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Bibliography of North American Geology, 1957

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Bibliography of North American Geology, 1957

By RUTH REECE KING, VIRGINIA M. JUSSEN, ELISABETH S. LOUD,
and GEORGIANNA D. CONANT

G E O L O G I C A L S U R V E Y B U L L E T I N 1 0 9 5



UNITED STATES DEPARTMENT OF THE INTERIOR

FRED A. SEATON, *Secretary*

GEOLOGICAL SURVEY

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BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY

1957

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GEORGIANNA D. CONANT

INTRODUCTION

The current annual volume lists publications that appeared during 1957 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 1957, 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 Margaret E. Barcroft, Lois F. Idleman, Mildred C. Mead, and Yetta C. Millman in the preparation of this volume is gratefully acknowledged.

The Bibliography of North American Geology comprises the following bulletins: 746-747 (1785-1918), 823 (1919-28), 937 (1929-39), 1049 (1940-49), 985 (1950), 1025 (1951), 1035 (1952-53), 1054 (1954), 1065 (1955), and 1075 (1956).

SERIALS

The following list gives the abbreviated titles of periodicals and serials that have been most commonly cited in this bibliography, the complete titles as listed in library catalogs and in the "Union List of Serials," and the places of publication. Infrequently cited periodicals and serials, and publications that include many articles (such as guidebooks, conferences, congresses, and symposiums), are not listed.

- A.I.M.E., Mining Geology Geophysics Div. Ann. Mtg., Min. Br. Abs.—American Institute of Mining and Metallurgical Engineers, Mining, Geology, and Geophysics Division Annual Meeting, Mining Branch Abstracts. New York.
- A.I.M.E. Trans.—American Institute of Mining, Metallurgical, and Petroleum Engineers Transactions. New York.
- Acta Crystallographica. Copenhagen.
- Ala. Acad. Sci. Jour.—Alabama Academy of Science Journal. Montevallo, Ala.
- Ala. Geol. Survey Inf. Ser.—Alabama Geological Survey Information Series. University, Ala.
- Alberta Research Council Prelim. Rept.—Alberta Research Council, Preliminary Report. Edmonton, Alberta.
- Alberta Soc. Petroleum Geologists Jour.—Alberta Society of Petroleum Geologists Journal. Calgary, Alberta.
- Am. Alpine Jour.—American Alpine Journal. New York.
- Am. Antiquity—American Antiquity. Menasha, Wis.
- Am. Assoc. Petroleum Geologists Bull.—American Association of Petroleum Geologists Bulletin. Tulsa, Okla.
- Am. Ceramic Soc. Bull.; Jour.—American Ceramic Society Bulletin; Journal. Columbus, Ohio.
- Am. Geol. Inst. Rept.—American Geological Institute Report. Washington, D.C.
- Am. Geophys. Union Trans.—American Geophysical Union Transactions. Washington, D.C.
- Am. Jour. Botany—American Journal of Botany. Baltimore, Md.
- Am. Jour. Sci.—American Journal of Science. New Haven, Conn.
- Am. Midland Naturalist—American Midland Naturalist. Notre Dame, Ind.
- Am. Mineralogist—American Mineralogist. Ann Arbor, Mich.
- Am. Mus. Novitates—American Museum Novitates. New York.
- Am. Petroleum Inst. Rept. Progress—American Petroleum Institute, Report of Progress. Baltimore, Md.
- Am. Philos. Soc. Yearbook—American Philosophical Society Yearbook. Philadelphia, Pa.
- Am. Scientist—American Scientist. Easton, Pa.
- Am. Soc. Civil Engineers Proc. Jour. Hydraulics Div.; Jour. Soil Mechanics and Found. Div.—American Society of Civil Engineers Proceedings Journal of the Hydraulics Division; Journal of the Soil Mechanics and Foundations Division. New York.
- Am. Water Works Assoc. Jour.—American Water Works Association Journal. New York.
- Anal. Chemistry—Analytical Chemistry. Washington, D.C.
- Arctic. Montreal, Quebec.
- Ark. Geol. and Conserv. Comm. Water Res. Circ.—Arkansas Geological and Conservation Commission Water Resources Circular. Little Rock, Ark.
- Asoc. Mexicana Geólogos Petroleros Bol.—Asociación Mexicana de Geólogos Petroleros Boletín. México, D.F.
- Assoc. Am. Geographers Annals—Association of American Geographers Annals. Lawrence, Kans.

- Brigham Young Univ. Research Studies Geology Ser.—Brigham Young University Research Studies Geology Series. Provo, Utah.
- British Columbia Dept. Mines Ann. Rept.; Bull.—British Columbia Department of Mines Annual Report; Bulletin. Victoria, British Columbia.
- Bull. Am. Paleontology—Bulletins of American Paleontology. Ithaca, N.Y.
- Cahiers Géographie Québec—Cahiers de Géographie de Québec. Quebec, Quebec.
- Calif. Dept. Nat. Res., Div. Mines Bull.; Mineral Inf. Service—California Department of Natural Resources, Division of Mines Bulletin; Mineral Information Service. San Francisco, Calif.
- Calif. Jour. Mines and Geology—California Journal of Mines and Geology. San Francisco, Calif.
- Calif. Oil Fields—California Oil Fields. San Francisco, Calif.
- Calif. Univ. Pubs. Geol. Sci.—California University, Publications in Geological Sciences. Berkeley, Calif.
- Canada Geol. Survey Bull.; Econ. Geology Ser.; Geophysics Paper; Mem.; Paper; Prelim. Ser. Map—Canada Geological Survey Bulletin; Economic Geology Series; Geophysics Paper; Memoir; Paper; Preliminary Series Map. Ottawa.
- Canadian Alpine Jour.—Canadian Alpine Journal. Banff, Alberta.
- Canadian Inst. Mining and Metallurgy Trans.—Canadian Institute of Mining and Metallurgy Transactions. Montreal, Quebec.
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- Eng. Min. Jour.—Engineering and Mining Journal. New York.
- Evolution. Lancaster, Pa.
- Field & Lab.—Field & Laboratory. Dallas, Texas.
- Fieldiana Geology. Chicago, Ill.
- Fla. Acad. Sci. Quart. Jour.—Florida Academy of Sciences Quarterly Journal. Gainesville, Fla.
- Fla. Geol. Survey Inf. Circ.—Florida Geological Survey Information Circular. Tallahassee, Fla.
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- Tenn. Acad. Sci. Jour.—Tennessee Academy of Science Journal. Knoxville, Tenn.
- Texas Board of Water Engineers Bull.—Texas Board of Water Engineers Bulletin. Austin, Texas.
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- Texas Univ., Bur. Econ. Geology Rept. Inv.—Texas University, Bureau of Economic Geology Report of Investigations. Austin, Texas.
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- U.S. Bur. Mines Inf. Circ.; Rept. Inv.—United States Bureau of Mines Information Circular; Report of Investigations. Washington, D.C.
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|--------------------------------|---|
| U.S. Geol. Survey | United States Geological Survey |
| Bull. | Bulletin |
| Circ. | Circular |
| Coal Inv. Map | Coal Investigations Map |
| Geol. Quadrangle Map | Geologic Quadrangle Map |
| Geophys. Inv. Map | Geophysical Investigations Map |
| Hydrol. Inv. Atlas | Hydrologic Investigations Atlas |
| Mineral Inv. Field Studies Map | Mineral Investigations Field Studies Map |
| Mineral Inv. Res. Map | Mineral Investigations Resource Map |
| Misc. Geol. Inv. Map | Miscellaneous Geologic Investigations Map |
| Oil and Gas Inv. Map | Oil and Gas Investigations Map |
| Prof. Paper | Professional Paper |
| Water-Supply Paper | Water-Supply Paper. |
| | Washington, D.C. |
- Uranium. Denver, Colo.
- Utah Geol. Mineralog. Survey Bull.—Utah Geological and Mineralogical Survey Bulletin. Salt Lake City, Utah.
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- Va. Div. Mineral Res. Bull.; Mineral Res. Circ.—Virginia Division of Mineral Resources Bulletin; Mineral Resources Circular. Charlottesville, Va.
- Va. Jour. Sci.—Virginia Journal of Science. Farnville, Va.
- Va. Minerals—Virginia Minerals. Charlottesville, Va.
- Vt. Geol. Survey Bull.—Vermont Geological Survey Bulletin. Montpelier, Vt.
- W. Va. Geol. Survey Rept. Inv.—West Virginia Geological Survey Report of Investigations. Morgantown, W. Va.
- Wagner Free Inst. Sci. Bull.—Wagner Free Institute of Science Bulletin. Philadelphia, Pa.
- Washington Acad. Sci. Jour.—Washington Academy of Sciences Journal. Washington, D. C.
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- 320, Vermette Lake, Saskatchewan.
- 321, McAlister Lake, Saskatchewan.
- 322, Graham Lake, Saskatchewan.
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- 333, Willow River, Alberta.
- 338, Mistehae Lake, Alberta.
- 351, Godin Lake, Alberta.
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- 403, Rauta Lake, Northwest Territories.
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- 410, Woodenhouse River, Alberta.
- 415, Seaforth Creek, Alberta.
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- 419, Ruth Lake, Alberta.
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- 422, Sutton Creek, Alberta.
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- 438, Shillelagh Lake, Alberta.
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- 444, Osi Lake, Alberta.
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- 448, Trout Creek, Alberta.
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- 451, Namur Lake, Alberta.

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456, Upper Mikkwa River, Alberta.
457, Raymond Creek, Alberta.
458, Bolton Creek, Alberta.
459, Louise River, Alberta.
460, Eaglenest Lake, Alberta.
462, Marguerite River, Alberta.
463, Reid Creek, Alberta.
464, Coffey Lake, Alberta.
465, Eymundson Creek, Alberta.
466, Ronald Lake, Alberta.
467, Pearson Lake, Alberta.
468, Richardson River, Alberta.
469, Robert Creek, Alberta.
470, Warspite, Alberta.
471, Thorhild, Alberta.
472, Westlock, Alberta.
473, Dapp, Alberta.
474, Perryvale, Alberta.
475, Newbrook, Alberta.
476, Bondiss, Alberta.
477, Athabasca, Alberta.
478, Coolidge, Alberta.
479, Grosmont, Alberta.
480, Sawdy, Alberta.
481, Vincent Lake, Alberta.
482, Cache Lake, Alberta.
483, Goodfish Lake, Alberta.
484, Maloy, Alberta.
485, Pinehurst Lake, Alberta.
486, Beaver Lake, Alberta.
487, Lac la Biche, Alberta.
488, Touchwood Lake, Alberta.
489, Smoky Lake, Alberta.
490, Victor Lake, Alberta.
491, Hylo, Alberta.
492, Horse Lake, Alberta.
493, Pine Creek, Alberta.
494, Apps Lake, Saskatchewan.
495, Kazan Lake, Saskatchewan.
496, Buffalo Narrows, Saskatchewan.
499, Reita Lake, Alberta.
500, Cold Lake, Alberta.
501, Marie Lake, Alberta.
502, Medley River, Alberta.
504, Milnet, Ontario.
505, Lake Timagami, Ontario.
506, Marten Lake, Ontario.
507, Ingall Lake, Ontario.
508, Ottertail Creek, Ontario.
509, Fabre, Quebec-Ontario.
510, Timagami, Ontario.
511, Cobalt, Ontario-Quebec.
512, Ville-Marie, Quebec-Ontario.
513, Angliers, Quebec.
514, Earleton, Ontario-Quebec.
515, Englehart, Ontario-Quebec.
516, Lac Barrière, Quebec.
517, Opawica Lake-Lewis Lake, Quebec.
518, Michwacho Lake, Quebec.
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525, Rivière Coigny, Quebec.
526, Indian River, Quebec.
527, Canica Island, Quebec.
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 557, Kesatasew Lake, Saskatchewan.
 558, Lost Lake, Saskatchewan.
 559, Keeley Lake, Saskatchewan.
 560, Lac La-Plonge, Saskatchewan.
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 562, Ile-à-la-Crosse, Saskatchewan.
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 572, Waterhen Lake, Saskatchewan.
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 581, Rapid View, Saskatchewan.
 582, Makwa Lake, Saskatchewan.
 583, Ministikwan Lake, Saskatchewan.
 584, Pierceland, Saskatchewan.
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 586, Dorintosh, Saskatchewan.
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 589, Bonnyville, Alberta.
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 591, Wolf River, Alberta.
 592, Musquash, New Brunswick.
 593, McDougall Lake, New Brunswick.
 594, Rolling Dam, New Brunswick.
 595, St. Stephen, New Brunswick.
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 599, Hampstead, New Brunswick.
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 601, Yarmouth, Nova Scotia.
 602, Comeau Hill, Nova Scotia.
 603, Lockeport, Nova Scotia.
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 605, Pubnico, Nova Scotia.
 606, Tusket, Nova Scotia.
 607, Baccaro, Nova Scotia.
 608, Shelburne, Nova Scotia.
 609, Port Mouton, Nova Scotia.
 610, Meteghan, Nova Scotia.
 611, Church Point, Nova Scotia.
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- Wyoming: Swain, B. W.
- Frenchman formation, Cretaceous, Saskatchewan: Kupsch, W. O.

