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# Bibliography of North American Geology, 1954

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GEOLOGICAL SURVEY BULLETIN 1054





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# Bibliography of North American Geology, 1954

by RUTH REECE KING and others

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GEOLOGICAL SURVEY BULLETIN 1054

*This bibliography represents work done jointly  
by Ruth Reece King, Virginia M. Jussen,  
John S. Pomeroy, Elisabeth S. Loud, Georgianna  
D. Conant, and Herbert C. Crandell, Jr.*



**UNITED STATES DEPARTMENT OF THE INTERIOR**

**FRED A. SEATON, *Secretary***

**GEOLOGICAL SURVEY**

**Thomas B. Nolan, *Director***



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# BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY 1954

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*By RUTH REECE KING and others*<sup>1</sup>

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## INTRODUCTION

The current annual volume lists publications that appeared during 1954 concerning the geology of the North American continent, including Greenland, the West Indies, and other adjacent islands, and Hawaii, Guam, and other island possessions, but not the trust territories of the United States. A few articles published before 1954, but not included in previous volumes, are cited also. 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 with foreign areas. Articles by foreign authors on North America are included regardless of place of publication; those of a general nature are included 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.

Assistance of V. L. Skitsky, Howard R. Cramer, Jean G. Selby, Yetta C. Millman, Marie Guggisberg, Margaret E. Barcroft, and Nina R. de Osejo in the preparation of this volume is gratefully acknowledged.

The following U. S. Geological Survey bulletins comprise the issues of the Bibliography of North American Geology: 746-747 (1785-1918), 823 (1919-28), 937 (1929-39), 938 (1940-41), 949 (1942-43), 952 (1944-45), 958 (1946-47), 968 (1948), 977 (1949), 985 (1950), 1025 (1951), 1035 (1952-53), and 1049 (1940-49).

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<sup>1</sup> This bibliography represents work done jointly by Ruth Reece King, Virginia M. Jussen, John S. Pomeroy, Elisabeth S. Loud, Georgianna D. Conant, and Herbert C. Crandell, Jr.



## SERIALS

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The following list gives both the abbreviated citation and the full name of periodicals and serials that have been most commonly cited in this bibliography. A few of the less common ones, which list the place of publication as well as the citation within the bibliography proper, have not been included here. Publications that include many articles, such as guidebooks, conferences, congresses, symposiums, etc., may be entered under either the editor or the society that sponsored them, with full information given there. Papers contained in them may also be cited individually in the abbreviated form, which refers the reader to the editor or author, where full information is given. Such material will not be found in this list.

- Acad. Nat. Sci. Philadelphia Notulae Naturae—Academy of Natural Sciences of Philadelphia Notulae Naturae. Philadelphia, Pa.
- Acta Crystallographica. Cambridge, England.
- Alberta Research Council Contr.—Alberta Research Council Contribution. Edmonton, Alberta.
- Alberta Soc. Petroleum Geologists News Bull.—Alberta Society of Petroleum Geologists News Bulletin. Calgary, Alberta.
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- Am. Soc. Civil Engineers Proc.—American Society of Civil Engineers Proceedings. New York.
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- Pleito Creek oil field, Kern County: Crowder, R. E.
- Providence Mts., northern: Hazzard J. C., 2.
- Raisin City oil field, Fresno County Paleocene-Pliocene: Hunter, G. W.
- Redrock Canyon—Last Chance Canyon area, Triassic(?)—Quaternary: Dibblee, T. W., Jr., 2.
- Ridge basin area: Crowell, J. C., 2.
- Rosedale oil field, Kern County, Miocene-Pliocene: Albright, M. B., Jr.
- San Miguelito oil field, Pliocene: Haines, R. B.
- Santa Clara County, Jurassic-Recent Davis, F. F.
- Santa Cruz-Monterey Counties, pre Cretaceous, Eocene-Recent: California State Water Res. Board.
- Silurian Hills: Kupfer, D. H., 1.
- Soledad basin: Jahns, R. H., 6.
- South Cuyama oil field, Santa Barbara County, Miocene-Pliocene: Zuberlitz, J. L.
- South Mtn. oil field, Eocene-Recent: Baddley, E. R.
- Southern, Jurassic-Cretaceous: Popenoe W. P.
- Tertiary-Quaternary: Durham, J. W., 1, 2.
- Tunis-Pastoria Creek area: Harris, F. B.
- Valyermo quadrangle: Noble, L. F., 1.
- Ventura basin, Pennsylvanian-Quaternary: Jennings, C. W.
- Ventura County: Thomas, R. G.
- Wilmington oil field, Jurassic(?) Quaternary: Winterburn, R.
- Canada, Front Ranges, Bow River area Cambrian-Cretaceous: Clark, L. M., 3.
- Mackenzie basin, Devonian: Hunt, C. W., 3d, 2.
- Rocky Mts., Devonian: McLaren, D. J.
- Eastern, Devonian: Harker, P., 1.
- Eastern front: Goodman, A. J., 1.
- Rocky Mts. and Great Plains, Devonian: Andrichuk, J. M., 1.
- West-central, Winnipeg formation, Ordovician: Genik, G. J.
- Western: Parsons, H. E., 2.
- Chart: Edmunds, F. H.
- Jurassic correlation: Frebold, H. W. L.
- Kaskapau formation, Peace River area, Cretaceous: Stelck, C. R.

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## Canada—Continued

- Western plains, Cambrian-Tertiary: Webb, J. B.
- Colorado, Baca County: McLaughlin, T. G., 2.
- Canon City—Colorado Springs region: Rocky Mtn. Assoc. Geologists, 2.
- Denver area, Quaternary: Hunt, C. B., 2.
- Denver basin, Cretaceous: Jensen, F. S., 2.
- Denver-Colorado Springs region: Rocky Mtn. Assoc. Geologists, 1.
- Denver-Julesburg basin, Precambrian-Cretaceous: Mitchell, J. G.
- Dinosaur National Monument and vicinity: Untermann, G. E., 2.
- Generalized section: Ramsey, R. W.
- Golden-Morrison area: Reichert, S. O.
- Harding and Fremont formations, Ordovician: Sweet, W. C.
- La Veta area, Cretaceous-Recent: Johnson, Ross B., 2.
- Maroon formation, Permian: Langenheim, R. L., Jr.
- Northgate district: Steven, T. A.
- Paradox basin, Pennsylvanian: Wengert, S. A., 1.
- Permian-Eocene, generalized: Wright, R. J., 2.
- Piceance Creek basin, Cambrian-Tertiary: Taylor, W. L.
- Tertiary: Merriam, D. F., 1.
- Red Mesa area, Cretaceous-Recent: Barnes, H., 1.
- Southeastern, Pennsylvanian-Permian: Maher, J. C., 1.
- Southwestern, Ignacio quartzite, Devonian: Barnes, H., 2.
- Weber sandstone tongue in Maroon formation, Pennsylvanian, Carbonate-Redstone area: Donnell, J. R.
- Costa Rica, eastern Meseta Central, Cenozoic: Dondoli B., C.
- Delaware, Chesapeake and Delaware Canal, marine Upper Cretaceous: Groot, J. J., 2.
- Newark area: Groot, J. J., 1.
- Florida, Everglades area, Tertiary: Schroeder, M. C., 1.
- Oil zones, generalized: Patton, J. L.
- Palm Beach County, Eocene-Recent: Schroeder, M. C., 3.
- Pinellas County, Oligocene-Pleistocene: Heath, R. C., 1.
- Southern, Quaternary: Schroeder, M. C., 2.
- Georgia, Apalachicola embayment, generalized: McClain, D. S., Jr., 2.
- Chattahoochee River, Cretaceous-Pleistocene: Toulmin, L. D., Jr.
- Oil zones, generalized: Patton, J. L.
- Greenland, Cretaceous, correlation: Imlay, R. W., 2.
- Facies section: Nielsen, E., 2.

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## Greenland—Continued

Kap Franklin area, Devonian: Büller, H.

Kronprins Christians Land, Precambrian-Paleozoic: Fränkl, E.

Tillite series, Precambrian, Kejser Franz Josephs Fjord area: Katz, H. R.

Gulf Coastal Plain, Cotton Valley group  
Jurassic: Forgotson, J. M., Jr.

Pleistocene marine terraces: Trowbridge, A. C.

Haiti, pre-Cretaceous (?)—Recent: Buttrlin, J. A., 2.

Hawaii, volcanic rocks, Pliocene-Recent  
Macdonald, G. A., 1.

