A. G. 00792
- Petrology, Colorado, Ragged Mtn. pluton: Beer, Avery S. 02040

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Terminology: Subba Rao, S. 00312

Myrmekite

Composition, quartz, proportionality to plagioclase: Ransom, D. M. 05772

Composition, quartz, proportionality to plagioclase: Shelley, David. 05771

Genesis, exsolution: Hubbard, Fred H. 05773

Nepheline syenite

New Jersey, Brookville area, correction: Milton, Charles. 05412

Nomenclature

General: Wedepohl, K. H. 04844

Norite

Geochemistry, K:Rb ratios, New York, Adirondack Mts.: Reynolds, Robert C., Jr. 09595

Obsidian

Composition, non-hydrated, alkali retention cf. rhyolites: Lipman, Peter W. 02204

Geochemistry, Alaska, Kobuk River, Onion Portage site, analyses: Griffin, James B. 03310

Oligoclase-basalt

Terminology: Subba Rao, S. 00312

Pantellerite

Petrology, crystallization on quartz-feldspar path: Bailey, D. K. 00406

Pegmatite

Absolute age, Connecticut, Middletown area: Brookins, D. G. 03858

Emplacement, Northwest Territories, Yellowknife Group: Kretz, R. 04787

Genesis, Montana, Stillwater Complex: Sampson, Edward. 09267

Geochemistry, petrology, Arizona: Matter, Philip, 3d. 03043

Mineral composition, Texas, central mineral region: Ewing, Rodney C. 11873

Petrology, experimental studies: Jahns, Richard H. 09304

Petrology, geochemistry, Washington: Ross, Theodore William. 05124

Petrology, Greenland, Ilimaussaq intrusion border: Westergaard, Agnette S. 04975

Textures, poikilitic albites in microcline, genesis: Fisher, D. Jerome. 08595

Peridotite

Genesis, alpine: Osborn, E. F. 02745

Genesis, alpine-type, upper mantle: Ave'Lla-mant, Hans G. 13129

Geochemistry, rare earths in nodules, genetic relation to basalt host: Nagasawa, Hiroshi. 02028

Mineral composition, mantle source, xenolith in diatreme, Utah: Gavasci, A. T. 06557

Petrology, California, Burro Mtn.: Himmelberg, G. R. 08001

Petrology, California, Burro Mtn.: Loney, R. A. 00643

Structure, California, Burro Mtn.: Loney, Robert A. 07419

Physical properties

Caribbean Sea, Aves Ridge, elastic properties, cf. seismic data: Fox, P. J. 06809

Drillability, abrasive indexes: White, C. G. 02810

Elastic moduli, temperature dependency: Wingquist, Carl F. 11391

Elastic, P-wave velocity, variation with fabric: Thill, R. E. 04443

Magnetic, geochronology, British Columbia, Coast Mts.: Symons, D. T. A. 02389

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Magnetic, magnetic cleaning in paleointensity studies: Doell, Richard R. 08140

Magnetic, piezoremanent: Nagata, Takesi. 08177

Magnetism, intensity, measurements: Schwarz, E. J. 03714

Montana, Stillwater complex, elastic anisotropy: Yates, Michael Timothy. 01897

Montana, Stillwater complex, magnetic: Bergh, Hugh W. 01879

Porosity and permeability, intrusives, volcanics, values: Davis, Stanley N. 09086

Reflectance spectra, statistical analysis: Ross, Howard P. 05959

Spheres, elastic symmetry, ultrasonic determination: Bur, Thomas R. 11396

Strength, stress, near-surface horizontal, U.S.: Hooker, Verne E. 11385

Wave propagation: Goldsmith, Werner. 11719

Porphyry

General description, Utah: Bray, R. Eldon. 02800

Geochemistry, Sr isotopes, Colorado, Empire region: Larsen, Margaret Kreider. 01948

Petrology, Washington, Cloudy Pass batholith and plugs: Cater, Fred W. 03667

Pumice

General description, Washington, Mt. Rainier, 19th century eruption: Mullineaux, D. R. 01169

Weathering, Oregon, Mazama: Chichester, F. W. 04330

Quartz diorite

Flow structure, Idaho, Deep Creek stock: White, Willis Harkness. 02213

Petrology, Mexico, Baja California, zoned pluton: Duffield, Wendell A. 11025

Quartz monzonite

Absolute age, Oregon, Lake County: Muntzert, James K. 12269

Geochemistry, melting relations: Gibbon, D. L. 01322

Petrology, California, Nevada, Boundary Peak pluton: Harris, Dahl L. 11114

Petrology, Colorado, Snowmass Creek pluton: Pollock, Stephen G. 12282

Rhyolite

Absolute age, Michigan: Brooks, Elwood R. 04559

Absolute age, North Carolina, Albemarle area: Hills, F. Allan. 12001

Absolute age, Oklahoma, northeastern, Precambrian, Rb-Sr: Denison, R. E. 06126

Composition, calc-alkalic, alkali retention, cf. glasses: Lipman, Peter W. 02204

Composition, phenocryst-groundmass relations, water-content control: Gibbon, Donald L. 11061

General description, Missouri, St. Francois Mts.: Tolman, Carl F. 06900

Geochemistry, melting relations: Gibbon, D. L. 01322

Geochemistry, trace-elements, eruptive centers identification: Jack, R. N. 06191

Texture, rapakivi, genesis, California: Ehrreich, A. L. 05489

Textures, devitrification, experimental: Lofgren, Gary Ernest. 05151

Silicic

Weathering, tropical types: Lisitsyna, N. A. 12508

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- Differentiation, experimental data: Morse, S. A. 10323
 General description, New York, Adirondack Mts., Diana Complex: Hargraves, R. B. 09601
 Genesis, feldspathoid, diabase sill contact, New Jersey: Barker, Daniel S. 05001
 Geochemistry, absolute age, Wyoming, Laramie Range: Fenton, M. D. 02869
 Geochemistry, amphibole compositions, variation, Quebec: Frisch, T. 04398
 Petrology, absolute age, Colorado, San Juan Mts., stock: Barker, Fred. 02127
 Petrology, Greenland, Ilimaussaq intrusion, rhythmic layering: Sorensen, Henning. 07109

Textures

- Colorado, Snowmass pluton, dikes, relations: Allen, Jack C., Jr. 12220
 Idaho, Elk City area, augen gneiss, genesis: Greenwood, William R. 12768
 Synneusis structures, genesis, magmatic origin criteria: Vance, Joseph A. 06969

Tholeiite

- Composition, genesis, Atlantic Ocean, Mid-Atlantic Ridge: Miyashiro, Akiho. 04764

Tonalite

- Geochemistry, petrology, Utah, Wasatch Mts.: Belt, Charles B., Jr. 02649

Trachybasalt

- Composition, California, southeastern: Smith, A. L. 06348

Trachyte

- Geochemistry, crystallization of ternary feldspars: Rahman, S. 01255

Trondhjemite

- Petrology, genesis by anatexis, Ontario: Chesworth, W. 04367

Tuff

- Mineral composition, Hawaii, Salt Lake Tuff, depth variations: Pankiwskyj, Kost A. 11504