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- Frontier formation, Cretaceous, Utah: Trexler, D. W.
- Wyoming: Haun, J. D.
- Frontière group, Silurian-Devonian(?), Quebec: Béland, J. R., 2.
- Gallup sandstone, Cretaceous, New Mexico: Beaumont, E. C.; Dane, C. H., 2.
- Glen Canyon group, Triassic-Jurassic(?), Colorado Plateau: Harshbarger, J. W.
- Gloria formation, Pliocene, Mexico: Wilson, I. F.
- Green Pond conglomerate, Silurian, New Jersey, discredited: Thomson, A. F., 2.
- Gunflint formation, Precambrian, Ontario: Goodwin, A. M., 1.
- Gunnison volcanic conglomerate, Cretaceous-Paleocene, Colorado: Van Houten, F. B., 2.
- Hay River formation, Devonian, Northwest Territories: Crickmay, C. H.
- Heimbjerge formation, Ordovician, Greenland, new: Cowie, J. W.
- Houy formation, Devonian-Mississippian, Texas, new: Cloud, P. E., Jr., 2.
- Hunton group, Silurian-Devonian, Oklahoma: Amsden, T. W., 2.
- Ideal Quarry member of Chimneyhill formation, Silurian, Oklahoma: Amsden, T. W., 2.
- Ignacio quartzite, Cambrian-Ordovician(?), Colorado: Rhodes, F. H. T., 2.
- Infierno formation, Pliocene, Mexico: Wilson, I. F.
- Ireton shale, Devonian, Alberta: McCrossan, R. G.
- Ironwood iron-formation, Precambrian, Michigan-Wisconsin: Huber, N. K.
- Jackpile sandstone, Jurassic, New Mexico: Schlee, J. S., 2.
- Jangle limestone, Cambrian, Nevada: Johnson, M. S.
- Joana limestone, Mississippian, Nevada-Utah: Chilingar, G. V., 2.
- Kanayut conglomerate, Devonian, Alaska, new: Bowsher, A. L., 1.
- Kayak shale, Mississippian, Alaska, new: Bowsher, A. L., 1.
- Keeler Canyon formation, Pennsylvanian-Permian, California: Merriam, C. W.
- Knox group, Ordovician, Tennessee: Pierce, T. R.
- Kulthieth formation, Paleocene(?)-Eocene, Alaska: Plafker, G., 1.
- La Caja formation, Jurassic, Mexico: Rogers, C. L.
- Lampasas series, Pennsylvanian, discredited: Turner, G. L., 2.

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- Livingston formation, Cretaceous-Paleocene, Montana: McMannis, W. J.
- Lower quartzite, Precambrian or Cambrian(?), New York: Norton, M. F.
- Lukachukai member of Wingate sandstone, Triassic, Arizona: Harshbarger, J. W.
- Madison limestone, Mississippian, Williston basin: Saskatchewan Geol. Soc. Mississippian Names and Correlations Comm.
- Maligne formation, Devonian, Alberta, new: Taylor, P. W.
- Matinenda formation, Precambrian, Ontario: Roscoe, S. M., 1.
- Mazapil conglomerate, Tertiary, Mexico, new: Rogers, C. L.
- Medill sand, Pleistocene, California: Rodda, P. U., 1.
- Mercury limestone, Mississippian, Nevada: Johnson, M. S.
- Middle Park formation, Paleocene, Colorado: Tweto, O. L.
- Mississagi group, Precambrian, Ontario, redefined: Roscoe, S. M., 2.
- Moenave formation, Triassic(?), Arizona: Harshbarger, J. W.
- Molas formation, Pennsylvanian, Colorado Plateau: Wengerd, S. A., 2.
- Moss Lake formation, Silurian, Michigan: Mich. Geol. Soc.
- Mt. Morrison formation, Precambrian, Colorado: Boos, M. F.
- Muddy sandstone, Cretaceous, Wyoming: Paull, R. A.
- New Providence formation, Mississippian, Kentucky: Conkin, J. E., 2.
- Niquel formation, Pliocene, California: Vedder, J. G.
- North Park formation, Miocene-Pliocene(?), Colorado: Montagne, J. M. de la, 2.
- Oak Spring formation, Tertiary, Nevada: Johnson, M. S.
- Ocala group, Eocene, Florida, redefined: Puri, H. S., 5.
- Oil Creek formation, Ordovician, Texas: Munchrath, M. A.
- Onaping Volcanic formation, Precambrian, Ontario, Sudbury basin: Williams, Howel, 1.
- Ontelaunee formation, Ordovician, Pennsylvania: Hobson, J. P., Jr.
- Oso member of Capistrano formation, Miocene-Pliocene, California: Vedder, J. G.

Geologic formations—Continued

- Ouray limestone, Devonian-Mississippian, Colorado Plateau: Knight, R. L.
- Owens Valley formation, Permian, California: Merriam, C. W.
- Paradox formation, Pennsylvanian, Colorado Plateau: Matheny, M. L., 2.
- Phosphoria formation, Permian, Montana, facies: Rooney, L. F., 2.
- Wyoming: King, R. H.; Sheldon, R. P.
- Plattsburg limestone, Pennsylvanian, Kansas, members, units: Mann, C. J.
- Pointe aux Chenes shale, Silurian, Michigan: Mich. Geol. Soc.
- Quirke group, Precambrian, Ontario, new: Roscoe, S. M., 2.
- Ralston Creek formation, Jurassic, Colorado: Van Horn, R., 1, 2.
- Retreat group, Triassic(?)—Cretaceous(?), Alaska: Barker, F.
- Rickenbach formation, Ordovician, Pennsylvania: Hobson, J. P., Jr.
- Ridgway conglomerate, Miocene, Colorado: Van Houten, F. B., 2.
- Rocky Mtn. formation, Pennsylvanian(?)—Permian, Alberta: Norris, D. K., 3.
- Rusk formation, Trinity group, Cretaceous, Gulf Coastal Plain: Forgoeson, J. M., Jr., 3.
- Sacajawea formation, Mississippian, Wyoming: Strickland, J. W.
- St. Ignace dolomite, Silurian, Michigan: Mich. Geol. Soc.
- St. Juste group, Devonian, Quebec: Béland, J. R., 2.
- Salem limestone, Mississippian, Indiana: Pinsak, A. P., 1.
- San Andres formation, Permian, New Mexico: Bean, R. T., 1.
- Santa Fe group, Miocene(?)—Pleistocene(?), New Mexico: Baldwin, B., 1.
- Pleistocene, New Mexico, units: Disbrow, A. E., 1.
- Sappington sandstone, Mississippian, Montana: Gutschick, R. C., 1.
- Schoharie formation, Devonian, New York-New Jersey-Pennsylvania, redefinition: Johnsen, J. H.
- Seven Rivers formation, Permian, New Mexico: Hayes, P. T., 1.
- Sevy formation, Devonian, Rocky Mts., California to Idaho: Osmond, J. C., Jr., 2.
- Shelter formation, Cretaceous(?), Alaska: Barker, F.
- Siksikpuk formation, Permian(?), Alaska, new: Patton, W. W., Jr.

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- Simpson group, Ordovician, Oklahoma: Harris, R. W.
- Slim Sam formation, Cretaceous, Montana, new: Klepper, M. R., 1.
- Snowy Range formation, Cambrian, Montana, nomenclature: Lochman-Balk, C., 2.
- Solomon sandstone, Cretaceous, Alberta: Lowther, J.
- Souris River formations, Devonian, Saskatchewan: Walker, C. T.
- Southesk formation, Devonian, Alberta, members: Belyea, H. R., 3.
- Stanton formation, Pennsylvanian, Kansas: Wilson, F. W., 2.
- Stone City beds, Eocene, Texas: Stenzel, H. B., 1.
- Stone Corral formation, Permian, Kansas: Merriam, D. F., 4.
- Swisshelm formation, Devonian, Arizona: Epis, R. C., 2.
- Sycamore formation, Mississippian, Oklahoma: Prestridge, J. D.
- Symonds formation, Cretaceous(?), Alaska: Barker, F.
- Temescal formation, Pleistocene, California: Radbruch, D. H., 1.
- Tepee Trail formation, Eocene, Wyoming, members and facies: Tourtelot, H. A., 1.
- Tesuque formation, Miocene(?)—Pliocene(?), New Mexico: Baldwin, B., 1.
- Tillite formation, Precambrian, Greenland: Sommer, M., 1.
- Tippipah limestone, Pennsylvanian—Permian(?), Nevada: Johnson, M. S.
- Topanga formation, Miocene, California, members: Vedder, J. G.
- Trenton limestone, Ordovician, Illinois—Indiana—Ohio: Green, D. A.
- Trinity group, Cretaceous, Arkansas—Oklahoma—Texas: Nichols, P. H.
- Twin Creek formation, Jurassic, Utah: Hinman, E. E.
- Umbrella Hill formation, Ordovician, Vermont: Albee, A. L.
- Vernon shale, Silurian, New York: Fisher, D. W., 2.
- Wachsmuth limestone, Mississippian, Alaska, new: Bowsher, A. L., 1.
- Waits River formation, Devonian(?), Vermont, redefined: Murthy, V. R., 1.
- Waterways formation, Devonian, Alberta, new members: Crickmay, C. H.
- Weisner formation, Cambrian, Georgia: Crawford, T. J., 1.
- Westwater Canyon sandstone member of Morrison formation, Jurassic, units: Zitting, R. T.
- Wolfcamp formation, Permian, New Mexico—Texas: Jarvis, D.

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- Wreford limestone, Permian, Kansas: Hattin, D. E.
- Yakataga formation, Miocene—Pliocene(?), Alaska: Plafker, G., 1.
- Yucca Flat formation, Cambrian, Nevada: Johnson, M. S.
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- Escambia County, Tertiary, aquifers: Cagle, J. W., Jr.
- Little Stave Creek, Clark County, Tertiary: Gardner, J. A., 1.
- Lowndes County, cross section: Scott, John C.
- Madison County, Ordovician—Recent: Mahmberg, G. T.
- Marengo County, cross sections: Sutcliffe, H., Jr.
- Monroeville area, Tertiary: Ivey, J. B.
- Montgomery area, Cretaceous, Quaternary, lithology: Powell, W. J.
- Wilcox County: LaMoreaux, P. E.
- Alaska, Robinson Mts., southeastern, Tertiary—Quaternary: Miller, D. J., 1.
- Shainin Lake area, Brooks Range, Devonian—Mississippian type sections: Bowsher, A. L., 1.
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- Stratigraphic summary: Hiestand, T. C., 1.
- Alberta, Blairmore group, Cretaceous, Crownsnest Pass area: Stevenson, J. R.
- California Standard Parkland No. 4—12 well, Cambrian: Raasch, G. O., 1.
- Canmore area, Mesozoic: Norris, D. K., 1.
- Cardium formation, Cretaceous, Bow Valley—Nordegg area: Magdich, F. S., 2.
- Pembina River area: Michaelis, E. R.
- Sheep River: Stott, D. F.
- Elkton member of Turner Valley formation, Mississippian, Calgary area, correlation: Penner, D. G., 2.
- Gap—Callum Creek—Porcupine Hills area, cross section, generalized: Bossort, D. O.
- Kootenay formation, Cretaceous, coal seams, Canmore area: Norris, D. K., 1.