Idaho, Lemhi arch, mid-Paleozoic: Sloss, L. L., 1.

Idaho, Phosphoria formation, Permian  
Smart, R. A.

Southeastern, Triassic: Kummel, B., Jr., 1.

Illinois, Dixon-Oregon area, Cambrian  
Ordovician, Pleistocene, columnar sections: Templeton, J. S., Jr.

Northeastern, Pleistocene: Pleistocene Field Conf., 2.

Upper Chester sandstones, Mississippian: Siever, R., 2.

Western, Lincoln fold area: Collinson, C. W.

Indiana, Dugger quadrangle, Carboniferous, Quaternary: Kottowski, F. E.

Richmond area: Slaughter, A. E.

Shelburn quadrangle, Carboniferous  
Quaternary: Waddell, C.

South-central, Mississippian: Perry, T. G., 1.

West-central, Pleistocene: Pleistocene Field Conf., 2.

Iowa, north-central, Devonian: Tri-State Geol. Field Conf., 1.

Northeastern, Ordovician-Silurian: Tri-State Geol. Field Conf., 3.

Story County, Mississippian-Pennsylvanian: Zimmerman, H. L.

Jamaica: Zans, V. A., 1.

Port Henderson Hills, Lazaretto section: Chubb, L. J.

Kansas, cross section: Kellett, B.

East-central, Cambrian-Permian, cross section: Kans. Geol. Soc. Study Group Comm., 1.

Eastern, Precambrian-Permian, cross sections: Lee, W., 2.

Graham County, Cretaceous - Recent  
Byrne, F. E.

Kirwin area, Pleistocene: Frye, J. C., 3.

Marshall County: Walters, K. L.

Norton oil field: Merriam, D. F., 4.

Southern, Ordovician-Permian, cross section: Kans. Geol. Soc. Study Group Comm., 2.

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## Kansas—Continued

Western, Permian-Cretaceous: Lee, W., 1.

Wichita-Greeley Counties, Cretaceous-Pleistocene: Prescott, G. C., Jr.

Kentucky, Cincinnati area, sub-Eden.  
Ordovician: Lattman, L. H., 2.

Commodore fault system, Carboniferous: Trace, R. D., 1.

Mammoth Cave region, Mississippian-Pennsylvanian: McGrain, P., 2.

Meadow antiline area, Ordovician-Devonian: Jillson, W. R., 2.

Mineral Ridge area, Mississippian: Trace, R. D., 2.

Mississippian embayment, Cretaceous-Pleistocene: Moneymaker, B. C., 3.

Mississippian plateau region: Brown, R. F.

Moore Hill area, Mississippian: Thurston, W. R., 2.

Senator-Schwenck area, Mississippian: Klepser, H. J.

Western Coal Field region: Maxwell, B. W.

White Oak quadrangle, Pennsylvanian: Adkinson, W. L.

Labrador, iron ore districts: Gustafson, J. K.

Louisiana, Lewisburg field, Tertiary: Ocamb, R. D.

Southwestern, Miocene-Recent: Jones, P. H., 1.

Webster Parish, Permian-Quaternary: Martin, J. L., Jr.

Manitoba, California Lake area: Moorhouse, M. D.

Cotton Lake area, Precambrian, Quaternary: Allen, C. M.

West Hawk Lake - Falcon Lake area: Davies, J. F.

Maryland, Garrett County, aquifers: Overbeck, R. M.

Garrett County, Silurian-Pennsylvanian: Amsden, T. W.

Howard and Montgomery Counties: Dingman, R. J., 2.

Yorktown formation, Miocene: Stephenson, L. W., 2.

Mexico, Arroyo Blanco field, Veracruz, Tertiary: Paz Rivera, N.

Baja California, Jurassic-Recent: Wisser, E. H.

Northern, Jurassic-Cretaceous: Pope, W. P.

Basin of Mexico, Cretaceous-Recent: Molina Berbey, R.

Cananea area, Sonora, correlation with Arizona: Mulchay, R. B.

Cretaceous: Mullerried, F. K. G., 2.

Eastern, correlation charts: Guzman Jiménez, E. J.

Ebano-Pánuco district, Jurassic-Tertiary: Sánchez López, R.

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- Petalcingo-Tehuacán region, pre-Jurassic-Tertiary: Mariel Lezama, F.
- Rabón Grande field, Veracruz, Tertiary: Gatling, L.
- Michigan, Delaware quadrangle, Precambrian: Cornwall, H. R., 3.
- Eagle Harbor quadrangle, Precambrian: Cornwall, H. R., 2.
- Grand Rapids area, Carboniferous, Quaternary: Stramel, G. J., 2.
- Lake Medora quadrangle, Precambrian: Cornwall, H. R., 4.
- Marquette district, Precambrian: Stuart, W. T.
- Oakland County, Silurian-Mississippian: Mozola, A. J., 2.
- Southeastern: Ferris, J. G.
- Phoenix quadrangle, Precambrian: Cornwall, H. R., 1.
- Portage Lake lava series, Precambrian, Bruneau Creek quadrangle: Wright J. C.
- White Pine copper deposit, Precambrian: White, W. S.
- Minnesota, Biwabik formation, Mesabi range, Precambrian: White, D. A.
- Cuyuna range, northern: Wolff, J. F., Sr.
- Dakota County, Pleistocene drifts: Ruhe, R. V., 1.
- Franconia formation, members, Cambrian: Berg, R. R.
- Mississippi, Aberdeen gas field, Cambrian(?)—Cretaceous: Shell Oil Co. Geol. Dept.
- Jackson area, Jurassic-Recent: Monroe, W. H.
- Lower Cretaceous: Nunnally, J. D.
- Marshall County, Tertiary-Quaternary: Vestal, F. E., 2.
- Muldon oil and gas field, Devonian-Cretaceous: Knight, W. H.
- Mississippi Valley, Pleistocene fluvial terraces: Trowbridge, A. C.
- Missouri, Bonnetterre formation, Cambrian: Ohle, E. L., Jr.
- Humansville quadrangle, Ordovician-Pennsylvanian: Searight, T. K., 2.
- Roubidoux formation, Ordovician: Heller, R. L.
- Southeastern and south-central, Paleozoic: Mullenburg, G. A., 1.
- Steelville quadrangle, Cambrian-Pennsylvanian: Hendriks, H. E.
- Sullivan-Bourbon area, Cambrian-Ordovician: Searight, T. K., 1.
- Western, cross section: Kellett, B.
- Montana, Bighorn Basin, generalized: Johnson, M. M.
- Dakota group, Cretaceous, correlation: Cree, A.
- Dry Creek field, Carbon County: Model R. M.
- Frannie field: Curtis, L. B.

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Montana—Continued

- Golden dome area, Carbon County: Dady, W. G.
- Lake Basin field, Stillwater County: Sampson, R. E.
- Marcus Snyder field, Big Horn County: Parker, J. M.
- Phosphoria formation, Permian: Peterson, J. A., 1.
- Powell County, Paleozoic and Mesozoic: Cominco Staff, 5.
- Pryor Mts., Cambrian-Ordovician: Shaw, A. B., 1.
- Pryor Mts.—Bighorn Mts.: Richards, P. W.
- Marine Jurassic: Imlay, R. W., 1.
- Rosebud County, coal beds: Kepferle, R. C., 1.
- Soap Creek field, Big Horn County: Nordquist, J. W., 1.
- Southwestern Triassic: Kummel, B., Jr., 1.
- Stanford area, Mississippian-Cretaceous: Vine, J. D., 1.
- Nebraska, Central Nebraska basin, cross sections: Reed, E. C., 1.
- Nevada, Mina quadrangle: Ferguson, H. G., 2.
- Paleozoic-Mesozoic chart: Larson, E. R.
- Pogonip group, Ordovician, detailed: Hintze, L. F., 1.
- New Mexico, Beautiful Mtn. anticline, Triassic-Cretaceous: Beaumont, E. C.
- Black Range, Kingston: Kuellmer, F. J.
- Chaco Canyon, Quaternary, valley fill: Bryan, K.
- Eddy County, Paleozoic, oil test: Hughes, P. W.
- Fort Defiance and Tohatchi quadrangles: Allen, J. E., 2.
- La Joya, Los Pinos Mts., Chupadera Mesa areas, Paleozoic: Wilpolt, R. H.
- Lake Valley quadrangle: Jicha, H. L., Jr., 1.
- Mesaverde group, Cretaceous: Allen, J. E., 1.
- Northeastern: Helmig, P. D.
- Pederal uplift and Estancia basin: Foley, E. J.
- Permian basin, western flank, Ordovician-Permian: Roswell Geol. Soc. Stratig. Studies Comm.
- Raton basin, Precambrian-Eocene: Cave, H. S., 2.
- Sacramento Mts.: Pray, L. C., 1; Stipp, T. F.
- Deadman Canyon, Mississippian: Pray, L. C., 1.
- West front, Precambrian-Permian: Davis, D. C.
- San Juan Basin, radioactivity log: Terry, J. M.
- Southeastern: N. Mex. Geol. Soc.
- Potassium minerals, Permian: Jones, C. L.