Ultramafic

- Absolute age, Stillwater Complex, Montana: Fenton, M. D. 02657
 Alteration, Pennsylvania, retrograde metamorphism: Roberts, Francis H. 00079
 Alteration, serpentinization: Barnes, Ivan. 04422
 Alteration, serpentinization, D. O-18 studies: Wenner, David B. 07539
 Composition, elemental abundances, upper mantle relations: Fisher, David E. 04056
 Cuba, Oriente Province: Knipper, A. L. 10307
 General description, Alaska, southeastern, magnetite-bearing: Taylor, Hugh P., Jr. 09262
 General description, California, Winchester area: Schwarcz, Henry P. 03665
 General description, Manitoba, Bissett area: Scoates, R. F. J. 10676
 General description, Manitoba, selected occurrences: Scoates, R. F. Jon. 10694
 General description, Northwest Territories, Muskox intrusion: Irvine, T. N. 09220
 General, world belts, mantle correlation: Wyllie, Peter J. 07068
 Genesis, alpine-type, Appalachians: Carpenter, John R. 07563
 Genesis, alpine-type (sensu strictu), gravitational differentiation: Thayer, T. P. 09531
 Genesis, field association groups: Wyllie, Peter J. 09529

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- Genesis, peridotites, orogenic, facies diagram, upper mantle source: Rost, F. 09533
 Genesis, peridotites, orogenic, upper mantle source: Den Tex, E. 09530
 Geochemistry, K, Rb, Sr, North Carolina: Stueber, Alan M. 02481
 Geochemistry, Montana, Wyoming, Beartooth Mts.-Stillwater complexes: Bowes, D. R. 12535
 Geochemistry, upper mantle resources, mapping method: Condie, Kent C. 06045
 Petrology, alteration, Wyoming, Beartooth Mts.: Skinner, William R. 07958
 Petrology, British Columbia, Tulameen Group: Findlay, D. C. 03840
 Petrology, California, Mount St. Helena complex: Bezore, Stephen P. 00707
 Petrology, California, Tom Martin complex: Barrows, Allan G. 00705
 Petrology, geochemistry, North Carolina, Webster-Addie complex: Madison, James Ambrose. 03042
 Petrology, inclusions in basalts: Kuno, Hisashi. 07062
 Petrology, Labrador, Kiglapait layered intrusion: Morse, S. A. 10462
 Petrology, Mid-Atlantic Ridge: Thayer, T. P. 02679
 Petrology, Nevada, xenoliths in basalt: Trask, Newell J. 07607
 Petrology, New Mexico, inclusions in volcanic necks: Brown, William T., Jr. 02062
 Petrology, nodules in basalt: Kuno, Hisashi. 08103
 Petrology, Ontario, Abitibi Lake area: MacRae, N. D. 01223
 Petrology, Wisconsin, Rearing Pond intrusion: Olmsted, J. F. 10652
 Physical properties, elasticity, olivine orientation: Christensen, N. I. 00505
- Volcanic ash*
 Composition, characteristic elements, North America: Smith, D. G. W. 02004
 Composition, source, White River Ash, Yukon-Alaska: Lerbekmo, J. F. 01207
 Correlation, submarine, luminescence: Donahue, Jack. 11016
 Distribution, North Pacific: Horn, D. R. 03484
 Geochemistry, activation analysis, differentiation of falls: Randle, Keith. 04626
 Geochemistry, Sr isotopes zonation, U.S., western: Noble, Donald C. 03758
 Geochemistry, Washington, Mazama ash, weathering: Bockheim, James G. 06385
 Structural features, Pliocene flow, Oregon: Walker, George W. 03761
 Textures, relation to wind transport: Scheidegger, Adrian E. 06261
- Volcanics*
 Absolute age, Arizona, Del Bac Hills: Percious, J. K. 12154
 Absolute age, Arizona, New Mexico, Blue Range Primitive area: Ratte, J. C. 12161
 Absolute age, Colorado, central, Tertiary: Sawatzky, Don L. 12295
 Absolute age, geochemistry, Utah, Bull Valley district: Blank, H. Richard. 00679

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- Absolute age, Missouri, St. Francois Mts.: Anderson, Jay Earl, Jr. 03507
- Absolute age, Ontario, Michipicoten greenstones: Brooks, C. 04340
- Absolute age, rhyolite tuff, Colorado, Denver basin: Izett, G. A. 01761
- Absolute age, stratigraphy, Nevada, White Pine County: Blake, M. C., Jr. 02043
- Absolute age, Utah, East Tintic district: Laughlin, A. W. 09309
- Alteration, basaltic glass, Alaska: Muffler, L. J. Patrick. 00407
- Correlation, with intrusions, ore deposits: Gilluly, James. 02790
- Correlation, with intrusions, ore deposits: Moore, W. J. 02792
- Differentiation, Arizona, Black Mesa caldera, basanite lava: Sheridan, Michael F. 08596
- Eruptive history, Colorado, Hahns Peak, Miocene-Pliocene: Segerstrom, Kenneth. 01170
- General description, Albemarle Group, North Carolina: Stromquist, Arvid A. 00523
- General description, alteration, Colorado, Eureka, adjoining districts: Burbank, Wilbur S. 09025
- General description, Arizona, Black Mesa caldera: Sheridan, Michael F. 00814
- General description, Arizona, Goldfield Mts.: Sheridan, Michael F. 12174
- General description, Arizona, San Francisco field, maar deposits: Ulrich, G. E. 12199
- General description, Bonnetterre Fm., Missouri, Washington County: Wagner, Richard E. 06428
- General description, breccias, recognition criteria: Parsons, Willard H. 08102
- General description, California, Cedarville Series: Hulbe, C. W. H. 00664
- General description, California, Santa Cruz Island, Tertiary: Weaver, D. W. 09398
- General description, Catoctin Formation, plateau basalts, Virginia: Reed, John C., Jr. 00249
- General description, Colorado, Thirtynine Mile volcanic field: Chapin, Charles E. 10979
- General description, Greenland, Nugsuaq-Disko area: Rosenkrantz, A. 04872
- General description, leucitic lavas, Ontario: Cooke, D. L. 01208
- General description, Maine, north-central, Devonian island-arc sequence: Rankin, Douglas W. 12731
- General description, Massachusetts, Mt. Tom, plugs: Foose, Richard M. 11812
- General description, Mexico, Sonora, Crater Elegante: Gutmann, James T. 11107
- General description, Miocene, California, Santa Monica Mts.: Blackerby, Bruce A. 00908
- General description, Montana, Gallatin Range, vents: Chadwick, Robert A. 12229
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- California: Allen, Victor T. 02196

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- Alaska, Mounts Trident, Redoubt: Forbes, R. B. 12463
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- California, Lakeview Mountains pluton: Morton, D. M. 02653

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- Alaska, Aleutian and Alaska Ranges, plutons: Reed, Bruce L. 00010
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- Contact metamorphic: Smith, D. G. W. 02022

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- Nevada, springs, carbonate rocks: Mifflin, M. D. 09648
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- Standard samples, G-1, W-1: Fleischer, Michael. 00515
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- Saskatchewan, Birch Portage area: Pyke, M. W. 10559

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Thermally metamorphosed: Smith, D. G. W. 02022

Plagioclase

California, Lakeview Mountains pluton: Morton, D. M. 02653

Platinum

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Plutonic rocks

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Prehnite

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Quartz diorite

California, Lakeview Mountains pluton: Morton, D. M. 02653

Quartz monzonite

Colorado, Chaffee County, Poncha Springs quadrangle: VanAlstine, R. E. 07719

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Alberta, alluvial pebbles: Halferdahl, L. B. 10602