Geologic formations, lists, etc.—Continued

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- Rocky Mtn. formation, Pennsylvanian (?)—Permian, Beehive Pass: Norris, D. K., 3.
- Rocky Mts., Upper Devonian: Taylor, P. W.
- Rocky Mts. and foothills, fault structures: Hume, G. S.
- Savanna Creek gas field, Devonian-Cretaceous, structure sections: Scott, James C.
- Southern, Devonian, Upper: Belyea, H. R., 3.
- Devonian, well sections: Belyea, H. R., 1.
- Mississippian: Rhodes, H. S., 2.
- Precambrian-Tertiary, generalized section: Wells, G. C.
- Revised time table: Gussow, W. C., 1.
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- Western, Triassic, measured section, Kvass Flats area: Eccles, J. K.
- Willow Creek formation, Cretaceous-Tertiary, Belly Butte: Belyea, H. R., 2.
- Arctic America, eastern, Precambrian, Upper, tentative correlation: Blackadar, R. G.
- Arizona, Abrigo and Martin formations, Cambrian and Devonian, Johnson Camp area, metamorphism: Cooper, J. R.
- Black Mesa basin, Cambrian-Cretaceous, cross sections: Brown, Silas C.
- Chiricahua and Dos Cabezas Mts., measured sections: Sabins, F. F., Jr., 1.
- Cochise Head and Vanar quadrangles, Precambrian-Cenozoic: Sabins, F. F., Jr., 2.
- Southeastern, lower Paleozoic: Epis, R. C., 1.
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- Yavapai County, south-central, Cenozoic: St. Clair, C. S.
- Arkansas, Arkansas Valley wells, Ordovician-Pennsylvanian: Ballard, W. W.
- Lonoke-Prairie-White Counties, Pennsylvanian-Quaternary: Counts, H. B.
- Magnolia oil and gas field, Mesozoic-Cenozoic: Reed, J. Morse.
- Waldron quadrangle, Pennsylvanian: Reinemund, J. A.
- British Columbia, Antler Creek area, Cariboo district, Paleozoic: Sutherland Brown, A., 1.
- Crowsnest coal basin, Triassic-Recent: Crabb, J. J., Jr.

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- Fort St. John oil and gas field, Devonian-Cretaceous: Clark, L. M.
- Langley municipality, Quaternary: Halstead, E. C.
- New Westminster area, Quaternary: Armstrong, J. E.
- Phoenix camp, Boundary Creek district, cross sections: Seraphim, R. H.
- California, Alferitz area, Devils Den oil field, cross sections: Ritzius, D. E.
- Belgian Anticline oil field: Park, W. H.
- Contra Costa County, lower Tertiary: Smith, B. Y.
- El Modeno area, Cenozoic: Yerkes, R. F.
- Grindstone and Stony Creeks, Mesozoic, lithology: Crowell, J. C., 1.
- Inyo Mts., southern, Paleozoic: Merriam, C. W.
- Kellogg and Sidney shales, Eocene, Mt. Diablo area, correlation: Kanaya, T.
- Manly Peak quadrangle: Johnson, B. K.
- Marine basins, Tertiary-Recent, biostratigraphic charts: Natland, M. L.
- Miocene-Pleistocene: Savage, D. E.
- North Antelope Hills oil field, Eocene-Recent: Bruce, D. D.
- Portals-Fairfax area, Edison oil field, Miocene-Recent: Matthews, J. F., Jr., 1.
- Redding area, Cretaceous: Geol. Soc. Sacramento.
- San Ardo field, cross sections: Bradford, W. C.
- San Francisco Bay area, Tertiary-Quaternary, aquifers: Matthai, H. F.
- San Geronio Pass, Miocene-Quaternary: Allen, C. R., 1.
- San Joaquin Valley, Cenozoic: Church, H. V., Jr., 1, 2.
- Sierra Nevada, Tertiary: Axelrod, D. I., 1.
- Smith River plain, Del Norte County, Jurassic-Recent: Back, W.
- Tejon embayment, Jurassic-Recent: Carls, J. M.
- Torrance oil field, Jurassic-Recent: Crowder, R. E.
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- West Newport oil field, Miocene-Pliocene: Hunter, A. L.
- Winters gas field, Cretaceous-Recent: Hunter, G. W., 1.

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Canada, Appalachian region, correlation chart: Weeks, L. J., 1.

Cambrian, New Brunswick-Cape Breton-Newfoundland: Weeks, L. J., 1.

Cordilleran region, correlation charts: Bostock, H. S., 1.

Fernie group, Jurassic, Rocky Mts. and foothills: Frebold, H. W. L.

Interior Plains, Cambrian-Tertiary, correlation chart: Wickenden, R. T. D.

Maritime Provinces, Carboniferous, correlation chart: Weeks, L. J., 1.

Carboniferous, Upper: Copeland, M. J., 3.

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Canadian Cordillera, southeastern, Precambrian-Cambrian: Reesor, J. E.

Colorado, Animas River canyon, Pennsylvanian: Wengert, S. A., 1.

Animas River canyon measured section, Precambrian-Pleistocene: Mitchell, J. G., 2.

Apishapa uplift, Precambrian-Cretaceous: Osborne, H. W., 2.

Arkansas River measured section, Precambrian-Permian: Lynch, W. D.

Beulah measured section, Precambrian-Cretaceous: LeRoy, L. W., 2.

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Canon City-Colorado Springs measured section, Precambrian-Pliocene: Mitchell, J. G., 1.

Colorado-Big Thompson project: U.S. Bur. Reclamation, 2.

Crested Butte measured section, Precambrian-Jurassic: Mallory, W. W.

Cross Mtn. measured section, Precambrian-Cretaceous: Wilson, John M.

Douglas Creek member of Green River formation, Eocene, Piceance Creek basin: Cline, C. W.

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Elk Mts., Jurassic, columnar sections: Langenheim, R. L., Jr., 3.

Front Range, eastern flank and foothills, generations: Boos, C. M., 2.

Profile: U.S. Bur. Reclamation, 2.

Garfield quadrangle: Dings, M. G.

Golden-Morrison measured section, Precambrian and Pennsylvanian-Eocene: LeRoy, L. W., 1.

Independence Mtn. area: Walters, Richard F.

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Owl Creek measured section, Precambrian and Pennsylvanian-Cretaceous: Chronic, B. J., Jr., 1.

Rangely area, Pennsylvanian-Permian: Hoffman, F. H.

Raton basin, Cretaceous-Tertiary: Johnson, Ross B.

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San Juan Mts., Mesozoic: Kottlowski, F. E., 1.

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Southwestern, Ignacio quartzite-Elbert formation, Cambrian-Devonian, measured section: Rhodes, F. H. T., 2.

Starkville-Weston area, coal beds: Wood, G. H., Jr.

Whiskey Creek measured section, Precambrian and Pennsylvanian-Permian: McGehee, J. R.

White River uplift measured section, Precambrian-Eocene: Zapp, A. D.

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Cross sections: Hunt, C. B., 1.

Navajo country, Triassic-Jurassic: Harshbarger, J. W.

Oil zones, Four Corners correlator: Morrissey, N. S., 2.

Paradox basin, Cambrian-Cretaceous, chart: Matheny, M. L., 2.

Pennsylvanian: Herman, G.

Geologic formations, lists, etc.—Continued

Colorado Plateau—Continued

San Juan Mts. and Four Corners area, Precambrian-Mississippian: Baars, D. L.

Connecticut, Guilford quadrangle and Branford area: Mikami, H. M.

Delaware, Coastal Plain, Cretaceous-Tertiary: Richards, H. G.

New Castle County: Ward, R. F.

Cross sections: Rasmussen, W. C., 2.

Florida, Brevard County, Eocene-Recent, aquifers: Brown, D. W.

Ocala group, Eocene, cross sections: Puri, H. S., 5.

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Georgia, northwestern, Ordovician, strike belt sections: Allen, A. T., Jr.

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Eastern, Jurassic-Cretaceous: Donovan, D. T.

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Kap Lagerberg area, profiles: Sommer, M., 1.

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Oligocene-Miocene correlations, miogypsinid Foraminifera: Akers, W. H., 1.

Tertiary correlation chart, generalized: Troutman, A.

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Idaho, Bruneau-Grand View area, Miocene-Recent: Littleton, R. T., 1.

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Chester series, Mississippian, type area: Rexroad, C. B.

Grundy-Kendall Counties, limestone and dolomite beds: Ostrom, M. E., 1.

Pennsylvanian sandstones: Siever, R., 3.

South-central: Selkregg, L. F.

Southeastern, coal beds: Smith, W. Henking.

Western, generalized: Bergstrom, R. E.

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Indiana, Dubois County, Pennsylvanian: St. Jean, J., Jr.

Parke County, Mississippian-Pennsylvanian: Wier, C. E.

Pleistocene: Wier, C. E.

Southwestern, Mississippian-Pennsylvanian: Gray, H. H.

Osage and Meramec series, Mississippian, cross sections: Pinsak, A. P., 1.

Iowa, Catfish Creek area, Ordovician-Silurian: Brown, C. E.

Klein quarry, Devonian section: Michael, R. D.

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Pleistocene, radiocarbon dating: Ruhe, R. V.

Kansas, Abilene anticline, Precambrian-Permian: Shenkel, C. W., Jr.

Chautauqua arch, western flank, cross section: Morgan, F. W.

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Correlation with Oklahoma: Branson, C. C., 3.

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Pittsburg area, Ordovician-Pennsylvanian: Stramel, G. J.

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- South-central, Missourian-Virgilian series, Pennsylvanian: Winchell, R. L., 2.
- Western, Mesozoic, correlation sections: Merriam, D. F., 2.
- Mississippian-Pennsylvanian, correlation sections: Goebel, E. D.
- Wreford megacyclothem, Permian: Hattin, D. E.
- Kentucky, Breathitt formation, Pennsylvanian, White Oak quadrangle: Adkison, W. L.
- Campton quadrangle, Pennsylvanian: Briggs, R. P.
- McQuady oil pool, Mississippian: Stoeckinger, W. T.
- New Providence formation, Mississippian, Jefferson-Bullitt Counties: Conkin, J. E., 2.
- Paducah area, Cretaceous-Recent: Pree, H. L., Jr.
- Labrador, Knob Lake area, Precambrian: Westervelt, R. D.
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- Louisiana, Bayou Blue salt dome, cross sections: Mals, W. R.
- Continental-shelf edge, Pleistocene cross sections: Akers, W. H., 2.
- Evangeline-St. Landry Parishes: Varvaro, G. G.
- Nodosaria embayment, cross sections and table: Griggs, R. P., Jr.
- Southern, Oligocene-Miocene: Warren, A. D.
- Manitoba, Snow Lake-Herb Lake area, cross sections and chart: Russell, G. A.
- Maryland, Beekmantown group, Ordovician, Great Valley: Sando, W. J.
- Caroline-Dorchester-Talbot Counties: Rasmussen, W. C., 1.
- Chesapeake Bay Bridge site, Sandy Point-Kent Island: Supp, C. W. A.
- Chesapeake Bay rivers, cross sections: Hack, J. T., 2.
- Coastal Plain, Cretaceous-Tertiary: Richards, H. G.
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- Mexico, Baja California: Mina Uhink, F.
- Basin of Mexico, Chalco extinct lake basin, structure sections: Molina Berbey, R., 1.
- Boleo copper district, Baja California, Tertiary-Quaternary: Wilson, I. F.
- Chiapas-Oaxaca, southern, Paleozoic-Recent: Webber, B. N.
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- Concepción del Oro district, Zacatecas, Jurassic-Cretaceous: Rogers, C. L.
- Las Delicias area, Coahuila, Permian conglomerates: Newell, N. D., 3.
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- San Andrés oil field, Jurassic-Miocene: Martínez Ríos, M.
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- Michigan, Hillsdale County, Cambrian-Mississippian, Pleistocene, diagrammatic section and graphic log: Martin, H. M. M., 1.
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- Jurassic-Paleocene, environments favorable to uranium: Armstrong, F. C., 3.
- Livingston area: Richards, P. W., 1.
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- Dwyer quadrangle: Elston, W. E.
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- Chazy-Rouses Point area, Cambrian-Ordovician: Stone, D. S.
- Copake quadrangle, Taconic sequences, Cambrian-Ordovician: Weaver, J. D.
- Devonian, correlation: Whorton, C. D., 1.