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## New Mexico—Continued

- Thoreau quadrangle, Permian-Cretaceous: Smith, C. T.
- New York, Cherry Creek quadrangle, Devonian: Tesmer, I. H.
- Greene County, Ordovician-Devonian, Quaternary, aquifers: Berdan, J. M.
- Groton Township, Tompkins County, Devonian: Wiggins, J. W.
- Hornell quadrangle, Upper Devonian: Pepper, J. F., 1.
- Medinan group, Silurian: Fisher, D. W., 3.
- Mohawk Valley, Lower Ordovician: Fisher, D. W., 1.
- Onondaga limestone, Devonian: Oliver, W. A., Jr.
- Utica quadrangle, Cambrian-Silurian: Kay, G. M., 1.
- Newfoundland, Harbour Grace area, Precambrian-Cambrian: Hutchinson, R. D.
- Sheep Brook-Lookout Brook area, Paleozoic: Baird, D. M., 3.
- North America, Ordovician, correlation: Twenhofel, W. H., 1.
- North Dakota, Croff area, McKenzie County: Roth, K. W., 1.
- Fort Berthold Indian Reservation, Cenozoic: Dingman, R. J., 1.
- Fryburg field, Billings County: Roth, K. W., 2.
- Mississippian sections: Anderson, S. B., 1.
- Nesson area: N. Dak. Geol. Soc., 2.
- Portal quadrangle, Paleocene, Pleistocene: Townsend, R. C., 3.
- Southwestern, Cretaceous-Recent: N. Dak. Geol. Soc., 1.
- Stanley area, Paleocene, Quaternary: Paulson, Q. F.
- Stark County, Tertiary: Caldwell, J. W., 1.
- Tongue River formation, Paleocene.
- Skaar-Trotters area: Fisher, S. P., Jr.
- Northwest Territories, Coppermine River area: Jenney, C. P.
- Ellesmere Island, north coast: Blackadar, R. G., 1.
- Mackenzie River area, Cambrian-Cretaceous: Hume, G. S., 1.
- Selwyn Mts. region, Precambrian-Paleozoic: Wheeler, J. O.
- Nova Scotia, Cape Breton Island: Weeks, L. J., 2.
- Windsor group, Mississippian, Antigonish basin: Haites, T. B.
- Mississippian, Antigonish quadrangles and Mahone Bay-St. Margaret Bay area: Sage, N. M., Jr.
- Ohio, Cincinnati area: Slaughter, A. E.
- Cincinnati area, sub-Eden, Ordovician: Lattman, L. H., 2.

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Ohio—Continued

- Coshocton County, Mississippian-Pennsylvanian: Lamborn, R. E.
- Lake Hope State Park, Pennsylvanian: Marple, M. F.
- Marietta Valley, bore-hole logs: Woods, K. B.
- Morgan County, Mississippian-Pennsylvanian: Magbee, B. D.
- Muskingum Valley, Carboniferous: Bowen, C. H., 2.
- Northern, Paleozoic, Quaternary: Schmidt, J. J., 2.
- Ross County: Schmidt, J. J., 1.
- Oklahoma, Anadarko basin, east flank, Ordovician-Permian: Disney, R. W.
- Arbuckle Mts., Ardmore area, Paleozoic: Ardmore Geol. Soc., 1.
- Cross sections: Ham, W. E., 1.
- Bayou field, Mississippian-Permian, correlation chart: Williams, V. L.
- Brushy Mtn., Sallisaw area, Paleozoic: Branson, C. C., 7.
- Carter County, Pennsylvanian: Shaw, R. F., Jr.
- Chitwood area: Wallace, D. L.
- Cotton County, Upper Paleozoic, cross section: North Texas Geol. Soc., 1.
- Flat Rock oil field, Osage County: Riggs, C. H.
- Grant County, Cambrian-Permian: Dana, G. F.
- Hughes County, Pennsylvanian: Weaver, O. D., Jr.
- Logan County, Paleozoic: Ford, W. J.
- Northeastern, Desmoinesian rocks: Branson, C. C., 1.
- Lower Desmoinesian, Pennsylvanian: Branson, C. C., 2.
- Okfuskee County, Pennsylvanian: Ries, E. R.
- Pumpkin Creek member of Big Branch formation, Pennsylvanian, Ardmore area: Devonshire, P. F. P. C.
- Seminole County, Pennsylvanian: Tanner, W. F., Jr., 1.
- Southeastern, Mississippian-Pennsylvanian: Ardmore Geol. Soc., 2.
- Southwestern, Permian sandstones: Chase, G. W., 3.
- Tillman County: Barclay, J. E., 1.
- Tulsa-Bartlesville area, Pennsylvanian: Tulsa Geol. Soc.
- Velma pool, Paleozoic: Rutledge, R. B.
- Woods-Alfalfa Counties, subsurface: Allen, A. E., Jr.
- Ontario, Brudenell-Raglan area, Precambrian: Hewitt, D. F.
- Holland River watershed, Pleistocene: Dreimanis, A.
- Holloway Township, northern part: Satterly, J.
- Mamainse Point copper area, Algoma district: Thomson, J. E., 1.

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- Manitoulin Island, Ordovician-Silurian: Liberty, B. A.
- Ordovician-Silurian, correlation charts: Sanford, J. T., 2.
- Medinan group, Silurian: Fisher, D. W., 3.
- Sothman Township, Precambrian, Cenozoic: Abraham, E. M.
- Southwestern, Paleozoic: Pohly, R. A.
- Upper Cambrian: Roliff, W. A.
- Waterton region, Pleistocene: Horberg, C. L.
- Oregon, Willamette Valley, Tertiary-Quaternary: Vokes, H. E., 1.
- Pennsylvania, Ashland quadrangle, Carboniferous: Haley, B. R.
- Central, geologic and gravity profiles: Bacon, L. O., 1.
- Lebanon County, Cambrian-Ordovician: Pa. G. S.
- Pittsburgh area: Noecker, M.
- Quebec, Charpeney-Coopman area, Precambrian: Klugman, M. A.
- Dollier-Charron area, Precambrian: Neale, E. R. W.
- Hébécourt, Duparquet, and Destor Townships, gold: Graham, R. B.
- Iron ore districts: Gustafson, J. K.
- Malcasagi area: Imbault, P. E.
- Rosaire-St. Pamphile area: Béland, J., 1.
- Thetford mines-Black Lake area: Riordon, P. H.
- Waco Lake area, Saguenay County: Blais, R. A., 1.
- Wakefield area, Gatineau County, Precambrian: Béland, R.
- Saskatchewan, Amisk Lake area: Byers, A. R., 2.
- Amisk-Wildnest Lakes area: Byers, A. R., 1.
- Coleville-Buffalo Coulee area: Reasoner, M. A., 1.
- Jurassic: Francis, D. R.; Milner, R. L.
- Meadow Lake - Prince Albert - Yorkton area, Devonian: MacLennan, D. B.
- Peter Pond Lake area, Quaternary: Kupsch, W. O., 3.
- Silurian-Cretaceous, regional correlation chart: Schwab, R. C.
- Southwestern, Smiley field: Reasoner, M. A., 2.
- South Dakota, Belle Fourche area, Cretaceous, Foraminifera: Fox, S. K., Jr.
- Bijou formation, Miocene-Pliocene, lithology: Stevenson, R. Evans, 4.
- Black Hills, generalized: Geol. Soc. America Rocky Mtn. Sec.; U. S. Bur. Mines Staff, Region 5.
- Correlation chart, generalized: Tullis, E. L.
- East-central: Erickson, H. D.
- Lemmon quadrangle, Cretaceous-Tertiary: Stevenson, R. Evans, 1.