Red beds

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Colorado, Front Range, cordierite gneiss: Gable, Dolores J. 10598

Sand

California-Mexico, Sonoran desert, Fe content: Walker, T. R. 00549

Sea water

Carbon, particulate organic: Gordon, Donald C., Jr. 08213

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Deep-sea, core samples, interstitial water: Kaplan, I. R. 08543

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California, mercury deposits: Henderson, F. B., 3d. 05155

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Silicate rocks

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Newfoundland, Fe-Mn pans: McKeague, J. A. 09890

Newfoundland, natural leachate: Schnitzer, M. 09943

Newfoundland, Saint Stephen area, ironpan: McKeague, J. A. 10222

Nova Scotia, Cape Breton Island: McKeague, J. A. 10225

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Standard rocks

Spectrochemical data: Fabbri, Bruno. 04767

Sulfide ore

Standard sample, Canada: Sine, N. M. 00513

Surface water

Alabama, Wilcox County: LaMoreaux, P. E. 06649

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Maryland: Thomas, Jolly D. 02025

South Dakota, eastern, Big Sioux drainage basin: Ellis, Michael J. 02738

Syenite

Standard sample, Canada: Sine, N. M. 00513

Till

Alberta, plains region: Pawluk, S. 08935

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Eocene, Florida, synonym of *Calappa*: Lewis, Jackson E. 05875

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Pennsylvanian, Illinois, Mazon Creek area, hoplocarid: Schram, Frederick R. 06874

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Calappinae, Eocene, Holocene, chelae: Lewis, Jackson E. 05875

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Devonian, Ohio, Michigan, Silica Shale: Stumm, Erwin C. 09102

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Aliticonodon lindoei, n.gen., n.sp.

Cretaceous, Alberta, Upper Milk River Fm.: Fox, Richard C. 09509

Antiacodon pygmaeus

Utah, Eocene, Green River Formation, new occurrence: Burke, J. J. 00846

Anzanycteris anzanensis, n.gen., n.sp.

Pleistocene, California, Palm Spring Fm., nyctophiline bat: White, John A. 07235

Aphronorus orieli, n. sp.

Paleocene, Wyoming, Evanston Fm., pantolestid: Gazin, C. Lewis. 08389

Artiodactyla

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Astrocoelodon

Cretaceous, Texas, Paluxy Fm., new material: Slaughter, Bob H. 08144

Australocamelus, n.gen.

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Bison (Gigantobison) latifrons

Pleistocene, Idaho, American Falls Lake: Hopkins, Marie L. 03553

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Pleistocene, Florida, taxonomy: Martin, Robert A. 03123

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Quaternary, Wisconsin, post-Woodfordian lake, Madison area: Dallman, John E. 08147

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Cylindrodont fontis

Oligocene, Colorado, northeastern, Horsetail Creek Beds, cheek teeth: Galbreath, Edwin C. 03861

Cynorca

Miocene, United States, systematics, evolution, biogeography: Woodburne, Michael O. 03281

Delahomeryx browni, n.gen., n.sp.

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Dicotyles tajacu

Pleistocene, Guatemala, Santa Amelia area: Woodburne, Michael O. 08145

Dinohyus sp.

Miocene, South Dakota, Badlands, Sharps Fm., first entelodont: Parris, David C. 05805

Dinosaurs

Collecting, research, Utah University project: Madsen, James H., Jr. 02138

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Jurassic, Colorado-Wyoming, Morrison Fm., molar occlusion: Jenkins, Farish A., Jr. 07653

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Absolute age, Nevada, Ruby Mts.: Kistler, Ronald W. 02137

Absolute age, Ontario, Grenville province, northwestern: Krogh, T. E. 10352

Absolute age, petrology, Florida, Georgia, 'basement' rocks: Milton, Charles. 07031

Absolute age, Precambrian structural provinces, symposium: Wynne-Edwards, H. R. 05524

Fabric, Montana, Tobacco Root Mts.: Burger, H. Robert. 3d. 02829

Fabric, Montana-Wyoming, Beartooth Mts.: Skinner, William R. 02266

General description, British Columbia, Nakusp area: Hyndman, D. W. 04966

General description, California, Halloran Hills: Warnke, D. A. 04138

General description, California, northern, Franciscan units: Suppe, John. 00790

General description, Colorado, Empire quadrangle: Braddock, William A. 04233

General description, Cuba: Somin, M. L. 10458

General description, Greenland, Egedesminde-Christianshaab area, Precambrian complexes: Henderson, G. 08074

General description, Greenland, Frederikshaabs Isblink area: Dawes, Peter R. 04864

General description, Greenland, Godthaab area: McGregor, V. R. 05234

General description, Guatemala, western: Josey, William L. 01487

General description, Idaho batholith border, Idaho, Montana: Nold, John L. 01927

General description, Kansas, Precambrian, history: Lidiak, Edward G. 00450

General description, Manitoba, Deer River map-area: Bostock, H. H. 08979

General description, Manitoba, Iskwasum Lake area: Hunt, Graham. 01483

General description, Manitoba, Mynarski-Notigi Lakes area: Elphick, S. C. 10686

General description, Manitoba, Opachuanau Lake-Swan Bay area: Steeves, M. A. 10688

General description, Manitoba, Opachuanau-Southern Indian Lakes area: Hinds, R. W. 10689

General description, Manitoba, Rat Lake area: Schledewitz, D. C. P. 10687

General description, Manitoba, Southern Indian Lake, central area: Frohlinger, Thomas G. 10690

General description, Manitoba, Torrance Lake-Missi Rapid area: Cranstone, J. R. 10691

General description, Maryland, Baltimore gabbro, Bel Air belt: Crowley, William P. 00164

General description, Nebraska, Precambrian, history: Lidiak, Edward G. 00449

General description, Northwest Territories, Thubun Lakes area: Reinhardt, E. W. 09028

General description, Ontario, Eayrs Lake-Starnes Lake area: Kaye, L. 11078

General description, Ontario, Minnitik Lake area, Precambrian: Johnston, F. J. 03668

General description, Ontario, Western Lake St. Joseph area: Clifford, P. M. 11076

General description, Quebec, Brock-St. Ursicse area: Moyer, Paul Tyson, Jr. 01926

General description, Quebec, Manicouagan structure: Murtaugh, J. C. 06168

General description, Saskatchewan, Waddy Lake area, eastern: Johnston, W. G. Q. 12214