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 Keyes gas field, Ordovician-Permian: Carver, H. S., Jr.
 Maysville area: Withrow, P. C.
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 Northeastern, Boone formation, Mississippian: Harbaugh, J. W.
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 Overbrook anticline, Carter County: Lang, R. C., 3d.
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- Tilbury gas field, Cambrian-Devonian : Sanford, B. V., 1.
- Williams Island formation, Devonian, Williams Island, Abitibi River : Fritz, M. A., 3.
- Ordovician, Simpson group, correlations : Harris, R. W.
- Ordovician - Silurian, Vermont - New Hampshire, correlation chart : Murthy, V. R., 1.
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- Tertiary, correlation : Roberts, R. J.
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- Beekmantown group, Ordovician, Berks County : Hobson, J. P., Jr.
- Bowmanstown area, Devonian : Willard, B.
- Catskill delta, Devonian-Mississippian, cross section : Greiner, H. R.
- Conestoga limestone, Ordovician (?), Brenner quarry, Lancaster, measured section : Cramer, H. R., 1.
- Delaware Valley, Cambrian-Devonian : Johnson, M. E., 2.
- Devonian, correlation with adjacent states : Jones, T. H.
- Hidden Valley area, Silurian : Miller, J. T.
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- Quebec, Béraud-Mazérac area, Precambrian, Quaternary : Freeman, P. V., 1.
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- Hainaut-Champagne area, Precambrian : Lyall, H. B.
- Kilmar area, Precambrian : Bray, W. T.
- Knob Lake area, Precambrian : Westervelt, R. D.

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- Pontefract-Gillies area, Precambrian : Kretz, R. A., 3.
- Potton Township, Cambrian-Quaternary : Morgan, J. H.
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- Eastern, Knox group, Ordovician, insoluble-residue zones : Pierce, T. R.
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- Cooke County : Bradfield, H. H., 2.

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- Cretaceous, Lower, correlations: Zink, E. R.
- DeWitt-Gollad-Victoria Counties, cross section: Dale, O. C.
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- Stone City Bluff, Eocene: Stenzel, H. B., 1.
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- Manning Canyon formation, Carboniferous: Hebertson, K. M.
- Marysville area, Carboniferous-Tertiary: Kerr, P. F., 3.

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 New Mexico, Ambrosia Lake area: Zitting, R. T.
 Carlsbad Caverns: Hayes, P. T., 1.
 Delaware basin: Barnes, C. E.
 Nacimiento Mts. and San Juan Basin: Parker, J. W.
 Raton basin: Osborne, H. W., 1.
 Southeastern: Stipp, T. F., 2.
 Zuni Mts.: Smith, C. T., 1.
 New York, Allegany County: Muller, E. H., 1.
 North Carolina, Castle Hayne limestone, Eocene-Recent: LeGrand, H. E., 3.
 Northwest Territories, Eureka area, Ellesmere and Axel Heiberg Islands: Thorsteinsson, R.
 Ohio, Precambrian-Mississippian: Green, D. A.
 Oklahoma, Criner Hills area: Lang, R. C., 3d.
 Maysville area: Withrow, P. C.
 Prague area, Pennsylvanian-Permian: Masters, K. E.
 Ontario, Cochenour Willans gold mines, structure and ore deposition: Kuryliw, C. J.
 Sudbury basin: Thomson, J. E., 2.
 Precambrian volcanism: Williams, Howel, 1.
 Oregon, Bend quadrangle: Williams, Howel, 2.
 Cascade Range, central: Williams, Howel, 2.
 Panama, Canal Zone: Woodring, W. P., 1.
 Pennsylvania, Philadelphia area: Watson, E. H.
 South Dakota, Oahe dam site, Pierre shale: Underwood, L. B.
 Texas, Delaware basin: Barnes, C. E.
 Grayson County: Bradfield, H. H., 1.
 Panhandle: Roth, R. I.
 Utah, Bear Lake region, Boy Scout Camp Hunt area, popular: Hardy, C. T., 1.
 East Tintic Mts.: Morris, H. T.
 Jordan Narrows quadrangle: Pitcher, G. G.
 Pine Valley Mts.: Cook, E. F., 2.
 Uinta Basin: Preston, D. A.
 Tectonics: Crowley, A. J.
 Zion and Bryce Canyon National Parks, popular: Gregory, H. E.

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- Virginia, York-James peninsula: Bevan, A. C.
 Wyoming: Thomas, Horace D., 1.
 Beartooth Mts., Quad Creek area: Eckelmann, F. D., 1.
 Deadman Butte area: Woodward, T. C.
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 Summary, address: Thomas, Horace D., 2.
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 Zoogeographic evidence: Darlington, P. J., Jr.
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 Escambia County: Cagle, J. W., Jr.
 Indian Mtn. area: Crawford, T. J., 1.
 Lowndes County: Scott, John C.
 Madison County: Malmberg, G. T.
 Monroeville area: Ivey, J. B.
 Piedmont area: Baker, J.
 Wilcox County: LaMoreaux, P. E.
 Alaska: Dutro, J. T., Jr., 1.
 Baranof Island pegmatite deposits, sketch: Sainsbury, C. L., 1.
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 Fort Greely area: Holmes, G. W.
 Juneau (B-3) quadrangle: Barker, F.
 Kateel River quadrangle: Cass, J. T.
 Malaspina district, reconnaissance: Plafker, G., 1.
 Nulato and Kateel Rivers area: Bickel, R. S.
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 Alberta, Adams Lookout area: Canada G. S., 18.
 Canmore area: Norris, D. K., 1.
 Drumheller area: Canada G. S., 25.
 Grande Cache area: Canada G. S., 3.
 High River area: Canada G. S., 26.

Geologic maps—Continued

Alberta—Continued

Sedgewick district, glacial: Gravenor, C. P., 1.

Arizona, Agathla Peak quadrangles: Witkind, I. J., 5-8.

Boot Mesa quadrangles: Witkind, I. J., 1-4.

Chuska Mts., volcanic centers: Apple-dorn, C. R.

Cochise Head and Vanar quadrangles: Sabins, F. F., Jr., 2.

Harquahala Plains area: Metzger, D. G.

Maricopa County: Wilson, Eldred D., 1.

Arkansas, Lonoke-Prairie-White Coun-ties: Counts, H. B.

Northwestern, paleogeologic, pre-Mississippian: Caplan, W. M.

Waldron quadrangle: Reinemund, J. A.

British Columbia, Anahim Lake area: Canada G. S., 23.

Antler Creek area, Cariboo district: Sutherland Brown, A., 1.

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Cariboo district, northeastern: Suth-erland Brown, A., 3.

Coal Mtn.: Canada G. S., 8.

Iron Mask batholith, Kamloops area: British Columbia Dept. Mines.

Jervis Inlet area: Bacon, W. R., 1.

Kettle River, east half: Canada G. S., 19.

Langley municipality, surficial: Hal-stead, E. C.

Lardeau area, east half: Canada G. S., 24.

Nelson area: Canada G. S., 7.

New Westminster area, surficial: Armstrong, J. E.

Pacific Nickel mines: Aho, A. E.

Pitt Lake area: Canada G. S., 11.

St. Mary Lake area: Canada G.S., 27.

Southwestern, limestone deposits: Mathews, W. H., 1.

Stikine River area: Canada G.S., 22.

Terrace area: Canada G.S., 13.

California, Alturas pumice area: Ches-terman, C. W.

Blind Spring Valley-Yellowjacket Spring pumice area: Chester-man, C. W.

Casa Diablo Mtn. quadrangle: Rine-hart, C. D.

Cima dome, Mojave Desert, surficial: Sharp, R. F., 1.

Coso pumice area: Chesterman, C. W.

Ebbetts Pass region, Tertiary: Wil-shire, H. G.

El Modeno area: Yerkes, R. F.

Island Mtn. copper mine area: Stin-son, M. C.

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Last Chance Canyon area: Chester-man, C. W.

Los Angeles basin, northwestern, gravity correlation: McCulloh, T. H.

Manly Peak quadrangle: Johnson, B. K.

Medicine Lake area: Chesterman, C. W.

Mono Craters pumice area: Chester-man, C. W.

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Oakland West quadrangle: Radbruch, D. H., 1.

Outline, lead-zinc distribution: Good-win, J. G., 1.

Pittsburg pumice area: Chesterman, C. W.

Redding area, Cretaceous: Geol. Soc. Sacramento.

San Geronio Pass area: Allen, C. R., 1.

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Smith River plain, Del Norte County: Back, W.

Canada: Stockwell, C. H.

Central America, general, and mine areas: Roberts, R. J.

Colorado, Caribou area: Moore, F. B.

Colorado-Big Thompson project area: U.S. Bur. Reclamation, 2.

Corral Peak area: Austin, E. B.

Elk Mtn. anticline: York, H. F.

Front Range, eastern flank and foot-hills, structural units: Boos, C. M., 2.

Garfield quadrangle: Dings, M. G.

Gateway district, western: Elcher, L. J.

Golden quadrangle: Van Horn, R., 1.

Granby anticline: Sanders, R. J.

Hot Sulphur Springs area: Shearer, E. M., 1.

Independence Mtn. area: Walters, Richard F.

Michigan River, Middle Fork area: Ward, D. E.

Middle Park, sketch: Tweto, O. L.

Mt. Peale 1 SE quadrangle: Carter, W. D., 1.

North Park-Middle Park basin: Rocky Mtn. Assoc. Geolo-gists, 2.

North Park-Saratoga Valley area: Montagne, J. M. de la, 1, 2.

Northgate district, Precambrian: Steven, T. A., 1.

Ouray area: Kelley, V. C., 5.

Pass Creek area, Middle Park: Rocky Mtn. Assoc. Geologists, 2.

Red Dirt Creek area, Middle Park: Jenkins, M. A., Jr.

San Juan Mts.: N. Mex. Geol. Soc., 2.

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- Sentinel Peak NW quadrangle: Ekren, E. B.
 Starkville-Weston area: Wood, G. H., Jr.
 Colorado Plateau, Grand Wash trough: Hunt, C. B., 1.
 Navajo country, Triassic-Jurassic, sketch: Harshbarger, J. W.
 Connecticut, Cherry Brook valley: Platt, J. N., Jr.
 Guilford quadrangle and Branford area: Mikami, H. M.
 Delaware, New Castle County: Rasmussen, W. C., 2; Ward, R. F.
 Georgia, Indian Mtn. area: Crawford, T. J., 1.
 Webster County, Clayton iron ores: Furcron, A. S.
 Greenland, Albert Heims Bjergereservatet area: Cowie, J. W.
 East-central, Cambrian-Ordovician: Cowie, J. W.
 Ella Ø: Cowie, J. W.
 Grandjeans Fjord-Bessels Fjord: Sommer, M., 2.
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 Gulf of Mexico, paleogeologic: Lyons, P. L., 2.
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 Idaho, Baker quadrangle: Anderson, A. L.
 Boise Valley: Nace, R. L.
 Bruneau-Grand View area, generalized: Littleton, R. T., 1.
 Latah County: Hubbard, C. R.
 Leesburg quadrangle, reconnaissance: Shockey, P. N.
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 Twin Falls-Pocatello area, generalized: Crosthwaite, E. G.
 Illinois, Beardstown quadrangle: Wanless, H. R., 1.
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 South-central, aquifers, sketch: Selkregg, L. F.
 Vermont quadrangle: Wanless, H. R., 1.
 Indiana: Ind. G. S.
 Southwestern, Salem limestone, Mississippian: Pinsak, A. P., 1.
 Iowa, Catfish Creek area: Brown, C. E.
 Jamaica: Zans, V. A.
 Kansas, generalized: Tolsted, L. L.
 Ladder Creek area, surficial: Bradley, E., 2.