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- Morristown quadrangle, Cretaceous-Tertiary: Stevenson, R. Evans, 2.
- Thunder Hawk quadrangle, Cretaceous-Tertiary: Stevenson, R. Evans, 3.
- Tennessee, Cambrian-Cretaceous: Miss. Geol. Soc.
- Central, Paleozoic: Wilson, C. W., Jr., 2.
- Crab Orchard Mts. area, Mississippian-Pennsylvanian: Stearns, R. G.
- Eastern, Knox group, Cambrian-Ordovician: Swingle, G. D.
- Monterey coal areas, Mississippian-Pennsylvanian: Jewell, J. W.
- Southern, Mississippian-Pennsylvanian, coal areas: Luther, E. T.
- Texas, Big Lake field: Anderson, K. F.
- Brazos River area: Abilene Geol. Soc., 2.
- Cedar Hill quadrangle, Cretaceous: Watkins, J. L.
- Crockett County, pre-Mississippian, columnar section: Schmitt, G. T., 1.
- Dagger Flat and Marathon formations, Cambrian-Ordovician: Wilson, J. L., 1.
- Dry Branch quadrangle: Barnes, V. E., 8.
- Fish Bed conglomerate, Cretaceous: McNulty, C. L., Jr.
- Gaines County, chart: Phifer, R. L., 2.
- Gulf coast, Tertiary: Stuckey, C. W., Jr., 1.
- Ham Gossett oil field, Cretaceous: Wiggins, P. N., 3d
- Harper quadrangle, Cretaceous: Barnes, V. E., 7.
- Hood Spring quadrangle, Devonian-Cretaceous: Graves, R. W., Jr.
- King-Grayson Counties, cross section: North Texas Geol. Soc., 2.
- Klein Branch quadrangle, Cretaceous: Barnes, V. E., 9.
- Marathon folded belt, Ordovician: Wilson, J. L., 2.
- Mineola basin, Cretaceous-Eocene: Eaton, R. W.
- North basin platform, pre-Mississippian, cross section: Schmitt, G. T., 2.
- Palo Duro Canyon, Hutchinson County, Permian-Pliocene: Panhandle Geol. Soc.
- Parker County, Pennsylvanian-Quaternary, water-bearing properties: Stramel, G. J., 1.
- Precambrian basement rocks: Flawn, P. T., 4.
- San Antonio area: Lang, J. W.
- Southwest Muldoon oil field, Eocene: Ryman, L. J.
- Stonewall-Fannin Counties, cross section: North Texas Geol. Soc., 3.
- Tom Green County: Willis, G. W.

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- Wendel quadrangle, Cretaceous: Barnes, V. E., 6.
- Western: Gardner, F. J.; Troutman, A. Chart: Phifer, R. L., 1.
- Young County, upper Paleozoic, cross section: North Texas Geol. Soc., 1.
- Trinidad: Suter, H. H., 1.
- United States, Four Corners region: Wengert, S. A., 2.
- Mississippi-Michigan, Paleozoic cross section: Dott, R. H., 2.
- Northern Rocky Mts. and Great Plains, Devonian: Andrichuk, J. M., 1.
- Southwestern, Permian: Stewart, F. H.
- West-central, Winnipeg formation, Ordovician: Genik, G. J.
- Western, Moenkopi formation, Triassic: McKee, E. D., 3.
- Utah, Big Indian Wash-Lisbon Valley area: Isachsen, Y. W.
- Capitol Reef area, Permian-Tertiary: Luedke, R. G.
- Cenozoic, nonmarine: Jones, D. John, 2.
- Central, Cretaceous: Davis, L. J.
- Sedimentary rocks, generalized: Intermountain Assoc. Petroleum Geologists.
- Central and south-central, columnar sections: Wells, L. F.
- Cretaceous-Tertiary: Katich, P. J., Jr.
- Dinosaur National Monument and vicinity: Untermann, G. E., 2.
- East-central, correlation diagram: Kuehnert, H. A.
- Garfield County anticlines: Alexander, R. G., Jr.
- Generalized section: Ramsey, R. W.
- Green River and Uinta formations, Eocene: Dane, C. H.
- Monument Valley-Navajo Mtn. region, Pennsylvanian-Cretaceous: Baker, A. A., 1.
- Paradox basin, Pennsylvanian: Wengert, S. A., 1.
- Paunsaugunt plateau area, Jurassic-Tertiary: Williams, N. C., 2.
- Paunsaugunt region, Cretaceous-Tertiary: Intermountain Assoc. Petroleum Geologists.
- Permian-Eocene, generalized: Wright, R. J., 2.
- Shinarump No. 1 uranium mine, Grand County: Finch, W. I.
- South-central, Jurassic: Stokes, W. L., 2.
- Southeastern: Stokes, W. L., 4.
- Bedrock aquifers: Lofgren, B. E., 1.
- Generalized: Stokes, W. L., 3.
- Triassic: Stewart, J. H., 1.
- South Flat formation, Cretaceous, Gunnison plateau: Hunt, R. E.
- Thistle Creek Canyon, Birdseye area, Pennsylvanian-Recent: Harris, H. D.

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## Utah—Continued

- Uinta Basin, Cambrian-Tertiary: Taylor, W. L.
- Uinta Mtn. and Basin area, generalized: Untermann, G. E., 1.
- Uinta Mts., north flank, Daggett County: Hansen, W. R.
- Virgin formation, Triassic, St. George area: Poborski, S. J.
- Wasatch plateau area, Carboniferous: Reid, J. W.
- Wasatch plateau gas fields, Cretaceous: Walton, P. T., 1.
- Vermont, northwestern, Cambrian, faunal zones: Shaw, A. B., 2.
- Virginia, Eastern Shore peninsula: Sinnott, A.
- Elkton area: King, P. B.
- Evington group, Precambrian: Espenshade, G. H.
- Jonesville district, Lee County, detailed: Miller, Ralph L., 1.
- Lynchburg quadrangle: Brown, W. Randall, 1.
- Rose Hill district, Cambrian-Devonian, detailed: Miller, Ralph L., 2.
- Yorktown formation, Miocene: Stephenson, L. W., 2.
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- Crazy Woman Creek area: Hose, R. K.
- Cretaceous, Powder River-Wind River Basins: Heisey, E. L.



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- Idaho, Seven Devils region: Cook, E. F., 1.
- Kentucky, Mississippi embayment, Cretaceous-Pleistocene: Moneymaker, B. C., 3.
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- Mississippi Valley, upper and lower, junction: Leighton, M. M.
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- Grant County, Cambrian-Permian: Dana, G. F.
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- Meadow Lake - Prince Albert - Yorkton area: MacLennan, D. B.
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- Mineola basin, pre-Cretaceous-Eocene: Eaton, R. W.
- Sierra Diablo Mts., Permian: Stehli, F. G.
- Trinidad: Suter, H. H., 1.
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- Utah, central and south-central, structural: Spieker, E. M.
- Deer Trail mine: Hyatt, E. P.
- Dinosaur National Monument and vicinity: Untermann, G. E., 2.
- Paradox basin, Pennsylvanian: Wengert, S. A., 1.
- Pine Valley Mts.: Cook, E. F., 2.
- Uinta Mtn. and Basin area: Untermann, G. E., 1.
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- Aerial photographs, utilization: Fischer, W. August.
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- United States, history: Margerie, E. de.
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- Geologic maps. *See also* subheading *Geologic maps* under the states and countries.
- Alaska, Alaska Range and adjacent area, eastern part: Moffit, F. H., 1.
- East-central, radioactive deposits: Wedow, H., Jr., 3.
- Eastern, radioactive mineral areas, sketch: Nelson, A. E.
- Index: Cobb, E. H.
- Lignite Creek area, Nenana coal field, Precambrian and Cenozoic: Wahrhaftig, C. A., 1.
- Manley Hot Springs - Rampart district, Ordovician-Recent: Moxham, R. M., 3.
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- Prince William Sound area, Cretaceous (?) - Recent: Moffit, F. H., 2.
- Russian Mts., Cretaceous-Cenozoic: West, W. S.
- Tanana-Copper River valleys, radioactive areas: Wedow, H., Jr., 2.
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- Alberta, Brazeau area: Scott, J. C.
- Kvass Flats area, Mississippian-Cretaceous: Irish, E. J. W.
- Rocky Mts.: North, F. K., 1.
- Turner Valley oil and gas field: Gallup, W. B., 1.
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- Arctic America, sketch: Fortier, Y. O., 1.
- Arizona, Chuska Mts. area: Harshbarger, J. W., 1.
- Fort Defiance and Tohatchi quadrangles: Allen, J. E., 2.
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- Meteor Crater, sketch: Nininger, H. H., 1.
- Montosa-Cottonwood Canyons area, sketch: Anthony, J. W.
- Silver Bell district, Pima County: Richard, K. E.
- Arkansas, northeastern, pre-Upper Cretaceous, paleogeologic: Caplan, W. M.
- British Columbia, Aiken Lake area, Cassiar district: Roots, E. F.
- Findlay Creek area: Reesor, J. E., 1.