Metamorphic rocks—Continued*General—Continued*

- General description, South Dakota, Black Hills: Kernaghan, James Stewart. 02082
- General description, Trinidad, Northern Range, fossils: Furrer, M. A. 10791
- General description, Virginia, Dillwyn quadrangle: Brown, William Randall. 05218
- General description, Washington, Cascade Mts., Paleozoic history: Ellingson, Jack A. 00694
- General description, Washington, Chiwaukum Mts.: Plummer, Charles Carlton. 08036
- General description, Wyoming, Bighorn Mts., Precambrian terranes: Heimlich, Richard A. 06875
- General description, Wyoming, White Mountain: Brophy, Gerald P. 11798
- Geochemistry, isotope studies, U.S., western: Shieh, Yuch-Ning. 05551
- Geochemistry, O isotopes, New Hampshire: Perry, Eugene C. 07443
- Mineral composition, North Carolina, Union County, low-rank: Randazzo, Anthony F. 01069
- Mineral composition, Saskatchewan, Beckett Lake area: Scott, B. P. 12213
- Nomenclature, lithology, Ontario, Limerick, Tudor Townships: Lumbers, S. B. 06646
- Petrology, absolute age, Arizona, Dos Cabezas Mts.: Erickson, Rolfe Craig. 04641
- Petrology, California, Siskiyou County, gradational sequence: Barrows, Allan G. 00677
- Petrology, Colorado, Glen Haven quadrangle: Bucknam, Robert Campbell. 05562
- Petrology, geochemistry, Pennsylvania, southeastern, Mine Ridge: Villaume, J. F. 12479
- Petrology, Idaho batholith border, Montana: Chase, Ronald Buell. 01920
- Petrology, Maine, Wiscasset quadrangle: Hatheway, Richard Brackett. 05147
- Petrology, Maryland, Harford County, Piedmont: Southwick, David L. 08837
- Petrology, Nevada, Mesozoic, western: Moore, James G. 05210
- Petrology, New Jersey, Precambrian: Johnson, Eben Lennart. 03031
- Petrology, North Carolina, Slate Belt: Randazzo, Anthony F. 00865
- Petrology, Precambrian basement, primitive crustal composition: Mehnert, K. R. 07063
- Petrology, Precambrian rocks, Manitoba, Iskwasum Lake area: Hunt, G. H. 04370
- Petrology, Saskatchewan, Churchill River, Needle Falls: Money, P. L. 10557
- Petrology, Saskatchewan, Deschambault Lake area: Padgham, W. A. 10567
- Petrology, Saskatchewan, Flin Flon area: Byers, A. R. 10556
- Petrology, Saskatchewan, Maribelli Lake area, west half: Gracie, A. J. 10566
- Petrology, Saskatchewan, Morell Lake area, west half: Chadwick, Brian. 10569
- Petrology, Saskatchewan, Nekweaga Bay area: Chadwick, Brian. 10564
- Petrology, Saskatchewan, Nemei Lake area, east half: Pyke, M. W. 10561
- Petrology, Saskatchewan, Stanley area, west half: Forsythe, L. H. 10568
- Petrology, structural features, Greenland, Agto area: Bondesen, E. 04875
- Petrology, structural features, Saskatchewan, Trade Lake area: Chakrabarti, A. K. 11915

Metamorphic rocks—Continued*General—Continued*

- Petrology, zircon morphology, Idaho, Harpster quadrangle: Myers, Paul Edward. 04651
- Physical properties, ductility: Paterson, M. S. 13113
- Popular account: Zim, Herbert S. 10622
- Porosity, volume and size, Virginia: Sherwood, W. Cullen. 04691
- Structural features, evolution, Utah-Nevada border: Nelson, Robert B. 00436
- Structural features, facies, evolution: Bingler, Edward. 10941
- Structural features, Idaho, Priest River-Hoodoo Valley area: Clark, Sandra H. B. 02110
- Structural features, Nevada, Esmeralda County, Mineral Ridge: Kirsch, Stephen Augustine. 01947
- Structural features, Ontario, Grenville Front: Brown, Jim McCaslin. 03986
- Structural features, Ontario, Quebec, Grenville front: Dalziel, I. W. D. 05533
- Structural features, textures, North Carolina, Hanging Rock area: Centini, Barry Austin. 00859
- Textures, Idaho, Star mine, petrofabric analysis: Gresseth, Elbridge W. 11381
- Textures, Maine, Wiscasset quadrangle: Hatheway, Richard B. 00138
- Textures, Wyoming, Laramie Range, fabric analysis: Hodge, Dennis S. 11254
- Geochemistry*
- Equilibrium, zoned crystals: Misch, Peter. 12140
- K-feldspar-plagioclase, Na-partitioning: Virgo, D. 01321
- Mg-Fe distribution, Ontario: Trzcienski, Walter E., Jr. 07525
- North Carolina, Mecklenburg complex: Hermes, O. Don. 01477
- Premetamorphic rock types, recognition: Dennen, W. H. 01520
- Saskatchewan, Coronation mine area, Cu, Ni, Zn: Smith, J. R. 04091
- Silicates, analyses, interpretation: Shaw, D. M. 04848
- Glaucophane schist*
- Structural features, California, Franciscan Fm., blueschist-facies: Blake, M. C., Jr. 09455
- Gneiss*
- Absolute age, Arizona, Santa Catalina Mts.: Waag, Charles Joseph. 03184
- Absolute age, geochemistry, genesis, Twilight Gneiss, Colorado: Barker, Fred. 08658
- Absolute age, North Carolina, Ore Knob sulfide deposit: Fullagar, Paul D. 06813
- Absolute age, Yonkers Gneiss, New York: Long, Leon E. 04462
- Alteration, anatexis, trondhjemite, genesis, Ontario: Chesworth, W. 04367
- Alteration, metasomatism, Ontario, Whitestone Lake area: Mason, I. M. 04376
- Composition, Wyoming, Laramie Range: Condie, Kent C. 11178
- General description, Manitoba, Guay-Wimapedi Lakes area: Bailes, A. H. 12603
- Genesis, granitic, Montana-Wyo., Beartooth Mts.: Butler, James Robert. 07960
- Geochemistry, Colorado, Front Range, cordierite-bearing, analyses: Gable, Dolores J. 10598
- Geochemistry, K:Rb ratio variations due to metamorphism: Whitney, Philip R. 06477

Metamorphic rocks—Continued*Gneiss—Continued*

- Mineral composition, New Hampshire, Al enclaves in gedrite-cordierite: Robinson, Peter. 01245
- Mineral composition, Northwest Territories, Boothia arch: Brown, Richard L. 04152
- Petrology, Colorado, Comanche Peak area: Beck, Lawrence D. 06971
- Petrology, Ontario, Cross Lake complex: Chapman, Diana Ferguson. 03027
- Petrology, Saskatchewan, Ena Lake area, east half: Koster, F. 10558
- Petrology, Saskatchewan, Harper Lake area, south half: Koster, F. 10565
- Petrology, Saskatchewan, Pelican Narrows, Birch Portage areas: Pyke, M. W. 10559
- Petrology, Texas, Valley Spring Gneiss, wollastonite, occurrence: Workman, William Edward. 11957
- Petrology, Washington, Cascade Mts., Skagit Gneiss: Babcock, Randall S. 00508
- Structural features, Laramide folding, Wyoming, Coad Mtn.: Barnes, Charles W. 06869
- Structural features, New Hampshire, Mascoma Dome: Naylor, Richard S. 00551
- Structural features, New York, Bear Mtn.: Dalmeyer, R. David. 00097
- Textures, fabrics, paragenesis, Ontario, Lyndoch Township, Wolfe nepheline gneiss: Appleyard, Edward C. 04147

Granulite

- Geochemistry, element distribution in pyroxenes, hornblende: Frith, R. A. 05227
- Petrology, mineral nucleation sites, random distribution: Kretz, Ralph. 03694
- Petrology, Quebec, Mont Tremblant Park: Katz, Michael B. 04411

Greenschist

- Washington, Cascade Range, synkinematic crystallization: Misch, Peter. 00399

Hornfels

- Geochemistry, petrology, Utah, Iron Springs, Carmel Fm.: Everett, Ardell Gordon. 03169
- Mineral composition, Pennsylvania, southeastern: Simpson, Dale R. 00087