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- Kentucky, Campton quadrangle: Briggs, R. P.
 Paducah area: Pree, H. L., Jr.
 White Oak quadrangle: Adkison, W. L.
 Labrador, Seal Lake area, Seal and Croteau groups, Precambrian: Fahrig, W. F.
 Louisiana, Evangeline-St. Landry Parishes: Varvaro, G. G.
 Maine, Sagadahoc Bay tidal flat, Georgetown: Bradley, W. H., 2.
 Manitoba, Chipewyan Lake-Herb Lake area: Quinn, H. A.
 Lynn Lake area: Ruttan, G. D.
 Nor-Acme gold mine, Snow Lake area, surface: Hogg, N.
 Ryerson Lake-Winnipeg River area: Davies, J. F.
 Shatford Lake-Winnipeg River area: Davies, J. F.
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 Split Lake area: Canada G. S., 12.
 Maryland, Great Valley: Sando, W. J.
 Massachusetts, Mt. Holyoke quadrangle, Triassic and Quaternary: Balk, R., 2.
 Mexico, Baja California, central, geognostic: Arnold, B. A.
 Boleo copper district, Baja California: Wilson, I. F.
 Canoas quicksilver district, Zacatecas: Gallagher, D.
 Chiapas-Oaxaca, southern: Webber, B. N.
 Chihuahua and environs: Ramírez M., J. C.
 Concepción del Oro district: Rogers, C. L.
 Durango tin deposits: Smith, Ward C.
 México, D. F., to Acapulco, Guerrero: Fries, C., Jr.
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 Oaxaca de Juárez to Natividad, Oaxaca, sketch: Bonillas, Y. S.
 Zimapán mining district, Hidalgo: Simons, F. S.
 Michigan, Upper Peninsula, sketch: Mich. Geol. Soc.
 Minnesota, Beltrami-Clearwater Counties: Meuschke, J. L., 3.
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 Cuyuna district, North range, bedrock: Schmidt, Robert G.
 Fillmore County: Weiss, M. P., 1.
 Koochiching County: Meuschke, J. L., 4-7.
 Lake of the Woods-Roseau Counties: Meuschke, J. L., 1.
 Missouri, Bowling Green quadrangle: Laswell, T. J., 1.

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- Montana, Beartooth Mts., Quad Creek area: Eckelmann, F. D., 1.
 Boulder batholith and vicinity: Jarrard, L. D.
 Bridger Range: McMannis, W. J.
 Centennial Mtn. quadrangle: Stewart, D. B.
 Clancy quadrangle, south half: Klepper, M. R., 1.
 Crazy Mtn. basin: Billings Geol. Soc.
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 Laredo quadrangle: Pecora, W. T., 1.
 Livingston area: Richards, P. W., 1.
 Lower Marias irrigation project area: Swenson, F. A., 2.
 Missoula County: Sahinen, U. M., 1.
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 Shambo quadrangle: Kerr, J. H.
 Tobacco Root Mts.: Reid, R. R., 1.
 Warrick quadrangle: Pecora, W. T., 2.
 Nebraska, Lodgepole Creek valley: Bjorklund, L. J., 1.
 Nevada, Atomic Energy Commission proving grounds area: Johnson, M. S.
 Elko County, mining districts: Granger, A. E., 1.
 Reconnaissance: Granger, A. E., 1.
 Gabbs and vicinity: Vitaliano, C. J., 1.
 Mt. Washington-Lincoln Peak area, Snake Range: Drewes, H. D., 1.
 New Brunswick, Burtt's Corner area, west half: Canada G. S., 20.
 Fredericton area, surficial: Lee, H. A., 1.
 New Jersey, Coastal Plain: Dorf, E.
 Delaware Valley, Triassic: Johnson, M. E., 1.
 Ogdensburg region, Precambrian: Geol. Soc. America.
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 Cerrillos area: Disbrow, A. E., 1.
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 Dog Springs quadrangle: Givens, D. B.
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 Laguna 4 quadrangles: Moench, R. H., 1, 2.
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 Pelican area, Palomas district: Jahns, R. H., 1.
 Piñonville quadrangle: Willard, M. E., 2.

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- Puertecito quadrangle: Tonking, W. H.
 Questa quadrangle: McKinlay, P. F.
 Sangre de Cristo Mts.: N. Mex. Geol. Soc., 1.
 San Juan Basin: Four Corners Geol. Soc.; O'Sullivan, R. B.
 Satan Pass-Thoreau area: Four Corners Geol. Soc.
 Stendel perlite deposit: Weber, R. H.
 Torrance County: Smith, R. E.
 New York, Brier Hill quadrangle: Dietrich, R. V., 2.
 Chazy-Rouses Point area: Stone, D. S.
 Copake quadrangle: Weaver, J. D.
 Kinderhook quadrangle: Craddock, J. C.
 Putnam County, bedrock: Grossman, I. G.
 Pyrite prospects, St. Lawrence and Jefferson Counties: Prucha, J. J.
 Newfoundland, Betts Cove-Tilt Cove area: Neale, E. R. W.
 Conche-Northern Grey Island area: Baird, D. M., 1.
 Dildo area: Canada G. S., 14.
 Gander Lake area, east half: Canada G. S., 17.
 Gander River area: Cooper, G. E., 2.
 Port aux Choix-Castor River area: Woodard, H. H., 1.
 Red Indian Lake area: Canada G. S., 21.
 St. Lawrence fluorite district, sketch: Williamson, D. H.
 Stephenville area: Canada G. S., 16.
 Nicaragua: Nicaragua Servicio Geol. Nac.
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 Northwest Territories, Ellef Ringnes Island: Heywood, W. W.
 Ellesmere Island, north coast: Christie, R. L.
 Mackenzie District, eastern: Wright, G. M.
 Richardson Mts., sketch: Gabrielse, H., 1.
 Snowbird Lake area: Canada G. S., 10.
 Tumi Lake area: McGlynn, J. C.
 Nova Scotia: Cameron, H. L., 1.
 Kennetcook area: Canada G. S., 6.
 Shubenacadie area, surficial: Hughes, O. L.
 Whyecocmagh area, Cape Breton Island: Canada G. S., 28.
 Ohio, central lake plains area: Ohio Acad. Sci. Geology Sec., 2.
 Oklahoma: Miser, H. D.
 Ardmore basin, southern: Ardmore Geol. Soc.

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- Carter area, Permian and Quaternary: Scott, G. L., Jr.
 Criner Hills area: Ardmore Geol. Soc.; Frederickson, E. A., 1.
 Edmond area, pre-Pennsylvanian: Benoit, E. L.
 Limestone Hills area, Wichita Mts.: Hill, J. W.
 Paleogeologic, Criner Hills axis, pre-Atokan: Ardmore Geol. Soc.
 Prague area, sketch: Masters, K. E.
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 Ontario, Beatty and Munro Townships, asbestos areas, sketch: Hendry, N. W.
 Caribou Lake intrusion: Friedman, G. M., 2.
 Frood-Stobie mine, Sudbury area: Zurbrigg, H. F.
 Haliburton-Bancroft area: Ontario Dept. Mines, 2.
 Hislop Township: Prest, V. K., 1.
 Lindsay-Peterborough area, surficial: Gravenor, C. P., 2.
 Manitoulin Island: Canada G. S., 30.
 North York Township, Pleistocene: Watt, A. K., 2.
 Southwestern, sketch: Sanford, B. V., 2.
 Sudbury basin area: Thomson, J. E., 2.
 Oregon, Bald Mtn. batholith: Taubeneck, W. H., 1.
 Bend quadrangle: Williams, Howel, 2.
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 Portland quadrangle: Trimble, D. E.
 Panama, Canal Zone: Woodring, W. P., 1.
 Pennsylvania, Delaware Valley, Triassic: Johnson, M. E., 1.
 Hidden Valley Boy Scout Camp area: Miller, J. T.
 Philadelphia area, sketch: Watson, E. H.
 Puerto Rico: Kaye, C. A., 2.
 Generalized: Guillou, R. B., 1.
 Mayaguez area: Mattson, P. H.
 Quebec: Quebec Dept. Mines.
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 Bilson Lake area: Bergeron, R., 2.
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 Brochant-De Bonnard area: Bergeron, R., 1.
 Cambrian Lake area: Roscoe, S. M., 3.
 Cape Smith-Wakeham Bay belt: Bergeron, R., 2.
 Chibougamau area, sketch: Graham, R. B., 2.
 Coaticook-Malvina area: Cooke, Harold C., 1.

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Quebec—Continued

- Darlens-Chabert area: Freeman, P. V., 2.
 De Freneuse Lake area: Sauvé, P.
 Doncaster area: Klugman, M. A., 1.
 Duquet area: Deland, A. N.
 Eastern Metals mine area: Béland, J. R., 2.
 Guercheville-Lapparent area: Remick, J. H., 3d.
 Hainaut-Champagne area: Lyall, H. B.
 Johan Beetz area: Cooper, G. E., 1.
 Labrador Trough, generalized: Fahrig, W. F.
 Lacolle area: Stone, D. S.
 Lesueur Township: Graham, R. B., 1.
 Litchfield-Huddersfield area: Kretz, R. A., 1.
 Lois Lake area, preliminary: Lee, B.
 McOuat-Gauvin area: Sater, G. S.
 Manitou Lake area: Jenkins, J. T., 1.
 North of 50th parallel: Gilbert, J. E. J.
 Oka area: Maurice, O. D., 3.
 Pontefract-Gillies area: Kretz, R. A., 3.
 Preston-Gagnon area: Pollock, D. W. T.
 Rosaire-St. Pamphile area: Béland, J. R., 2.
 St. Étienne de Bolton area: Romer, H. S. de.
 St. Magloire area: Béland, J. R., 2.
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 St.-Sylvestre area: Benoit, F.-W.
 Southeastern, asbestos belt: Riordon, P. H., 1.
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 Rhode Island, Slocum quadrangle, surficial: Power, W. R., Jr.
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 South Dakota, Black Hills: King, J. W.
 Crow Creek-Sand Lake area, surficial: Koopman, F. C.
 Flint Hill quadrangle: Bell, H., 3d, 1-6.

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South Dakota—Continued

- Hoven-Bowdle area, glacial outwash: Lee, K.-Y.
- Long Mtn. area: Braddock, W. A.
- Minnekahta quadrangle: Wilmarth, V. R., 1-4.
- Parker-Centerville outwash: Tipton, M. J.
- Peerless pegmatite, Keystone district: Sheridan, D. M.
- Tennessee, Pioneer quadrangle: Englund, K. J.
- Texas, Alpine area: Littleton, R. T., 2.
- Anderson-Milligan area: Russell, W. L., 2.
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- Burleson County, southeastern: Russell, W. L., 2.
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- Ferris quadrangle: Reaser, D. F.
- Glass Mts.: West Texas Geol. Soc.
- Goliad County: Dale, O. C.
- Karnes County area: Eargle, D. H.
- Midlothian quadrangle: Read, L. C.
- Morgan Creek area: Barnes, V. E., 1.
- Parker County: Hendricks, C. L.
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- Tarrant County: Leggat, E. R., 2.
- Wilson County: Anders, R. B.
- Trinidad, Ciperio formation, Oligocene-Miocene, type section: Bolli, H. M., 4.
- Utah: Brigham Young Univ. Dept. Geology.
- Clay Basin quadrangle: Hansen, W. R., 1.
- East Tintic mining district, subsurface: Bush, J. Bernard, 1.
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- Fivemile Pass quadrangle: Disbrow, A. E., 3.
- Gateway district: Elcher, L. J.
- Jordan Narrows quadrangle: Pitcher, G. G.
- Loa quadrangles: Smith, J. F., Jr., 1-3.
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- Marysvale area: Kerr, P. F., 3.
- Mt. Peale quadrangles: Carter, W. D., 1, 2.
- Notom quadrangles: Smith, J. F., Jr., 4-16.
- Pine Valley Mts.: Cook, E. F., 2.
- Spanish Fork Peak quadrangle: Rawson, R. R.