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- Mineral deposits, sketch: British Columbia Dept. Mines, 1, 2.
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- Salmo area: Green, L. H.
- Southeastern, Canal Flats area: Leech, G. B.
- Sullivan mine area: Cominco Staff, 1.
- Stanford Range, Kootenay district: Henderson, G. G. L.
- Yanks Peak - Roundtop Mtn. area: Holland, S. S.
- California, Alexander Hills area: Wright, L. A., 3.
- Amador County, Carboniferous-Recent: Carlson, D. W.
- Badwater turtleback area, Black Mts., central: Curry, H. D.
- Barstow area: Bowen, O. E., Jr., 2.
- Barite deposits: Durrell, C., 1.
- Barstow quadrangle: Bowen, O. E., Jr., 1.
- Barstow-Hinkley area, sketch: Weiss, L. E.
- Batholith, portion, San Diego County: Merriam, R. H., 1.
- Calaveritas quadrangle, Carboniferous-Quaternary: Clark, L. D.
- Capay-Wilbur Springs area: Oakeshott, G. B., 1.
- Carpinteria district: Lian, H. M.
- Cima Dome area, Mojave Desert: Sharp, R. P., 4.
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- Cool-Cave Valley area: Clark, W. B.
- Corona - Elsinore - Murrieta area: Gray, C. H., Jr.
- Cuyama Valley area: Schwade, I. T.
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- Gaviota Creek area, Cenozoic, sketch: Wilson, E. J.
- Imperial Valley region: Dibblee, T. W., Jr., 1.
- Jacumba quadrangle: Brooks, B.
- Joshua Tree National Monument: Rogers, J. J. W., 1.
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- Southwestern: Bandy, O. L., 3.
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- Lang quadrangle, portion, sketch: Patchick, P. F.
- Mojave Desert - Death Valley region: Wright, L. A., 4.
- Mountain Pass district, San Bernardino County: Olson, J. C., 1, 2.

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- Geologic maps.**  
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- Southwestern: Jones, P. H., 1; Meyer, R. R.

- Vermilion River basin: Jones, P. H., 2.

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- Delta Farms oil field, Miocene-Pleistocene: Morgan, A. L., 3d.

- Lewisburg field, Tertiary: O'camb, R. D.  
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- Moodys Branch-Cockfield contact, Sabine Parish, Tertiary: Treadwell, R. C.

- Morehouse formation, Pennsylvanian, northeastern: Hoffmeister, W. S.

- Sabinetown formation, Eocene, Sabine Parish: Andersen, H. V.

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- Plant spores, Morehouse formation, Pennsylvanian: Hoffmeister, W. S.

- Webster Parish, Cretaceous-Eocene, faunal lists: Martin, J. L., Jr.

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- Sandstone slabs, cemented, Chandeaur Islands, Recent: Morgan, J. P., 2.

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- Calcasieu Lake salt dome, Cameron Parish: Wallace, W. E., Jr., 2.

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- Coastal mudflats, terraces, levees, western: Morgan, J. P., 1.

- Mississippi River delta, development: McIntire, W. G.

- Mounds, origin, northern: Melton, F. A.

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- Webster Parish, Pleistocene alluvial terraces: Martin, J. L., Jr.

- Magma and magmatic differentiation. *See also* Igneous rocks; Intrusions.

- Basaltic, fractional crystallization trend, graphic representation: Poldervaart, A., 2.

- California, White Tank quartz monzonite, vertical differentiation: Rogers, J. J. W., 2.

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- Liquid immiscibility, role: Holgate, N.

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- Mineral areas, general: Allan, J. D.

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- Cotton Lake area, possibilities: Allen, C. M.
- Gold, West Hawk Lake-Falcon Lake area: Davies, J. F.
- Lithium, pegmatitic deposits: Rowe, R. B., 2.
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- Petroleum, Daly field: Laurence, R. H.
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- Canada, mineral resources: Ziegler, H.  
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- Bedrock contour, Michigan, Marquette district: Stuart, W. T.  
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## Ground water.

- Clinton River basin: Mich. Water Res. Comm.  
 Grand Rapids area: Stramel, G. J., 2.  
 Marquette district: Stuart, W. T.

## Michigan—Continued

## Ground water—Continued

- Oakland County: Mozola, A. J., 1, 2.  
 Southeastern: Ferris, J. G.  
 Van Buren County: Terwilliger, F. W.

## Historical geology.

- Bruneau Creek quadrangle, Precambrian-Cambrian(?): Wright, J. C.  
 Delaware quadrangle, Precambrian: Cornwall, H. R., 3.  
 Eagle Harbor quadrangle, Precambrian: Cornwall, H. R., 2.  
 Grand Rapids area, Carboniferous, Quaternary: Stramel, G. J., 2.  
 Lake Medora quadrangle, Precambrian: Cornwall, H. R., 4.  
 Livingston County, late glacial correlations, pollen analysis: Andersen, S. T.  
 Michigan basin, Devonian-Mississippian: McGregor, D. J., 1.  
 Oakland County, Silurian-Mississippian, Pleistocene: Mozola, A. J., 2.  
 Southeastern: Ferris, J. G.  
 Phoenix quadrangle, Precambrian: Cornwall, H. R., 1.  
 Salina salt, Silurian, deposition process: Briggs, L. I., Jr.; Dellwig, L. F.  
 White Pine copper deposit, Ontonagon County: White, W. S.

## Mineralogy.

- Collecting localities: Mihelcic, J. F.  
 Dickinson County: Pratt, W. P.  
 Iron formation, minerals, alterations: Mann, V. I.

## Paleontology.

- Corals, Dundee limestone, Devonian: Stumm, E. C., 1.  
 Cystoids, Traverse group, Devonian: Stumm, E. C., 4.  
 Forest history, post-Algonquin and post-Nipissing, Isle Royale: Potzger, J. E., 2.  
 Ostracodes, Ferron Point formation, Devonian: Kesling, R. V., 3.  
 Michigan basin, Middle Devonian: Weiss, M.  
 Pine pollen, Livingston County, species: Grayson, J. F.  
 Pollen, late glacial, Livingston County: Andersen, S. T.

## Petrology.

- Bruneau Creek quadrangle: Wright, J. C.  
 Delaware quadrangle: Cornwall, H. R., 3.  
 Eagle Harbor quadrangle, Precambrian: Cornwall, H. R., 2.  
 Lake Medora quadrangle, Precambrian: Cornwall, H. R., 4.  
 Metamorphism, zones, northern, Precambrian: James, H. L., 2.  
 Phoenix quadrangle, Precambrian: Cornwall, H. R., 1.  
 Salina salt, origin: Dellwig, L. F.

## Physical geology.

- Bruneau Creek quadrangle, structure: Wright, J. C.

## Michigan—Continued

*Physical geology*—Continued

Delaware quadrangle, faults: Cornwall, H. R., 3.

Eagle Harbor quadrangle, structure: Cornwall, H. R., 2.

Inland lakes, ice-push studies: Wilson, James T.

Lake Medora quadrangle, structure: Cornwall, H. R., 4.

Marquette district, bedrock formations, comparative erosion: Stuart, W. T.

Phoenix quadrangle, structure: Cornwall, H. R., 1.

White Pine copper deposit, Ontonagon County, structure: White, W. S.

*Physiographic geology.*

Clinton River basin, glacial features: Mich. Water Res. Comm.

Grand Rapids area, glacial drift: Stramel, G. J., 2.

Inland lakes, ice-push studies: Wilson, James T.

Oakland County: Mozola, A. J., 1.

Glacial geology: Mozola, A. J., 2.

Southeastern: Ferris, J. G.

Van Buren County, glacial geology: Terwilliger, F. W.

## Micropaleontology.

Alberta, Ireton shale, Devonian, zones: Loranger, D. M., 2.

Bibliographies, proper use: Maync, W., 2.

Calpionellids, Jurassic-Cretaceous, Cuba and Mediterranean: Bronnimann, P., 4.

Demonstration projection, television microscopy: Ellison, S. P., Jr., 2.

Dinoflagellates, Hystriochosphaeridae, Devonian, Ontario, Decew area: Deunff, J.

Foraminifera, publishing errors: Hofker, J., 2.

Microfossil collecting, techniques, popular: Benson, B. L.

Petroleum microbiology, textbook: Beerstecher, E., Jr.