Iron formation

- Genesis, Precambrian, hydrothermal replacement: McLeroy, Donald F. 00119

Iron-rich

- Geochemistry, Virginia, Arvonion Fm.: Smith, Kenneth G. 07496

Mafic granofels

- Petrology, South Carolina, Newberry area: Libby, W. G. 01067

Marble

- General description, Wyoming, White Mtn.: Nelson, Willis H. 00639
- Physical properties, compressional velocity near lambda transition: Klement, William, Jr. 03806
- Physical properties, microstructural techniques: Willard, R. J. 00967
- Physical properties, strength, determination: Hoskins, John R. 11386
- Physical properties, strength, loading ends, effect of variables: Hoskins, John R. 12675

Metaconglomerate

- Mineral composition, Maryland, Piedmont, kyanite, chloritoid: Southwick, David L. 11664

Metamorphic rocks—Continued*Metagabbro*

- Petrology, North Carolina, Mecklenburg complex: Hermes, O. Don. 12000

Metagneous

- Textures, meta-anorthosite, Quebec, Chibougamau: Allard, G. O. 04403

Metallic ores

- General description: Anderson, Charles A. 02789
- Textures, New York, Benson Mines: Hagni, Richard D. 02794

Metasediments

- Absolute age, Beartooth Mts., Montana: Powell, J. L. 02655
- Fabric, Idaho, Coeur d'Alene district: Clark, Bruce R. 02109
- General description, metamorphic history, South Carolina, northwestern: Hatcher, R. D., Jr. 08931
- General description, Oregon, Idaho, Snake River Canyon, Permian: Vallier, Tracy L. 02218
- Geochemistry, Gowganda Fm., Ontario, tillites, argillites: Young, Grant M. 02450
- Provenance, volcanic, Ontario, Lake Superior Park: Ayres, Lorne D. 06831
- Structural features, Alaska, Union Bay ultramafics: Greenwood, William R. 02089
- Structural features, South Carolina, Walhalla area: Griffin, Villard S., Jr. 07305

Metavolcanics

- General description, Wisconsin, Precambrian, guidebook: Weis, Leonard W. 10665
- Geochemistry, carbonate, Sr isotope ratios, North America: Brooks, C. 03835
- Geochemistry, Quebec, Chibougamau region: Gunn, B. M. 04391
- Petrology, California, Sierra Nevada foothills: Hassan, Mamdouh Abdel-Ghafor. 03991
- Petrology, North Carolina, Albemarle area: Butler, J. Robert. 02827
- Petrology, Ontario, southeastern: Spence, William Henry. 03040

Migmatite

- Genesis, structural features, Wyoming, Wind River Mts.: Worl, Ronald G. 12779
- Petrology, Greenland, Bjorneoer: Kalsbeek, F. 12502
- Petrology, Saskatchewan, Ena Lake area, east half: Koster, F. 10558

Mineral assemblages

- Albite, jadeite, quartz: Bell, Peter M. 09415
- Amphibole, coexisting types, sillimanite zone: Robinson, Peter. 03860
- Anthophyllite-Al-silicate, composition, P-T conditions: Robinson, Peter. 12698
- Blueschist facies, California, coexisting amphiboles and pyroxenes: Onuki, Hitoshi. 09420
- Calc silicate minerals, stability relations, experimental study: Kerrick, D. M. 07401
- Calc-silicate bands, evolution, experimental: Vidale, Rosemary Jacobson. 04000
- California, Diablo Range, Franciscan Fm., zones: Blake, M. C., Jr. 00678
- California, Franciscan Fm., data, phases, physical properties: Seki, Y. 08714
- California, Great Valley Sequence: Dickinson, William R. 11188
- California, Sierra Nevada, contact zones: Kerrick, Derrill Maylon. 05149

Metamorphic rocks — Continued*Mineral assemblages — Continued*

- California, Winchester area, Bedford Canyon and French Valley Fms.: Schwarcz, Henry P. 03665
- Canada, Huronian, Elliot Lake Group, uraniferous conglomerates: Roscoe, S. M. 03319
- Clinopyroxene, reaction between diopside and plagioclase: Kushi, I. 09417
- Colorado, Front Range, cordierite gneiss: Gable, Dolores J. 10598
- Experimental model, siliceous carbonates: Skippen, G. B. 04355
- Greenland, Fiskenaesset area, Precambrian complex, sapphirine-bearing: Herd, R. K. 08161
- Metapelitic rocks, cordierite paragenesis: Hess, Paul C. 08211
- Montana, Tobacco Root Mts., Precambrian, Laramian metamorphism: Hess, David F. 12337
- Northwest Territories, Mackenzie, Benjamin Lake area, Precambrian: Heywood, W. W. 09252
- Nova Scotia, Annapolis-Saint Marys Bay area, contact and regional: Taylor, F. C. 07241
- Ontario, Fishtail Lake area, cordierite-gedrite rocks: Lal, R. K. 01201
- Ontario, Muskrat Dam Lake area: Ayres, L. D. 11077
- Ontario, Whetstone Lake area, isograds: Carmichael, Dugald M. 10972
- Oregon, Greyback intrusive complex, contact aureole: Godchaux, M. M. 00682
- Puerto Rico, Robles Fm.: Jolly, Wayne T. 07393
- Pyroxenes, amphiboles, Minnesota, Biwabik Iron Fm.: Bonnicksen, Bill. 09419
- Quebec, Brome Mountain, dolomite xenolith in gabbro: Philpotts, A. R. 11517
- Quebec, Gagnon region, Wabush Iron Fm., equilibrium phases: Butler, P., Jr. 02043
- Quebec, Rouyn-Noranda area, cordierite, anthophyllite: Rosen-Spence, Andree de. 11561
- Saskatchewan, Coronation mine area: Froese, E. 04089
- Saskatchewan, Kelly Lake area: Johnston, W. G. Q. 10563
- South Carolina, Newberry, mafic granofels, retrogressive: Libby, W. G. 01067
- Tennessee, Ducktown, Calloway mine, wall rocks: Tung, James Ping-ya. 01555
- Utah, Iron Springs district, Carmel Fm., contact zone: Everett, A. Gordon. 12240
- Washington, Conconully area, sillimanite zone, genesis: Menzer, Fred J. 00456
- Mineral facies*
- Alaska, east-central: Foster, Helen L. 02092
- Arizona, Yavapai County, Augu Fria district: Evensen, James Millard. 04642
- Blueschist facies, petrogenesis, oxidation-reduction reactions: Gresens, Randall L. 00685
- British Columbia, Adamant pluton, peripheral zone: Fox, P. E. 03961
- British Columbia, Prince Rupert-Terrace area: Hutchison, W. W. 12751
- California, blueschist, coexisting amphiboles: Himmelberg, G. R. 02042
- Georgia, Piedmont, grade, Th:U in detrital monazite: Overstreet, William C. 01068
- Greenland, Fiskenaesset area, Precambrian complex, sapphirine-bearing: Herd, R. K. 08161