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- Temple Mtn. uranium area, collapse features: Kerr, P. F., 2.
- Uinta Basin: Intermountain Assoc. Petroleum Geologists.
- Uinta Mts., eastern, Precambrian: Hansen, W. R., 3.
- White Canyon uranium district, sketch: Dahl, H. M.
- Vermont, Champlain Valley, Ordovician: Hawley, D.
- East Barre quadrangle: Murthy, V. R., 1.
- Hyde Park quadrangle, bedrock: Albee, A. L.
- Isle La Motte and South Hero Island, Ordovician: Erwin, R. B.
- Virginia, Clifton Forge iron district: Lesure, F. G.
- Gossan Lead district: Stose, A. I. J.
- Washington, Doty-Minot Peak area: Pease, M. H., Jr.
- Kitsap County: Scève, J. E.
- Portland quadrangle: Trimble, D. E.
- Stevens County magnesite belt: Campbell, I., 1.
- Turtle Lake quadrangle: Becraft, G. E.
- West Indies, Bonaire: Westermann, J. H.
- West Virginia, Morgantown area: Geol. Soc. America Southeastern Sec.
- Williston basin area, paleogeologic, pre-Mesozoic: Francis, D. R.
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- Outagamie County: LeRoux, E. F.
- Wyoming, Beartooth Mts., Quad Creek area: Eckelmann, F. D., 1.
- Black Hills: King, J. W.
- Conant Creek area and vicinity: Berg, R. R.
- Deadman Butte area: Woodward, T. C.
- Du Noir area: Keefer, W. R., 1.
- Gas Hills area: Erickson, E. C.; Zeller, H. D.
- Goshen County: Rapp, J. R.
- Heart Mtn. Division, Shoshone irrigation project: Swenson, F. A., 1.
- Heart Mtn. and South Fork thrusts, generalized: Pierce, W. G.
- Hulett Creek uranium mining area: Robinson, C. S., 1.
- Kaycee project area: Kohout, F. A.
- Laramie Range, southern, anorthosite areas: Newhouse, W. H.
- Powder River basin, southeastern: Dobbin, C. E.
- Pumpkin Buttes area: Sharp, W. N.
- Saratoga Valley area: Montagne, J. M. de la, 1.

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Spotted Horse coal field: Olive, W. W., 1.

Tisdale anticline area: Richardson, E. E.

Wind River basin area: Tourtelot, H. A., 1; Van Houten, F. B., 1; Wyo. Geol. Assoc.

Yukon: Bostock, H. S., 2.

Galena Hill area: Boyle, R. W., 1.

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Florida, Alachua County, Pleistocene faunas: Bader, R. S.

Miocene-Recent, biotic relations: Sherman, H. B.

Horse bones, late Pleistocene, Utah, Juke Box Cave: Skinner, M. F.

Leptarctus, Miocene, Florida: Olsen, S. J., 2.

Leptochoeridae, Oligocene-Miocene, South Dakota: Macdonald, J. Reid, 2.

Man, associated mammals, North America: Wormington, H. M.

Marine, paleoecology, bibliography: Kellogg, R., 2.

Mastodons, Pleistocene, Tennessee, Island 85 site, Tipton County: Williams, S.

Pleistocene, United States, Archaic middens?: Williams, S.

Mephitis mephitis, Miocene, Florida, Thomas Farm: Olsen, S. J., 1.

Mexico, Tepexpan, elephants and fossil man, popular account: de Terra, H.

Montana, Deer Lodge local fauna, Pliocene, paleoecology: Konizeski, R. L.

Nebraskomys mcgrewi, Pleistocene, Nebraska, Sand Draw fauna: Hibbard, C. W., 2.

Notharctus, middle Eocene, Wyoming, southwestern: Robinson, P., 1.

Ogmodontomys sawrockensis, Pliocene, Kansas: Hibbard, C. W., 2.

Oklahoma, Ogallala group, Pliocene, Ellis County: Kitts, D. B., 1.

Orohippus, Eocene, Wyoming, Bridger formation, Bridger Basin: Kitts, D. B., 2.

Patriofelis ulta, Eocene, Wyoming, Bridger formation: Gazin, C. L., 2.

Peromyscus cf. *leucopus*, Pleistocene, Texas, Friesenhahn Cave: Tamsitt, J. R.

Porpoises, Miocene, Maryland, Calvert formation: Kellogg, R., 1.

Primates, brain evolution: Harman, P. J.

Evolution: Clark, W. E. L.

Relationships: Scheele, W. E.

Shrews, Pliocene-Pleistocene, United States: Hibbard, C. W., 1.

United States, archaeological sites, Pleistocene faunas: Jelinek, A. J.

Wyoming, Bison basin. Paleocene: McGrew, P. O.

Man, fossil.

Brain evolution: Harman, P. J.

California, Pleistocene lake terraces: Simpson, R. D.

San Diego area, Pleistocene dating, evidence: Carter, G. F., 1.

Man, fossil—Continued

- Evolution : Scheele, W. E. ; Weiner, J. S.
 Geographical history, paleoecology :
 Darlington, P. J., Jr.
 General : Boule, M.
 Mexico, Tepepan man, popular ac-
 count : de Terra, H.
 Neanderthal and *Homo sapiens*, rela-
 tion : Weckler, J. E.
 Nevada, Vegas Wash : Simpson, R. D.
 New Mexico, Folsom-Sandia specimens,
 Sandia Cave : Hibben, F. C.
 New York, Staten Island, Folsom
 points : Burgher, E. R.
 North America : Wormington, H. M.
 Pleistocene, Ice Age theories : Sauer,
 C. O.
 Popular and elementary : Place, R.
 Primates, evolution : Clark, W. E. L.
 Relation to other primates : Scheele,
 W. E.
 Tooth eruption sequence : Garn, S. M.
 United States, artifacts, correlation
 with Pleistocene faunas :
 Jelinek, A. J.
 Wyoming, Finley site artifacts : Sat-
 terthwaite, L.

Manganese.

- Arizona, Artillery Mts. area : Kumke,
 C. A.
 Central America : Roberts, R. J.
 Honduras : Roberts, R. J.
 Maine, Dudley deposit : Ellertsen, N. A.
 Mexico, Lucifer mine, Baja California,
 origin : Nishihara, H., 1.
 Minnesota, Chisholm area, ramsdellite :
 Klingsberg, C., 1.
 Montana, Butte district, oxidation and
 enrichment : Allsman, P. L.
 New Brunswick, Woodstock area : Mon-
 ture, G. C. ; Sidwell, K. O. J.
 New Mexico, Luis Lopez district, hydro-
 thermal zoning of lead : Jicha,
 H. L., Jr.
 Nicaragua, Terrabona and Matagalpa
 areas, possibilities : Zoppis
 Bracci, L., 2.
 Panama : Roberts, R. J.
 Sedimentary deposits, origin, separation
 from iron : Krauskopf, K. B., 1.
 Origin, types : Park, C. F., Jr., 3.
 Virginia, Appalachian area : Sears, C. E.,
 Jr., 1.

Manitoba.

- Aeromagnetic maps, 550, Seal River
 area, anomaly : Canada G.S.,
 5.
 628, Nichol Lake area : Canada
 G.S., 4.
 629, Lovat Lake area : Canada G.S., 4.
 630, Wither Lake area : Canada
 G.S., 4.
 631, Meades Lake area : Canada
 G.S., 4.
 632, Quinn Lake area : Canada G.S., 4.

Manitoba—Continued

Aeromagnetic maps—Continued

- 633, Steel River area : Canada G.S., 4.
 634, Knights Hill area : Canada
 G.S., 4.
 635, Cape Churchill area : Canada
 G.S., 4.
 636, Eppler Lake area : Canada
 G.S., 4.
 637, Howard Lake area : Canada
 G.S., 4.
 638, Knife Delta area : Canada G.S., 4.
 639, Churchill area : Canada G.S., 4.
 640, Button Bay area : Canada G.S., 4.
 641, Nowell Lake area : Canada
 G.S., 4.
 642, Langille Creek area : Canada
 G.S., 4.
 643, Duddles Lake area : Canada
 G.S., 4.
 644, White Whale River area : Can-
 ada G.S., 4.
 645, Norton Lake area : Canada
 G.S., 4.
 Southeastern : Manitoba Dept. Mines
 and Nat. Res.

Areas described.

- General : Hutt, G. M.
 Split Lake area : Canada G.S., 12.

Economic geology.

- Bentonite : Leith, E. I.
 Beryl, Winnipeg River area : Davies,
 J. F. ; Gass, N. J.
 Copper, North Star and Don Jon mines,
 Flin Flon area : Hudson Bay
 Min. and Smelt. Co. Ltd. Geol.
 Staff, 1.
 Schist Lake mine, Flin Flon area :
 Hudson Bay Min. and Smelt.
 Co. Ltd. Geol. Staff, 3.
 Copper-zinc, Cuprus mine, Flin Flon
 area : Hudson Bay Min. and
 Smelt. Co. Ltd. Geol. Staff, 2.
 Gold, Nor-Acme mine, Snow Lake area :
 Hogg, N.
 Gypsum, Amaranth deposit : Brownell,
 G. M., 1.
 Gypsumville deposits : Brownell,
 G. M., 2.
 Lithium : Mulligan, R., 1.
 Winnipeg River area : Davies, J. F. ;
 Gass, N. J.
 Metallic minerals, exploration : Charle-
 wood, G. H., 3.
 Snow Lake-Herb Lake area, possi-
 bilities : Russell, G. A.
 Mineral occurrences, Chipewyan Lake-
 Herb Lake area : Quinn, H. A.
 Mineral resources, Canadian Pacific
 Railway area : Hutt, G. M.
 Exploration history : Charlewood,
 G. H., 2.
 Nickel, Lynn Lake area : Ruttan, G. D.
 Oil and gas, fields and discoveries, map,
 western : Canada G.S., 2.

Manitoba—Continued

Geologic maps.

- Chipewyan Lake-Herb Lake area : Quinn, H. A.
 Lynn Lake area : Ruttan, G. D.
 Nor-Acme gold mine, Snow Lake area, surface : Hogg, N.
 Ryerson Lake-Winnipeg River area : Davies, J. F.
 Shatford Lake-Winnipeg River area : Davies, J. F.
 Snow Lake-Herb Lake area : Russell, G. A.

Split Lake area : Canada G.S., 12.

Historical geology.

- Ashville formation, Cretaceous, sand zone, stratigraphic map : Fleming, O. J., 2.
 Churchill quartzite, Precambrian : Charlewood, G. H., 1.
 Hayes River group-Island Lake series, Precambrian, Island Lake area : Meinert, R. J., Jr.
 Lynn Lake area, Precambrian : Milligan, G. C.
 Prairie evaporite, Devonian, stratigraphic map : Fleming, O. J., 1.
 Red River formation, Ordovician, stratigraphic map : Fleming, O. J., 5.
 San Antonio formation, Precambrian, Rice Lake area : Charlewood, G. H., 1.
 Stony Mtn. formation, Ordovician, stratigraphic map : Fleming, O. J., 6.
 Winnipeg formation, Ordovician, stratigraphic map : Fleming, O. J., 4.

Petrology.

- California Lake area : Moorhouse, M. D.
 Chipewyan Lake-Herb Lake area : Quinn, H. A.
 Lynn Lake area, Precambrian, sulfide mineralization : Ruttan, G. D.
 Rice Lake area : Charlewood, G. H., 1.
 Snow Lake-Herb Lake area : Russell, G. A.
 Split Lake area : Canada G.S., 12.
 Winnipeg River area, Precambrian : Davies, J. F.