Protozoa, research, summary: Thalmann, H. E., 1.

## Military geology.

Geophysical sciences, applications: Landsberg, H. E.

History, source data, functions: Whitmore, F. C., Jr.

Terrain evaluations: Betz, F., Jr.

## Mineral collecting.

Arizona, agate, popular account: Taylor, F.

Crystal Hill, quartz crystals: Carney, C.

Gem materials: Dimick, A.

California, Kernville area, epidote and garnet: Vigario, G.

Connecticut, Middlesex County, arsenolite: Schooner, R.

## Mineral collecting—Continued

## Connecticut—Continued

Mt. Tule area, gems: Berkholz, M. F., 2.

San Diego County, garnet, epidote: Berkholz, M. F., 1.

San Gabriel Mts., allanite: Neuerburg, G. J., 2.

Massachusetts, Shelburne, calcite and pyrite: Shaub, B. M., 1.

Michigan, Dickinson County: Pratt, W. P.

Good localities: Mihelcic, J. F.

Microminerals, mounting: Drury, P. O.

Missouri, Leslie mine: Berkholz, M. F., 3.

St. Louis area, geodes: Berkholz, M. F., 3.

Nebraska, Rock Bluffs, Queen Hill quarry: Graffham, A. A.

New Jersey: Johnson, M. E.

Franklin area: French, B.

Oregon, Lake County, opal: Dake, H. C., 2.

Tennessee, eastern, water-soluble: Honaker, C.

United States, localities, rockhound buyers guide: Quick, L.

Western, index map: Gems & Minerals Staff.

Utah, Big Cottonwood Canyon: Austin, C. F.

Topaz Mtn., Thomas Range: Brock, D.

Virginia: Dietrich, R. V., 1.

Mineral deposits. *See also* Economic geology.

Alabama, Guntersville area, limonite: Money-maker, B. C., 1.

Alaska, Alaska Range and adjacent area, placers and lodes: Moffit, F. H., 1.

East-central, radioactive: Wedow, H., Jr., 3.

Eastern, radioactive: Nelson, A. E.

Kathleen-Margaret prospect, copper: Chapman, R. M.

Prince William Sound area, copper and gold: Moffit, F. H., 2.

Willow Creek district, gold, origin: Ray, R. G.

Alberta, Rocky Mts., metallic: Hedley, M. S., 1.

Appalachian basin, coal, Pittsburgh seam, origin: Cross, A. T.

Arizona, Cochise County, Johnson camp, copper-zinc, origin: Baker, A., 3d.

Copper Cities area, copper, origin: Peterson, N. P., 2.

Fort Defiance and Tohatchi quadrangles: Allen, J. E., 2.

Globe quadrangle: Peterson, N. P., 1.

Globe-Miami district: Peterson, N. P., 3.

King Tutt and Nokai Mesas, uranium: Wantland, D., 2.

Mogollon Rim area, manganese: Silver, C.

Monument Valley, Shinarump conglomerate, base, uranium: Witkind, I. J.

## Mineral deposits—Continued

## Arizona—Continued

- Pima mine, copper-zinc: Thurmond, R. E.  
 Ray district, porphyry copper deposits, origin: Sullivan, C. J.  
 Salt River area, asbestos: Ransom, J. E., 2.  
 Silver Bell district, copper: Richard, K. E.  
 Arkansas, Magnet Cove and Potash Sulphur Springs, niobium-titanium: Fryklund, V. C., Jr., 1.  
 Asbestos, slip-fiber: Sinclair, W. E.  
 Association with gneisses: Douglas, G. V., 2.  
 British Columbia: Hodge, E. T.  
 Aiken Lake area: Roots, E. F.  
 Big Ledge area, sulfides, origin: Morris, A.  
 Field area, Monarch and Kicking Horse mines, lead-zinc, origin: Ney, C. S.  
 Industrial minerals: British Columbia Dept. Mines, 2.  
 Kootenay Lake area, lead and zinc: Cominco Staff, 2.  
 Metallic: British Columbia Dept. Mines, 1.  
 Northern, copper: Cominco Staff, 3.  
 Placers, gold, origin: Fraser, D. D.  
 Rare ore minerals: Thompson, Robert M., 3.  
 Rexspar property, uranium: Scott, J. W.  
 Rocky Mts., metallic: Hedley, M. S., 1.  
 Salmo area, lead-zinc, origin: Wishaw, Q. G.  
 Lead-zinc replacement: Green, L. H.  
 Tungsten, origin: Ball, C. W.  
 Southeastern, Canal Flats area, gypsum: Leech, G. B.  
 Stanford Range, gypsum, origin: Henderson, G. G. L.  
 Yanks Peak - Roundtop Mtn. area, gold, origin: Holland, S. S.  
 California, Amador County: Carlson, D. W.  
 Barstow area, barite: Durrell, C., 1.  
 Barstow quadrangle: Bowen, O. E., Jr., 1.  
 Cool-Cave Valley area, limestone: Clark, W. B.  
 Glass sand: Anonymous, 10.  
 Mica: Anonymous, 8.  
 Mojave Desert region, gold-silver: Gardner, D. L.  
 Mountain Pass district, rare earths: Olson, J. C., 1, 2.  
 Nickel: Anonymous, 18.  
 Palen Mts., gypsum: Hoppin, R. A.  
 Rosamond Hills, gold: Noble, J. A.  
 San Gabriel Mts., western: Oakeshott, G. B., 3.  
 Santa Clara County: Davis, F. F.

## Mineral deposits—Continued

## California—Continued

- Shasta district, copper-zinc, origin: Kinkel, A. R., Jr.  
 Silver Lake deposit, talc: Wright, L. A., 1.  
 Southeastern, tungsten: Bateman, P. C., 1.  
 Southern: Murdoch, J., 3.  
 Pegmatites, origin: Arciniega, V. M.  
 Prospecting: Arthur, E.  
 Zinc-lead-silver-iron: Carlisle, D.  
 Talc City area, talc: Gay, T. E., Jr., 2.  
 Canada, general: Langford, G. B.  
 Natural abrasives: Janes, T. H.  
 Pegmatitic lithium: Rowe, R. B., 2.  
 Chromite, banded, origin: Griffin, B. E.  
 Colorado, Bull Canyon quadrangle, origin: Cater, F. W., Jr., 1.  
 Caribou mine, uraninite: Wright, H. D.  
 Clear Creek County, uranium: Wells, J. David.  
 Climax area, molybdenite: Vanderwilt, J. W.  
 Cold Spring mine, tungsten: Ridland, G. C.  
 Copper King mine, uranium minerals, origin: Phair, G.  
 Denver Mtn. Parks area, pegmatites, origin: Boos, M. F., 1.  
 Gateway area, uranium-vanadium: Kline, M. A., Jr.  
 Northgate district, fluorspar: Steven, T. A.  
 Colorado Plateau, carnotite: Ball, M.  
 Carnotite-roscoelite deposits, origin: Garrels, R. M., 2.  
 Triassic-Jurassic sediments, uraninite: Rosenzweig, A., 1.  
 Uranium, origin: Gruner, J. W., 2.  
 Structural controls: Reinhardt, E. V.  
 Uranium-vanadium, origin: Sullivan, C. J.  
 Copper, native: Cornwall, H. R., 5.  
 Cuba, Moa area, Oriente, lateritic nickel-cobalt: Colligan, R. V.  
 Exploration, mobile magnetometer: Griswold, W. T.  
 General: Langford, G. B.  
 Georgia, Cartersville district, manganese: O'Neill, J. F.  
 Gore area, Chattooga County, halloysite: Broadhurst, S. D., 2.  
 Troup County, beryl: Furcron, A. S., 3.  
 Granites, porphyries, and associated copper, genetic relations: Sales, R. H.  
 Gulf Coastal Plain, Newgulf salt dome, sulfur, origin: Feely, H. W., 1.  
 Salt-dome deposits: Feely, H. W., 2.  
 Hawaii, titanium in soils: Sherman, G. D., 2.  
 Honduras, Rosario mining district, gold-silver: Carpenter, R. H., 1.  
 Hydrothermal alteration, hot-spring systems: White, D. E., 2.