Metamorphic rocks — Continued*Mineral facies — Continued*

- Greenland, southwestern, lower Precambrian basement: Windley, B. F. 11878
- Greenschist, zoned garnet: Brown, Edwin H. 08498
- Guatemala, jadeite-albite rocks: Silva, Zenaide C. G. 10531
- Idaho, Idaho batholith, contact zone: Nold, John L. 12272
- New Jersey, Newark Group, hornfels: VanHouten, Franklyn B. 07530
- New York, Adirondack Mts.: deWaard, D. 02575
- North Carolina-Tennessee, Great Smoky Mts., Thunderhead Sandstone: Allen, Gary Curtiss. 00856
- North Carolina-Virginia, Caroline slate belt-Charlotte belt: Tobisch, Othmar T. 03827
- Quebec, Brock-Saint Ursice area: Moyer, Paul Tyson, Jr. 01926
- Mylonite*
- Petrology, cataclastic, South Carolina, Abbeville County: Price, Vaneaton, Jr. 05391
- Pelitic*
- Alteration, quartz-bearing, prograde metamorphism: Carmichael, Dugald M. 01340
- Geochemistry, O and H isotopes, contact aureoles: Shieh, Y. N. 01341
- Phyllite*
- Alteration by dolerite plug: Smith, D. G. W. 02022
- Physical properties*
- Drillability, abrasive indexes: White, C. G. 02810
- Elastic moduli, temperature dependency: Wingquist, Carl F. 11391
- Elastic, P-wave velocity, variation with fabric: Thill, R. E. 04443
- Strength, stress, near-surface horizontal, U.S.: Hooker, Verne E. 11385
- Strength, tension tests, influence of layering: Youash, Younathan. 00281
- Wave propagation: Goldsmith, Werner. 11719
- Polymineralic*
- Fabric, mineral distributions in relation to stress: DeVore, George W. 00308
- Potash feldspar rocks*
- General description, alkali igneous rock association: Heinrich, E. W. 04393
- Quartzite*
- Absolute age, Lake Superior region, Baraboo, Waterloo Quartzites: Dott, R. H., Jr. 10641
- Alteration, Prospect Mtn. Quartzite, Nevada: Lee, Donald E. 03766
- Physical properties, strength, fracture data: Hoek, E. 11709
- Rodingite*
- General description, Maryland, Montgomery County: Larrabee, David M. 08564
- Schist*
- Alteration, blueschist during serpentinization, model: Gresens, Randall L. 00698
- Alteration, carbonate porphyroblasts, replacement: Carmichael, D. M. 04344
- Alteration, deformation, monoclinic crystals strain and orientation: DeVore, George W. 13132
- Fabric, textures, Connecticut, Hebron Formation, cataclasis: Lundgren, Lawrence, Jr. 00106
- General description, Franciscan complex, California: Bailey, E. H. 09123

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- General description, lawsonite blueschist, Oregon, north-central: Swanson, Donald A. 01202
- General description, Santa Cruz Island Schist, California: Weaver, D. W. 09624
- Geochemistry, equilibrium relations, Maine: Osberg, Philip H. 00114
- Geochemistry, Fe-Mg distribution, Idaho, northern: Hietanen, Anna. 01246
- Mineral composition, amphiboles, California blueschist: Himmelberg, G. R. 02042
- Petrology, structural features, Oregon, Colebrook Schist: Coleman, Robert G. 00703
- Petrology, Washington, Chiwaukum Schist: Plummer, Charles C. 00817
- Petrology, Washington, Marblemount area, Cascade River Schist: Brown, E. H. 00509
- Structural features, California, Pelona Schist, evolution: Harvill, Lee Lon. 05941
- Structural features, polyphase, Manhattan Fm., New York: Langer, Arthur M. 07963

Serpentinite

- Composition, genesis, Atlantic Ocean, Mid-Atlantic Ridge: Miyashiro, Akiho. 04688
- Composition, Ni, Pt, Pd, Alaska, Beaver Creek serpentinite: Foster, R. L. 02256
- Cuba, Vinales area, genesis, occurrence: Knipper, A. L. 10310
- General description, Cuba, Oriente Province, intrusions: Knipper, A. L. 13085
- General description, Dominican Republic, Puerto Plata area: Nagle, Frederick, Jr. 11835
- General description, Maryland, Montgomery County: Larrabee, David M. 08564
- Geochemistry, genesis from ultramafics: Barnes, Ivan. 04422
- Geochemistry, trace-element distribution, Pennsylvania, Maryland: McKague, H. Lawrence. 00109
- Physical properties, structural features, California, Fresno County, flows: Cowan, Darrel S. 00704
- Sedimentary emplacement: Lockwood, John P. 11313

Skarn

- Geochemistry, petrology, mineral composition, metallic ores: Duong, Phan Kieu. 08933
- Magnetite deposits: Collins, Lorence G. 02795
- Petrology, Arizona: Perry, David V. 04551

Slate

- Textures, structural features, Michigan, Siamo Slate: Powell, C. McA. 07455

Structural features

- Small, structural history reconstructed: Skinner, William R. 02937

Tectonite

- Fabric, experimental studies: Carter, Neville L. 03885

Textures

- Mylonite, definition: Theodore, Ted G. 00797

Metamorphism*Anatexis*

- Colorado, Comanche Peak area, granitic magma from biotite gneiss: Beck, Lawrence D. 06971

Contact

- Andalusite-kyanite-sillimanite, paragenesis: Hollister, Lincoln S. 01325
- Arizona, Sierra Ancha sill complex, granophyres: Smith, Douglas. 05127

Metamorphism—Continued*Contact—Continued*

- Aureole, Cupstic pluton, Maine, cordierite: Harwood, David S. 06346
- British Columbia, Kwoiek area, overstepped reactions: Hollister, Lincoln S. 07134
- British Columbia, Nakusp area: Hyndman, D. W. 04966
- California, Sierra Nevada, mineral assemblages: Kerrick, Derrill Maylon. 05149
- Carbonate rocks, O and C isotope studies: Shieh, Y. N. 04992
- Greenland, Ilimaussaq intrusion, roof rocks: Sorensen, Henning. 07026
- Isochemical alteration, cordierite, anthophyllite genesis, Quebec: Rosen-Spence, Andree de. 11561
- Isotopic composition change, Trenton limestone, Quebec: Deines, P. 02445
- Maine, Cupstic pluton, aureole, cordierite, Δ -index, distribution: Harwood, David S. 12729
- O, C, H isotope studies, U.S., western: Shieh, Yuch-Ning. 05551
- Ontario, Gananogue area, Grenville gneisses, garnet zoning: Blackburn, W. H. 02400
- Oregon, Greyback intrusive complex: Godchaux, M. M. 00682
- Pennsylvania, Coopersburg area, prehnite veins in diabase: Simpson, Dale R. 02831
- Pennsylvania, Triassic sediments, hornfels genesis: Simpson, Dale R. 00087
- Phyllites, by dolerite plug: Smith, D. G. W. 02022
- Quebec, Manicouagan cryptoexplosion structure: Murtaugh, John C. 11484
- Utah, Iron Springs district, Carmel Fm.: Everett, A. Gordon. 12240
- Utah, Iron Springs district, Carmel Fm.: Everett, Ardell Gordon. 03169
- Washington, Cascades, Chiwaukum Schist: Plummer, Charles C. 00817
- Wyoming, Bighorn Mountains, Hesse Mtn.-Hazleton Peak area: Nelson, Gordon C. 09436
- Zoning, metamorphic minerals: Hollister, Lincoln S. 06342
- Experimental studies*
- Andalusite-sillimanite transition: Gilbert, M. C. 12561
- Andradite, hedenbergite, stabilities, skarn equilibria: Gustafson, William I. 11106
- Biotite, shock loading: Horz, F. 00500
- Ca-Fe-Si-C-O system, progressive decarbonation: Burt, D. M. 09806
- Calc-silicate bands, chemical gradients, diffusion: Vidale, Rosemary Jacobson. 04000
- Coal, pressure: Chandra, D. 04556
- Gas evolution: Walker, Alan L. 09306
- Mineral distributions under stress, mechanical equilibria: DeVore, George W. 00308
- MnO-SiO₂-CO system, rhodochrosite decarbonation: Huebner, J. Stephen. 11264
- NaCl solutions-silicates, reactions: Althaus, Egon. 00432
- Pelitic rocks, chloritoid stability, paragenesis: Ganguly, Jibamitra. 05376
- Quartz-bearing rocks, andalusite stability: Kerrick, Derrill Maylon. 05149
- Siliceous carbonates, mineral assemblages, model: Skippen, G. B. 04355
- Sulfides, deformation: Gill, J. E. 05154