Physical geology.

- Ashville formation, sand zone, structure contour map : Fleming, O. J., 2.
 Chipewyan Lake-Herb Lake area : Quinn, H. A.
 Fracture patterns, surface expression on airphotos : Mollard, J. D., 3.
 Island Lake area : Meinert, R. J., Jr.
 Lynn Lake area : Milligan, G. C.
 Sulfide ores : Ruttan, G. D.
 Nor-Acme gold mine, Snow Lake area, ore control : Hogg, N.
 Precambrian, structure contour map : Fleming, O. J., 3.
 Red River formation, structure contour map : Fleming, O. J., 5.

Manitoba—Continued

Physical geology—Continued

- Rice Lake area : Charlewood, G. H., 1.
 Snow Lake-Herb Lake area : Russell, G. A.
 Stony Mtn. formation, structure contour map : Fleming, O. J., 6.
 Winnipeg formation, structure contour map : Fleming, O. J., 4.
 Winnipeg River-Johnston Lake area : plutonic history : Eckelmann, F. D., 3.

Physiographic geology.

- Cartwright area, washboard moraines : Elson, J. A., 3.
 Fracture patterns, airphotos, southern : Mollard, J. D., 3.
 Glaciation, boulder pavements, striations, southern : Elson, J. A., 5.
 Souris basin glacial lakes, history : Elson, J. A., 4.
See also Cartography ; Technique, *Mapping*.

Maps (excluding Geologic maps, *which see*).
Aeromagnetic.

- Alberta, Athabasca area, 477 : Canada G.S., 4.
 Beaver Lake area, 486 : Canada G.S., 4.
 Bergeron Creek area, 455 : Canada G.S., 4.
 Bitumount area, 445 : Canada G.S., 4.
 Bolton Creek area, 458 : Canada G.S., 4.
 Bondiss area, 476 : Canada G.S., 4.
 Bonnyville area, 589 : Canada G.S., 4.
 Burnt Lakes area, 449 : Canada G.S., 4.
 Cache Lake area, 482 : Canada G.S., 4.
 Chipewyan Lakes area, 416 : Canada G.S., 4.
 Clarke Creek area, 420 : Canada G.S., 4.
 Coffey Lake area, 464 : Canada G.S., 4.
 Cold Lake area, 500 : Canada G.S., 4.
 Coolidge area, 478 : Canada G.S., 4.
 Dapp area, 473 : Canada G.S., 4.
 Dunkirk River area, 417 : Canada G.S., 4.
 Eaglenest Lake area, 460 : Canada G.S., 4.
 Eymundson Creek area, 465 : Canada G.S., 4.
 Firebag River area, 447 : Canada G.S., 4.
 Fort MacKay area, 440 : Canada G.S., 4.
 Gardiner Lakes area, 454 : Canada G.S., 4.
 Godin Lake area, 351 : Canada G.S., 4.
 Goodfish Lake area, 483 : Canada G.S., 4.
 Grosmont area, 479 : Canada G.S., 4.
 High Hill River area, 437 : Canada G.S., 4.

Maps—Continued

Aeromagnetic—Continued

Alberta—Continued

- Horse Lake area, 492 : Canada G.S., 4.
 Hylo area, 491 : Canada G.S., 4.
 Joslyn Creek area, 452 : Canada G.S., 4.
 Kerchief Lake area, 409 : Canada G.S., 4.
 Lac la Biche area, 487 : Canada G.S., 4.
 Louise River area, 459 : Canada G.S., 4.
 McClelland Lake area, 446 : Canada G.S., 4.
 Mackay River area, 418 : Canada G.S., 4.
 Maloy area, 484 : Canada G.S., 4.
 Marguerite Lake area, 590 : Canada G.S., 4.
 Marguerite River area, 462 : Canada G.S., 4.
 Marie Lake area, 501 : Canada G.S., 4.
 Medley River area, 502 : Canada G.S., 4.
 Mikkwa River area, 450 : Canada G.S., 4.
 Mistehae Lake area, 338 : Canada G.S., 4.
 Muriel Lake area, 588 : Canada G.S., 4.
 Muskeg River area, 439 : Canada G.S., 4.
 Namur Lake area, 451 : Canada G.S., 4.
 Newbrook area, 475 : Canada G.S., 4.
 Osi Creek area, 443 : Canada G.S., 4.
 Osi Lake area, 444 : Canada G.S., 4.
 Pearson Lake area, 467 : Canada G.S., 4.
 Perryvale area, 474 : Canada G.S., 4.
 Pine Creek area, 493 : Canada G.S., 4.
 Pinehurst Lake area, 485 : Canada G.S., 4.
 Raymond Creek area, 457 : Canada G.S., 4.
 Reid Creek area, 463 : Canada G.S., 4.
 Reita Lake area, 499 : Canada G.S., 4.
 Richardson River area, 468 : Canada G.S., 4.
 Robert Creek area, 469 : Canada G.S., 4.
 Ronald Lake area, 466 : Canada G.S., 4.
 Ruth Lake area, 419 : Canada G.S., 4.
 Sawdy area, 480 : Canada G.S., 4.
 Seaforth Creek area, 415 : Canada G.S., 4.
 Shillelagh Lake area, 438 : Canada G.S., 4.
 Smoky Lake area, 489 : Canada G.S., 4.
 Snipe Creek area, 442 : Canada G.S., 4.
 Steepbank River area, 421 : Canada G.S., 4.

Maps—Continued

Aeromagnetic—Continued

Alberta—Continued

- Sutton Creek area, 422 : Canada G.S., 4.
 Tar River area, 453 : Canada G.S., 4.
 Thorhild area, 471 : Canada G.S., 4.
 Touchwood Lake area, 488 : Canada G.S., 4.
 Trout Creek area, 448 : Canada G.S., 4.
 Upper Dover River area, 441 : Canada G.S., 4.
 Upper Mikkwa River area, 456 : Canada G.S., 4.
 Victor Lake area, 490 : Canada G.S., 4.
 Vincent Lake area, 481 : Canada G.S., 4.
 Warspite area, 470 : Canada G.S., 4.
 Westlock area, 472 : Canada G.S., 4.
 Willow River area, 333 : Canada G.S., 4.
 Wolf River area, 591 : Canada G.S., 4.
 Woodenhouse River area, 410 : Canada G.S., 4.
 Maine, Harrington Lake quadrangle :
 Balsley, J. R., Jr., 6.
 Jo-Mary Mtn. area : Balsley, J. R., Jr., 5.
 Manitoba, Button Bay area, 640 : Canada G.S., 4.
 Cape Churchill area, 635 : Canada G.S., 4.
 Churchill area, 639 : Canada G.S., 4.
 Duddles Lake area, 643 : Canada G.S., 4.
 Eppler Lake area, 636 : Canada G.S., 4.
 Howard Lake area, 637 : Canada G.S., 4.
 Knife Delta area, 638 : Canada G.S., 4.
 Knights Hill area, 634 : Canada G.S., 4.
 Langille Creek area, 642 : Canada G.S., 4.
 Lovat Lake area, 629 : Canada G.S., 4.
 Meades Lake area, 631 : Canada G.S., 4.
 Nichol Lake area, 628 : Canada G.S., 4.
 Norton Lake area, 645 : Canada G.S., 4.
 Nowell Lake area, 641 : Canada G.S., 4.
 Quinn Lake area, 632 : Canada G.S., 4.
 Seal River area, 550, anomaly : Canada G.S., 5.
 Southeastern : Manitoba Dept. Mines and Nat. Res.
 Steel River area, 633 : Canada G.S., 4.
 White Whale River area, 644 : Canada G.S., 4.
 Wither Lake area, 630 : Canada G.S., 4.

Minnesota, Beltrami-Clearwater Counties : Meuschke, J. L., 3.

Maps—Continued

Aeromagnetic—Continued

Minnesota—Continued

Beltrami-Lake of the Woods Counties: Meuschke, J. L., 2.

Koochiching County: Meuschke, J. L., 4-7.

Lake of the Woods—Roseau Counties: Meuschke, J. L., 1.

Montana, Centennial Mtn. quadrangle: Balsley, J. R., Jr., 3.

Laredo quadrangle, Bearpaw Mts.: Balsley, J. R., Jr., 1.

Shambo quadrangle, Bearpaw Mts.: Balsley, J. R., Jr., 2.

Warrick quadrangle: Balsley, J. R., Jr., 4.

New Brunswick, Codys area, 597: Canada G.S., 4.

Hampstead area, 599: Canada G.S., 4.

McDougall Lake area, 593: Canada G.S., 4.

Musquash area, 592: Canada G.S., 4.

Rolling Dam area, 594: Canada G.S., 4.

St. George area, 596: Canada G.S., 4.

St. John area, 600: Canada G.S., 4.

St. Stephen area, 595: Canada G.S., 4.

Sussex area, 598: Canada G.S., 4.

New Hampshire, Berlin area: Bromery, R. W., 2.

Umbagog Lake area: Bromery, R. W., 1.

New Jersey, Franklin quadrangle: Henderson, J. R., 4.

Hamburg quadrangle: Henderson, J. R., 1.

Newfoundland quadrangle: Henderson, J. R., 5.

Newton East quadrangle: Henderson, J. R., 3.

Wawayanda quadrangle: Henderson, J. R., 2.

New York, Pine Island quadrangle: Henderson, J. R., 2.

Wawayanda quadrangle: Henderson, J. R., 2.

Northwest Territories, Catholic Lake area, 690: Canada G.S., 4.

Rauta Lake area, 403: Canada G.S., 4.

Stephenson Lake area, 402: Canada G.S., 4.

Nova Scotia, Baccaro area, 607: Canada G.S., 4.

Bridgewater area, 618: Canada G.S., 4.

Cape Sable Island area, 604: Canada G.S., 4.

Church Point area, 611: Canada G.S., 4.

Comeau Hill area, 602: Canada G.S., 4.

Kejlmukjik Lake area, 617: Canada G.S., 4.

La Have Islands area, 612: Canada G.S., 4.

Maps—Continued

Aeromagnetic—Continued

Nova Scotia—Continued

Lake Rossignol area, 614: Canada G.S., 4.

Liverpool area, 613: Canada G.S., 4.

Lockeport area, 603: Canada G.S., 4.

Lunenburg area, 619: Canada G.S., 4.

Meteghan area, 610: Canada G.S., 4.

Port Mouton area, 609: Canada G.S., 4.

Pubnico area, 605: Canada G.S., 4.

Shelburne area, 608: Canada G.S., 4.

Tusket area, 606: Canada G.S., 4.

Wentworth Lake area, 615: Canada G.S., 4.

Weymouth area, 616: Canada G.S., 4.

Yarmouth area, 601: Canada G.S., 4.

Ontario, Caribou Lake intrusion: Friedman, G. M., 2.

Cobalt area, 511: Canada G.S., 4.

Earlton area, 514: Canada G.S., 4.

Englehart area, 515: Canada G.S., 4.

Fabre area, 509: Canada G.S., 4.

Ingall Lake area, 507: Canada G.S., 4.

Lake Timagami area, 505: Canada G.S., 4.

Marten Lake area, 506: Canada G.S., 4.

Milnet area, 504: Canada G.S., 4.

Opikimika Lake area, 280: Canada G.S., 4.

Ottertail Creek area, 508: Canada G.S., 4.

Shining Tree area, 285: Canada G.S., 4.

Sinclair Lake area, 286: Canada G.S., 4.

Thorlake area, 279: Canada G.S., 4.

Timagami area, 510: Canada G.S., 4.

Venetian Lake area, 551: Canada G.S., 4.

Ville-Marie area, 512: Canada G.S., 4.

Quebec, Adam River area, 522: Canada G.S., 4.

Angliers area, 513: Canada G.S., 4.

Canica Island area, 527: Canada G.S., 4.

Canoe Lake area, 545: Canada G.S., 4.

Chibougamau area, 542: Canada G.S., 4.

Cobalt area, 511: Canada G.S., 4.

Crinkle Creek area, 548: Canada G.S., 4.