## Mineral deposits—Continued

- Hypogene, silica, origin: Schmitt, H. A., 2.
- Idaho, Challis area, fluorspar, origin: Anderson, A. L., 2.
- Coeur d'Alene district, cobalt and nickel: Fryklund, V. C., Jr., 2.
- Hercules mine, hydrothermal alteration: Stringham, B. F.
- Lemhi County, monazite, origin: Abbott, A. T., 1.
- Meyers Cove area, fluorite, origin: Anderson, A. L., 1; Cox, D. C., 1.
- Seven Devils region, metallic, origin: Cook, E. F., 1.
- Shoshone County, kyanite-andalusite, origin: Abbott, A. T., 2.
- Sunshine mine, uranium, origin: Kerr, P. F.
- Indiana, southwestern, gypsum and anhydrite: McGregor, D. J., 2.
- Kansas, Cherokee County, lead-zinc district: Cook, K. L., 2.
- Kentucky, Commodore fault system, fluorite: Trace, R. D., 1.
- Mineral Ridge area, fluorite: Trace, R. D., 2.
- Moore Hill area, fluorite: Thurston, W. R., 2.
- Senator-Schwenck area, fluorite: Klepser, H. J.
- Labrador, Ungava region, northern, iron ore: Bergeron, R., 2.
- Labrador Trough, iron associated with coaly material: Usher, J. L.
- Maine, pyrrhotite, genetic study: Houston, R. S.
- Manitoba, Bear Lake area: Milligan, G. C.
- West Hawk Lake-Falcon Lake area, gold: Davies, J. F.
- Massachusetts, Lithia area, pollucite in Barrus pegmatite: Shaub, B. M., 4.
- Mexico, agricultural: Rodríguez Cabo, J., Jr.
- Baja California, metallic: Wissner, E. H.
- Nuevo Leon, Guadalupe mine, lead-silver-zinc: Whiting, F. B.
- Santa María del Oro district, Durango, gold-copper, origin: Davis, R. I.
- Michigan, Delaware quadrangle, native copper: Cornwall, H. R., 3.
- Ontonagon County, White Pine copper deposit: White, W. S.
- Salina salt, origin: Dellwig, L. F.
- Soft iron ore, origin, relation to oxidation: Mann, V. I.
- Minnesota, Cuyuna range, iron, symposium: Minn. Univ. Gen. Ext. Div.
- Cuyuna range, iron sulfide: Schwartz, G. M., 2.
- Manganese: Lewis, W. E.
- Mesabi range, taconite, origin: White, D. A.
- Soudan mine, iron: Schwartz, G. M., 4.

## Mineral deposits—Continued

- Mississippi, iron ores: Vestal, F. E., 3.
- Missouri, barite, mode of occurrence: Muilenburg, G. A., 2.
- Lead, origin: Sullivan, C. J.
- Limonite: Clark, E. L.
- Southeast Missouri lead district, origin: Ohle, E. L., Jr.
- Montana, Boulder batholith, uranium: Becraft, G. E.; Thurlow, E. E., 1, 2.
- Crystal mine, Dillon area, graphite, origin: Ford, R. B.
- Wibaux area, lignite: May, P. R., 2.
- Nevada, Goodsprings district, lead-zinc, structural controls: Albritton, C. C., Jr., 1.
- Mina quadrangle: Ferguson, H. G., 2.
- Radioactive: Lovering, T. G.
- Round Mtn. quadrangle, metallic: Ferguson, H. G., 1.
- Virgin Mts., vermiculite, origin: Leighton, F. B.
- New Brunswick, pyrrhotite, genetic study: Houston, R. S.
- New England, pegmatitic, origin: Cameron, E. N.
- New Jersey, magnetite: Hotz, P. E.
- New Mexico, Coyote district, uranium-bearing copper, origin: Zeller, H. D.
- Fort Defiance and Tohatchi quadrangles: Allen, J. E., 2.
- Lake Valley quadrangle, metallic: Jicha, H. L., Jr., 1.
- Palomas district, lead-zinc-silver, origin: Jicha, H. L., Jr., 3.
- Petaca district, kyanite, origin: Corey, A. F.
- Santa Rita intrusive, copper, origin: Leroy, P. G.
- Southeastern, potassium: Jones, C. L.
- Uranium: Waltman, R. M.
- Uranium, origin: Griggs, R. L.
- New York, Shawangunk Mtn. district, lead-zinc ores: Gray, C., 2.
- Newfoundland, Indian Head area, iron: Heyl, A. V., Jr., 1.
- La Poile-Cinq Cerf area, metallic, origin: Cooper, J. R., 1.
- Port au Port Peninsula, strontium: Johnson, H.
- Sheep Brook-Lookout Brook area, gypsum: Baird, D. M., 3.
- Magnetite, origin: Baird, D. M., 3.
- Wabana deposits, iron, origin: Tanton, T. L.
- Nickel-magnesium silicates, hydrous, origin: Mueller, G. V.
- North America, copper, origin: Pennebaker, E. N., 1.
- North Carolina, Day Book dunite, vermiculite: Kulp, J. L., 1.
- Talc: Hart, J. R.
- North Dakota, lignite, uranium-bearing: Miller, Ralph L., 4.
- Wibaux area, lignite: May, P. R., 2.

## Mineral deposits—Continued

- Northwest Territories, Coppermine River area, copper: Jenney, C. P.  
 Yellowknife area, gold, origin: Boyle, R. W., 1.  
 Yellowknife Bay area, gold, origin: Cominco Staff, 4.  
 Yellowknife greenstone belt, gold: Boyle, R. W., 2.  
 Nova Scotia, Cape Breton Island, southeastern, sulfide: Weeks, L. J., 2.  
 Cape D'Or, copper: Bancroft, M. F.  
 Gypsum, origin: Goodman, N. R.  
 Mindamar mine, zinc-lead-copper, origin: Watson, K. D.  
 Ontario, Algoma district, uranium: Joubin, F. R.  
 Balmer Township, gold: Chisholm, E. O.  
 Brudenell-Raglan area, origin: Hewitt, D. F.  
 Cobalt district, cobalt: Koehler, G. F.  
 Copper: Thomson, J. E., 2.  
 Eastern, iron, origin: Rose, E. R.  
 Goudreau area, Algoma, pyrite, origin: Douglas, G. V., 1.  
 Holloway Township, northern part, gold: Satterly, J.  
 Kenora district: Carlson, H. D.  
 Lake Nipissing, columbium-uranium: Rowe, R. B., 1.  
 Lead: Thomson, J. E., 2.  
 Madoc area, talc: Sandomirsky, P.  
 Mamainse Point area, Algoma district, copper: Thomson, J. E., 1.  
 Nickel: Thomson, J. E., 2.  
 Sothman Township: Abraham, E. M.  
 Sudbury district, nickel, origin: Mutz, H. J.  
 Nickel-copper deposits, origin: Sullivan, C. J.  
 Trace elements and mineralization, association: Stonehouse, H. B.  
 Zinc: Thomson, J. E., 2.  
 Oregon, Red Flats deposit, nickeliferous laterite, origin: Hundhausen, R. J.  
 Red Flats nickel deposit: Hundhausen, R. J.  
 Ores, magmatic differentiation and blister hypothesis: Wolfe, C. W.  
 Pacific Northwest, iron ores: Bacon, W. R., 1.  
 Pennsylvania, Berks County, mica: Buckwalter, T. V., Jr.  
 Carbon County, uranium: Klemic, H.  
 Mauch Chunk area, uranium, origin: Dyson, J. L.; Montgomery, A.  
 Uranium, stratigraphic-structural relationships: Dyson, J. L.  
 Phosphates, origin: Sears, D. S.  
 Puerto Rico, Comerio area, alunite, pyrophyllite: Smith, R. J.  
 Quebec, Bourlamaque, Lamaque mine, gold, origin: Smith, F. G., 2.  
 Gaspé Peninsula, Needle Mtn., copper: Bell, A. M.