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- South Dakota, Black Hills, Harney Peak area: Kernaghan, James Stewart. 02082
Trends and processes: Mehnert, K. R. 04846

Grade

- Amphibolite, metavolcanics, relict plagioclase phenocrysts, Ontario: Vogel, Thomas A. 03471
Blueschist-facies, tectonic relation, California, Franciscan Fm.: Blake, M. C., Jr. 09455
Greenschist facies, Nevada, Prospect Mtn. Quartzite: Lee, Donald E. 03766
Indicators, muscovite basal spacing: Warner, Jeffrey. 02718
Microcline as facies index questioned: Burwash, R. A. 06693
Precambrian, Northwest Territories, Mackenzie, Benjamin Lake area: Heywood, W. W. 09252

History

- Arizona, Dos Cabezas Mts.: Erickson, Rolfe Craig. 04641
Canada, geologic map, effects on age: Douglas, Robert J. W. 05525
Cordierite-gedrite rocks, Ontario, Fishtail Lake area: Lal, R. K. 01201
Greenland, Akuliaruseq area, Ketilidian-Gardar periods: Persoz, Francis. 11542
Greenland, Ivigtut area, Precambrian fold belts: Henriksen, Niels. 12676
Greenland, southwestern, basement complex: Windley, B. F. 11878
Ontario, Grenville Front, Coniston area: Brown, Jim McCaslin. 03986
Ontario, Quebec, Grenville front: Dalziel, I. W. D. 05533
Quebec, Shawinigan area, Grenville and Morin series: Martignole, Jacques. 05530
Quebec, southwestern, Grenville province: Wynne-Edwards, H. R. 05529
South Carolina, northwestern, metasediments: Hatcher, R. D., Jr. 08931
Tennessee-North Carolina, Blue Ridge: Carpenter, Robert H. 06750

Migration of elements

- Iron, gas transfer: Martin, R. F. 05261
Iron, magnetite deposits: Collins, Lorence G. 02795
Iron, magnetite deposits, New Jersey: Collins, Lorence G. 02801
Iron, titanium, Wyoming, Iron Mtn.: Hagner, Arthur F. 06722
Prograde mechanisms, pelitic rocks: Carmichael, Dugald M. 01340
Quebec, New Calumet zinc deposit, trace elements: Sangster, A. L. 11591
Trace elements, State Line Serpentinite, Pennsylvania, Maryland: McKague, H. Lawrence. 00109
Xenoliths in granodiorite, North Carolina: Beyer, Paul J. 01523

Mineral facies

- Aluminum silicates, 4-11 kb: Schreyer, W. 01244

Progressive

- Carbonate porphyroblasts replacement, Ontario: Carmichael, D. M. 04344
Cation fractionation, insensitivity to temperature: Hall, Minard L. 06724
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Ferric oxide

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Ferrimolybdate

Synthetic, crystallization: Simmons, W. B., Jr. 12038

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Structure: Moore, Paul B. 09048

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Fukuchilite

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Gageite

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Meteorite occurrence, composition: McConnell, Duncan. 00475

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Zoned in greenschist facies, genesis: Brown, Edwin H. 08498

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Gillespite

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Mossbauer studies: Gose, Wulf A. 00368

Grossularite

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Stability: Gordon, Terence M. 06710

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Parameters, composition, Nova Scotia: Majumdar, H. H. 01993

Grunerite

Cation distribution: Finger, Larry W. 09410

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Composition, trace metals, emission spectroscopy, technique: Cruft, Edgar F. 09367

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Solubility, aqueous electrolytes, computer calculation: Tanji, Kenneth K. 05213

Water molecules, infrared studies: Seidl, V. 08010

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Structure, refinement: Louisnathan, S. John. 09050

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Wyoming-Nebraska-Colorado, Miocene, Pliocene rocks: Denson, N. M. 03763

Hedenbergite

Structure, refinement: Veblen, D. R. 04356

Hematite

Colorado, New Mexico, Precambrian clastics, genesis: Barker, Fred. 12060

Synthesis, vapor phase: Martin, R. F. 05261

Heteromorphite

Cell dimensions: Jambor, J. L. 07008

Heulandite

Dehydration, infrared study: Breger, Irving A. 10952

Hornblende

Oxygen, hydrogen isotope studies: Sheppard, Simon M. F. 11608

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California, Laytonville area, occurrence: Borner, Udo. 07115

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Crystal chemistry, cation substitution: Ribbe, P. H. 12035

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Structure, Mg-Fe ordering: Ribbe, P. H. 07465

Hydrobasaluminite

Genesis, description, Indiana: Sunderman, Jack A. 07195

Hydrocalcite

Name not acceptable for $\text{CaCO}_3 \cdot \text{H}_2\text{O}$: Fleischer, Michael. 06310

Hydroxyapatite

Structure, precision in refinement: Sudarsanan, K. 04869

Solubility: Wier, Donald Raymond. 01932

Hypersthene

Crystal chemistry, homogeneous equilibria: Thompson, James B., Jr. 03473

Idocrase

Structure, space groups: Arem, Joel E. 08488

Ilmenite

Chondritic, compositional range: Snetsinger, Kenneth G. 06478

Hemo- and ferrian, cell dimensions, composition, Ontario: Kretschmar, U. H. 04372

Manganooan, California, electron-probe study: Snetsinger, Kenneth G. 03477

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Magnetic properties, diorite, batholith, California: Merrill, R. T. 02407

Ilvaitite

Crystal chemistry, Mossbauer spectrometry, iron: Herzenberg, C. L. 02336

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Structure, isostructural with pyroaurite, reformulation: Allmann, R. 02178

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Magnetic properties, oxidation, Hawaii, Kilauea basalts: Gromme, C. S. 11247

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Jalpaite

Colorado, Silver Plume area: Grybeck, Donald. 12250

Joesmithite

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Jordanite

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Kaersutite

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Lattice parameters, X-ray diffraction: Frazer, Jane Z. 03447

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Ontario, Cobalt-Gowganda area, new: Petruk, W. 02011

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Lauzeite

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Arkosic rocks, Colorado, Spanish Peaks area: Vine, James D. 08404