## Mineral deposits—Continued

- Quebec—Continued  
 Gaspé-North County, lead-zinc: Auger, P. É., 1.  
 Hébécourt, Duparquet, and Destor Townships, gold, origin: Graham, R. B.  
 Kewagama area, O'Brien mine, gold: Mills, J. W.  
 Malartic mine, Halet, gold: Black, P. T.  
 O'Brien mine, gold: Blais, R. A., 2.  
 Sherbrooke area, Suffield mine: Carrière, G. E.  
 Thetford mines - Black Lake area, asbestos: Riordon, P. H.  
 Ungava region, northern, iron ore: Bergeron, R., 2.  
 Radioactive minerals, world: Nininger, R. D.  
 Saskatchewan, Amisk-Wildnest Lakes area: Byers, A. R., 1, 2.  
 Beaverlodge area, tin, association with pitchblende: Silman, J. F. B.  
 Black Bay area, pitchblende: Hale, W. Ernest, 2.  
 Ceramic materials: Crawford, G. S.  
 Charlebois Lake area, uranium: Mawdsley, J. B., 1.  
 Gunnar deposit, pitchblende: Fraser, J. A., 2.  
 Lac La Ronge district, radio-active pegmatite sill: Mawdsley, J. B., 2.  
 Radioactive: Cawley, J. T.  
 Saint Louis fault, Beaverlodge area, pitchblende: Allen, R. B.; Macdonald, B. C.  
 South Dakota, Bald Mtn. gold-mining area, radioactive: Vickers, R. C.  
 Black Hills, atlas and bibliography: U. S. Bur. Mines Staff, Region 5  
 Lignite, uranium-bearing: Miller, Ralph L., 4.  
 Pierre quadrangle: Crandell, D. R., 1.  
 Sulfide mineral stability, zone of oxidation and secondary enrichment: Garrels, R. M., 1.  
 Sulfur, elemental, volcanic types, origin: Banfield, A. F.  
 Origin, isotope fractionation, Texas-Louisiana: Thode, H. G., 2.  
 Tennessee, Friends Station - New Market area, zinc: Oder, C. R. L.  
 Texas, Marble Falls area, phosphorite: Barnes, V. E., 10.  
 Terlingua district, mercury, origin: Thompson, G. A., Jr.  
 Western, talc: Pence, F. K.  
 Textbook, origin, physical-chemical principles: Niggli, P.  
 United States, manganese: Lewis, W. E.  
 Pacific Northwest: Hodge, E. T.  
 Southwestern, thiophile elements, source: Hillebrand, J. R.  
 Uranium: Proctor, P. D.

## Mineral deposits—Continued

## United States—Continued

- Western, aggregates, origin: Holland, W. Y.  
 Lightweight aggregates: Chesterman, C. W., 1.  
 Porphyry copper, structure: Pennebaker, E. N., 2.  
 Uranium, origin: Everhart, D. L., 1.  
 Volcanic ash theory: Hager, D., 2.  
 Utah, Big Indian district, origin: Steen, C. A.  
 Big Indian district, uranium: Ruddock, M. K.  
 Big Indian Wash-Lisbon Valley area, uranium: Isachsen, Y. W.  
 East Slope No. 2 prospect, uranium: Wyant, D. G.  
 Fluorite: Buranek, A. M.; Thurston, W. R., 1.  
 Granite Mtn. area, iron ore, origin: Mackin, J. H., 1.  
 Lake Mts.: Crawford, A. L., 1.  
 Little Cottonwood area, scheelite: Erickson, M. P.  
 Shinarump No. 1 mine, uranium, origin: Finch, W. I.  
 Southeastern, uranium: Stokes, W. L., 3.  
 Temple Mtn., uranium: Robeck, R. C.  
 Thompson area, uranium: Stokes, W. L., 5.  
 Vein-forming fluids, composition from inclusion data: Smith, F. G., 1.  
 Vermont, Elizabeth mine, copper: McKinstry, H. E.  
 Virginia, Austinville district, lead-zinc: Brown, W. H.  
 Elkton area, iron-manganese, origin: King, P. B.  
 Iron: Gooch, E. O., 1.  
 James River-Roanoke River district, manganese: Espenshade, G. H.  
 Manganese: Cooper, B. N., 1.  
 Western, silica sand: Lowry, W. D., 1.  
 Washington, Gold King mine, Wenatchee area, gold and silver: Lovitt, E. H.  
 Holden mine area, copper and zinc: Du Bois, R. L.  
 Metaline district, lead, zinc: Mills, Hiram F.  
 Molybdenum: Purdy, C. P., Jr.  
 Starr molybdenum mine, origin: Creasey, S. C.  
 Western Molybdenum Company mine, molybdenum-copper-tungsten: Cooper, J. R., 2.  
 Wisconsin, Cuba City area, zinc-lead-barite: Agnew, A. F.  
 Geologic problems, geophysical methods used: Woollard, G. P., 1.  
 Wyoming, Gas Hills area, uranium, origin: Love, J. D., 1.  
 Laramie Range, titaniferous iron: Pin-nell, D. B.

## Mineral deposits—Continued

## Wyoming—Continued

- Mayoworth area, uranium, origin: Love, J. D., 2.  
 Poison basin area, uranium, origin: Vine, J. D., 2.  
 Pumpkin Buttes area, uranium: Troyer, M. L.  
 Silver Cliff mine, Lusk area, uranophane, origin: Wilmarth, V. R.  
 Sweetwater County, brine, trona: Lindeman, H. B.  
 Uranium: Thomas, Horace D.  
 Xonotlite, occurrence, origin: Smith, Charles H.  
 Mineral descriptions. *See also* Mineralogy.  
 Anthraxolite, New York: Dunn, J. R.  
 Argentopyrite, structure: Murdoch, J., 2.  
 Arrojadite, discredited: Fisher, D. J.  
 Bassetite: Frondel, C., 4.  
 Beryllonite, unit cell: Wehrenberg, J. P.  
 Brannerite, California: Pabst, A., 1.  
 Bultfonteinite, California: Murdoch, J., 4.  
 Callaghanite, Nevada, new: Beck, C. W.  
 Clarkeite, North Carolina, chemical formula: Gruner, J. W., 3.  
 Colemanite, crystal structure: Christ, C. L., 2.  
 Conichalcite, Arizona: Qurashi, M. M.  
 Covellite, crystal structure: Berry, L. G.  
 Descloizite, Mexico: Qurashi, M. M.  
 Dickinsonite, ferroan: Fisher, D. J.  
 Eitelite, Utah: Milton, C., 2.  
 Ekmanite, lattice: Nagy, B., 1.  
 Francolite: McConnell, D., 1.  
 Geocronite, western United States: Douglass, R. M., 1.  
 Goldichite, Utah: Rosenzweig, A., 3.  
 Hackmanite, tenebrescent properties: Medved, D. B.  
 Humite series, synthetic: Van Valkenburg, A., Jr., 2.  
 Hypersthene, iron-rich, Pennsylvania-Delaware: Clavan, W.  
 Ianthinite, alteration product of: Frondel, J. W.  
 Impactite, Arizona: Nininger, H. H., 1.  
 Jadeite, California: Coleman, R. G.  
 Klockmannite, crystal structure: Berry, L. G.  
 Kutnahorite: Frondel, C., 5.  
 Leucosphenite, Utah: Milton, C., 1.  
 Lorenzenite: Shurtz, R. F.  
 Mica group, single crystal data: Levinson, A. A.  
 Murdochite, Arizona, new: Fahey, J. J.  
 Navajoite, Arizona, new: Weeks, A. D., 2.  
 Novacekite, New Mexico: Stern, T. W.  
 Ordoñezite, Mexico, new: Switzer, G. S.  
 Pavonite, new: Nuffield, E. W., 1.  
 Phosphuranylite and dewindtite: Hogarth, D. D.  
 Pyroaurite: MacLaren, A. S.  
 Radioactive minerals: Nininger, R. D.  
 Reedmergerite, Utah: Milton, C., 2.

## Mineral descriptions—Continued

- Renardite: Frondel, C., 3.  
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- Black Range, Kingston: Kuellmer, F. J.
- Chuska Mts. area, Navajo Indian Reservation: Harshbarger, J. W., 1.
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*Cretaceous*—Continued

## South Dakota—Continued

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Iowa, brachiopods, Rockford area: Priest, A.

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*Devonian*—Continued

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## Permian—Continued

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## Quaternary—Continued

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- Depth determinations by electrical resistivity: Mooney, H. M., 2.
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- Dips, depths of layers, determination by seismic refractions: Mota, L.
- Discontinuities, nearly vertical, resistivity mapping: Logn, Ø.



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- Downward continuation of gravity, improved calculation: Trejo, C. A.
- Drill-hole electromagnetic exploration for sulfides: Harvey, H. A.
- Earth heat flow, determination: Birch, A. F., 3.
- Earth mantle, thermal-conductivity estimation: Uffen, R. J., 2.
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  - Potential-field residual maps, geometrical properties: Swartz, C. A.
  - Prospecting methods: Langford, G. B.
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- Silicate rocks, spectrophotometric and spectrographic analysis: Leininger, R. K., 1; Taylor, R.
- Statistical methods, applied to sedimentary rocks: Krumbein, W. C., 2.
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- Electric log interpretation, fundamentals: Wyllie, M. R. J.
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  - Surface and subsurface, South Dakota: Gries, J. P., 2.
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- Aerial color photography: Colwell, R. N.
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