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Laurite

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Leadhillite

Monocline polymorph of susannite: Mrose, M. E. 04377

Lemoynite

Quebec, Saint Hilaire alkaline massif, new: Perault, Guy. 02010

Letovicite

California, The Geysers: Dunning, G. E. 05986

Leucophoenicite

New Jersey, Franklin, Sterling Hill, X-ray, optical, spectrochemical studies: Cook, David. 07197

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Tennessee, Fort Payne Fm.: Larson, L. T. 01465

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Loewelite

Structure: Fang, J. H. 11039

Ludwigite-vonsenite series

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Macdonaldite

Structure, California: Cannillo, Elio. 10211

Magadiite

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Structure, unit cell, in air and vacuo: Brindley, G. W. 08491

Thermodynamics: Bricker, Owen P. 06455

Magnesite

Thermodynamic solubility at 90°C: Christ, C. L. 06757

Magnesium oxide

Single crystal, elastic constants, pressure dependence: Chang, Z. P. 04009

Magnetite

Cell dimensions, composition, Ontario: Kretschmar, U. H. 04372

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Magnetic properties, annealing effects: Lowrie, W. 02558

Magnetization, dislocation control: Shive, Peter N. 04018

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Co-existing, electron probe study, anorthosite, Ontario: McNutt, Robert H. 11342

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Syntactic relations, two phases: Donnay, G. 12565

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Phengitic, Nevada, Prospect Mtn. Quartzite: Lee, Donald E. 03766

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Monazite

Composition, rare earths, relation to environment: Fleischer, Michael. 03968

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Mooreite

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Relation to sillimanite, continuous isomorphous solid solution: Hariya, Y. 07200
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Muscovite

Basal spacing, variation with metamorphic grade: Warner, Jeffrey. 02718
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Mossbauer spectra: Bancroft, G. Michael. 09407
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Fe-Mg order, disorder, Mossbauer spectroscopy: Virgo, David. 09408
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Paravauxite

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Pigeonite

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Stress analysis, albite twinning: Lawrence, Robert. 02865

Structural state in anorthosite: Romey, William D. 04591

Structure, optical properties, annealing at high pressure, oligoclase: Wenk, Hans-Rudolf. 02188

Structure, variations, intermediate composition: Cinnamon, Charles Gerald. 04639

Twinning laws, composition, tuffs, United States, western: Pittman, Edward D. 05766

Plagiönite

Structure: Cho, Seung-Am. 06756

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Structure: Kohn, J. A. 11288

Structure, variations: Kohn, J. A. 07408

Pollucite

Structure and composition: Beger, Richard M. 03344

Prehnite

Color, occurrence, Lake Superior region, Isle Royale: Huber, N. King. 07723

Composition, parameters, British Columbia, Vancouver Island: Surdam, Ronald C. 02201

Synthesis, stability relations: Liou, J. G. 07417

Protoamphibole

Chain structure, bond distances: Gibbs, G. V. 09411

Pseudolaueite

Structure, not true polymorph of laueite: Baur, Werner H. 07189

Pseudoleucite

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- Nomenclature, composition, grain size, abundance, tabular summary: Wedepohl, K. H. 04845

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- Alteration, from porcelanite, California, Monterey Fm.: Ernst, W. G. 01273
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- General, Wyoming, Spanish Diggings, aboriginal quarries: Saul, John M. 04458
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- Physical properties, Michigan: Johnson, Allan M. 10278
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- Limestone, carbonate fragments, calcilithite vs. extraclasts: Chanda, S. K. 06518
- Multivariate, Ordovician calcarenites: Osborne, Robert H. 04063
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- Heavy minerals, New Jersey, Red Bank Fm.: Parks, Donald A. 11837
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- Petrology, California, Sespe Fm.: McCracken, Willard A. 10632
- Petrology, Nebraska, White River Group: Singler, Charles R. 05948
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- Petrology, Wyoming, Hoback Fm.: Spearing, Darwin Robert. 07343
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- Provenance, environment, California, Vaqueros Fm.: Hobson, R. D. 09882
- Quartz size and percentage, environmental indicator: Ethridge, Frank G. 11201
- Structural features, grain flow cf. other, continental slope deposits: Middleton, Gerard V. 08857
- Structural properties, fluxoturbidites, paleogeographic indicators: Stanley, Daniel J. 08855
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- Mineral composition, genesis, Washington, Spokane County: Hosterman, J. W. 00825
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- Gold content, analyses compilation: Jones, Robert S. 00541
- Paleozoic, amino acids, analyses: Swain, F. M. 02962
- Shale, geochemical standard: Moore, D. M. 07578
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- Fabric, Pennsylvania, Triassic, pebble orientation: Yare, B. S. 12478
- General description, Canada, Huronian formations: Roscoe, S. M. 03319
- General description, Michigan, Isle Royale, Mott Island fm.: Larson, Robert James. 02864
- General description, Virginia, Ridgely Sandstone: Eubank, Roger T. 11984
- General description, Wyoming, Heart Lake Conglomerate: Love, J. D. 07613
- Mineral composition, gold, provenance, Wyoming: Antweiler, J. C. 02119
- Petrology, composition, plutonic-pebble type, Newfoundland: Helwig, James. 08323
- Petrology, Oregon, Spotted Ridge Fm., granitic clasts: Taubeneck, William H. 00793
- Petrology, provenance, plutonic clasts, Oregon: Taubeneck, William H. 00794
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- Alberta, Gilwood sandstone member of Watt Mtn. Shale: Shaw, Monzer S. 08227
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 Arizona, Redwall Limestone: McKee, Edwin D. 09557
 Atlantic Coastal Plain, Chesapeake-Delaware Embayment, Cretaceous clastics: Glaser, John D. 09610
 California, Santa Cruz Island, mid-Tertiary strata: Bereskin, S. R. 09503
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 Texas, Fort Pena Fm., Marathon basin: McBride, Earle F. 04530
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- Appalachians, Oswego Fm.: Horowitz, Daniel H. 07376
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- Sampling method: Cleveland, George B. 06193

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- Alteration, Superior test well, Bahamas, Andros Island: Goodell, H. G. 00781
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 Fabric, preferred orientation, microphotometry: Sass, Eytan. 06058
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- Geochemistry, petrology, Kansas, Eiss
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- Montana, Idaho, Wasatch line, Mississippian: Huh, Oscar Karl. 03173
- Montana, Sheridan County, Charles Fm.: Ballard, W. W. 03443
- Nebraska, northwestern, Brule Fm.: Chaffin, Herbert S., Jr. 12504
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- Nevada, Snake Mountains, thrust sequences: Gardner, Douglas Hanson. 00860
- Nevada, Utah, Guilmette Fm., Devonian: Woodward, Lee A. 12203
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- New Jersey, coastal plain, deltaic, Cretaceous: Gill, Harold E. 06747
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- Oregon, central, Cretaceous: Oles, Keith F. 00633
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- Pennsylvania-New York, Tully Limestone: Heckel, Philip H. 04896
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- Saskatchewan, western, Saskatchewan Group: Kent, D. M. 10562
- Slope and slope base environments, indicators: Stanley, Daniel J. 01594
- South Dakota, Black Hills region, Spearfish Fm.: Babcock, G. B. 02121
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- Texas, Cow Creek Limestone, beach deposits: Stricklin, F. L., Jr. 11628
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- Texas, Edwards Fm., Kirschberg Lagoon: Rodda, P. U. 13088
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