Dickson Lake area, 540: Canada G.S., 4.

Earlton area, 514: Canada G.S., 4.

Englehart area, 515: Canada G.S., 4.

Fabre area, 509: Canada G.S., 4.

Indian River area, 526: Canada G.S., 4.

Kistabiche Creek area, 521: Canada G.S., 4.

Lac à l'Eau-Jaune area, 539: Canada G.S., 4.

Lac Barrière area, 516: Canada G.S., 4.

Maps—Continued

Aeromagnetic—Continued

Quebec—Continued

- Lac Boisvert area, 538: Canada G.S., 4.
 Lac Dumas area, 549: Canada G.S., 4.
 Lac Inconnu area, 541: Canada G.S., 4.
 Lac Madeleine area, 528: Canada G.S., 4.
 Lac Quévillon area, 524: Canada G.S., 4.
 McDonald Lake area, 537: Canada G.S., 4.
 MacIvor River area, 534: Canada G.S., 4.
 Malcasagi Lake area, 536: Canada G.S., 4.
 Michwacho Lake area, 518: Canada G.S., 4.
 Miller Creek area, 520: Canada G.S., 4.
 Mistassini Post area, 546: Canada G.S., 4.
 Olga Lake area, 535: Canada G.S., 4.
 Opaoa River area, 532: Canada G.S., 4.
 Opawica Lake-Lewis Lake area, 517: Canada G.S., 4.
 Opemisca Lake area, 519: Canada G.S., 4.
 Puskitamika Lake area, 529: Canada G.S., 4.
 Ramsay Bay area, 531: Canada G.S., 4.
 Rivière Allard area, 533: Canada G.S., 4.
 Rivière Coligny area, 525: Canada G.S., 4.
 Rivière de l'Épervier area, 544: Canada G.S., 4.
 Rivière Subercase area, 523: Canada G.S., 4.
 Ville-Marie area, 512: Canada G.S., 4.
 Waconichi Lake area, 547: Canada G.S., 4.
 Waswanipi area, 530: Canada G.S., 4.
 Saskatchewan, Abitau Lake area, 565: Canada G.S., 4.
 Alstead Lake area, 564: Canada G.S., 4.
 Apps Lake area, 494: Canada G.S., 4.
 Aubichon Lake area, 569: Canada G.S., 4.
 Buffalo Narrows area, 496: Canada G.S., 4.
 Calder River area, 555: Canada G.S., 4.
 Canoe Lake area, 552: Canada G.S., 4.
 Carlton Lake area, 554: Canada G.S., 4.
 Cinder Lake area, 563: Canada G.S., 4.
 Cold River area, 575: Canada G.S., 4.
 Deep Bay area, 543: Canada G.S., 4.
 Dillon area, 324: Canada G.S., 4.

Maps—Continued

Aeromagnetic—Continued

Saskatchewan—Continued

- Dipper Lake area, 567: Canada G.S., 4.
 Doré Lake North area, 571: Canada G.S., 4.
 Doré Lake South area, 568: Canada G.S., 4.
 Dorintosh area, 586: Canada G.S., 4.
 Durocher Lake area, 570: Canada G.S., 4.
 Flotten Lake area, 573: Canada G.S., 4.
 Goodsoil area, 585: Canada G.S., 4.
 Graham Lake area, 322: Canada G.S., 4.
 Green Lake North area, 578: Canada G.S., 4.
 Green Lake South area, 577: Canada G.S., 4.
 Ile-à-la-Crosse area, 562: Canada G.S., 4.
 Island Hill area, 587: Canada G.S., 4.
 Juggins Creek area, 553: Canada G.S., 4.
 Kazan Lake area, 495: Canada G.S., 4.
 Keeley Lake area, 559: Canada G.S., 4.
 Kesatasew Lake area, 557: Canada G.S., 4.
 Lac La-Plonge area, 560: Canada G.S., 4.
 La-Plonge area, 561: Canada G.S., 4.
 Lost Lake area, 558: Canada G.S., 4.
 McAllister Lake area, 321: Canada G.S., 4.
 McCusker Lake area, 307: Canada G.S., 4.
 Makwa Lake area, 582: Canada G.S., 4.
 Meadow Lake area, 580: Canada G.S., 4.
 Michel area, 323: Canada G.S., 4.
 Ministikwan Lake area, 583: Canada G.S., 4.
 Muskeg Lake area, 574: Canada G.S., 4.
 Nipin Lake area, 306: Canada G.S., 4.
 Niska Lake area, 319: Canada G.S., 4.
 Pierceland area, 584: Canada G.S., 4.
 Primrose Lake area, 556: Canada G.S., 4.
 Rapid View area, 581: Canada G.S., 4.
 Shagwenaw Lake area, 566: Canada G.S., 4.
 Sled Lake area, 579: Canada G.S., 4.
 Taggart Lake area, 576: Canada G.S., 4.
 Vermette Lake area, 320: Canada G.S., 4.
 Watapi Lake area, 305: Canada G.S., 4.
 Waterhen Lake area, 572: Canada G.S., 4.

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Coal.

Illinois, strippable reserves, south-eastern counties: Smith, W. Henking.

Kentucky, Campton quadrangle: Briggs, R. P.

White Oak quadrangle, Fire Clay bed: Adkison, W. L.

Montana, Cokedale: Roberts, A. E.

Ohio, Allegheny formation, lower, beds: DeLong, R. M.

Oklahoma, eastern: Trumbull, J. V.

Pennsylvania, bituminous: Deasy, G. F.

Geophysical.

California, Los Angeles basin, north-western, Bouguer gravity: McCulloch, T. H.

Cuba, Camagüey chromite district, gravity: Davis, Willard E.

Gulf of Mexico area: Lyons, P. L., 2.

Michigan, Upper Peninsula, central: Frantti, G. E.

Nicaragua, Palacagüina area, potentiometric: Laganá, T.

Saskatchewan, Lac La Ronge area, magnetic anomalies: Pearson, W. J., 1.

Texas, Blanco and Gillespie Counties, gravity and magnetic: Barnes, V. E., 2.

Cooke and Grayson Counties and adjoining areas, gravity and gravity derivative: Jopling, D. W.

Stamford area, seismic: Van Sieten, D. C., 2.

Ground water.

Alabama, Madison County, piezometric: Malmberg, G. T.

Marengo County: Sutcliffe, H., Jr.

Monroeville area: Ivey, J. B.

Montgomery area: Powell, W. J.

Arkansas, Lonoke-Prairie-White Counties: Counts, H. B.

British Columbia, Langley municipality: Halstead, E. C.

California, Mendota-Huron area, piezometric: Davis, G. H., 1.

San Francisco Bay area, aquifers: Matthai, H. F.

Florida, Brevard County: Brown, D. W.

Dade County, isochlor and piezometric: Klein, H.

Idaho, Bruneau-Grand View area: Littleton, R. T., 1.

Illinois, western: Bergstrom, R. E.

Kansas, Ladder Creek area, water-table configuration: Bradley, E., 2.

Kentucky, Paducah area: Pree, H. L., Jr.

Louisiana, southwestern, water levels, Chicot aquifer: Fader, S. W.

Nebraska, Republican and Frenchman River valleys: Bradley, E., 1.

Maps—Continued

Ground water—Continued

New Mexico, Estancia Valley: Smith, R. E.

Torrance County: Smith, R. E.

New York, Putnam County, wells and springs: Grossman, I. G.

North Carolina, Neuse River basin: Billingsley, G. A.

Yadkin-Pee Dee River basin: Fish, R. E.

Oklahoma: Schoff, S. L.

Aquifers, geologic units: Dover, T. B.

Ontario, North York Township, bed-rock contours: Watt, A. K., 2.

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 Marquette trough, upper Huronian, lithogeny: Hase, D. H.
 Negaunee iron-formation, Marquette range: Anderson, G. J.
 Till balls, Ann Arbor area, Pleistocene outwash: Leney, G. W.
 Tills, heavy minerals, source, eastern: Dreimanis, A., 1.

Physical geology.

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 Ogemaw County, popular: Martin, H. M. M., 2.

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- Bacteria, paleoecology, bibliography: ZoBell, C. E.
 Charophyta, Mesozoic, North America: Peck, R. E.
 Disintegration method: Chamney, T. P.
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 Holothurians, paleoecology, bibliography: Frizzell, D. L.
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 Mexico, Isthmus of Tehuantepec, Upper Cretaceous, salt-dome wells: Contreras Velazquez, H.
 Microfossils, reaction to acid treatment: Grayson, J. F.
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Micropaleontology—Continued

New York, Pleistocene, Long Island, continental-shelf cores, Gardiners clay assemblages: Athearn, W. D.

Nomenclature, plant components, Cretaceous, western Canada: Rouse, G. E.

Photomicrography, opaque specimens: McLean, J. D., Jr., 2.

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Silicoflagellates, Cretaceous-Recent, classification, range: Tynan, E. J.

Trinidad, Gulf of Paria, Recent: Todd, R., 3.

Tythyodiscus, Tertiary, Alaska: Walowick, W.

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Alaska, Fort Greely area: Holmes, G. W.
Desert surface types, United States, southwestern: Clements, T. D., 2.

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Arizona, gem fields: Duke, A.

California, Barstow badlands, fossil beds and jasper: Weight, H. O.

Crestmore quarry: Jenni, C. M.

Inkopah Gorge, garnet: Tilshier, W. G.

Localities: Henry, D. J.

Soledad Canyon, emerald-green quartz: Ransom, J. E.

Florida: Graves, H. B., Jr.

Maine, Minot garnet deposit: Shaub, B. M., 3.

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New Mexico, calcite and chalcedony, strange forms: Alfredo, D.

Hansonburg district: Sun, M.-S., 3.

New York, Schoharie area, strontianite: Gosse, R. C.

Utah, Yellow Cat area: Sperry, G.

Virginia: Pegau, A. A.

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Alaska, Fairbanks district, tungsten: Byers, F. M., Jr.

Arizona, Black Canyon schist belt, Bradshaw Mts., lead-zinc-silver-gold, reconnaissance: Jerome, S. E.

Four Peaks area, amethyst: Sinkankas, J., 3.

Johnson Camp area, metallic, origin: Cooper, J. R.

Maggie Canyon, manganese: Kumke, C. A.

Monument No. 2 mine, uranium, structural control: Finnell, T. L.

Pikes Peak hematite deposits: Farnham, L. L.

British Columbia, Antler Creek area, Cariboo district, lode gold, origin: Sutherland Brown, A., 1.

Beaverdell camp, silver, vein faults: Kidd, D. F.

Bluebell mine, lead-zinc, structural control: Irvine, W. T., 2.

Canam copper deposit, breccia filling: Bacon, W. R., 3.

Deer Horn property, Omineca district: Papezik, V. S.

Falkland, gypsum, origin: Gypsum, Lime and Alabastine, Canada Ltd.

French mine, gold: Lamb, J., 2.

H. B. mine, Salmo area, lead-zinc: Irvine, W. T., 3.

Highland Valley area, copper, paragenesis: White, W. Harrison.

Iron Mtn., lead-zinc and tungsten: Rennie, C. C.

Jervis Inlet area: Bacon, W. R., 1.

Kootenay King mine, silver-lead-zinc: Ney, C. S., 2.

Metallic: British Columbia Dept. Mines.

Monarch and Kicking Horse mines, lead-zinc: Ney, C. S., 1.

Nickel Plate mine, gold: Lamb, J., 1.

Pacific Nickel mines, nickel-copper, origin: Aho, A. E.

Phoenix camp, structural control: Seraphim, R. H.

Red Rose mine, tungsten: Sutherland Brown, A., 2.

Reeves MacDonald mine, silver-lead-zinc: Fyles, J. T., 2.

Rexspar property, Birch Island area, uranium: Joubin, F. R., 1.

Salmo area, lead-zinc, structural control: Fyles, J. T., 1.

Silver Standard mine, gold-silver-lead-zinc: Smith, Alexander.

Southwestern, limestone: Mathews, W. H., 1.

Summit Camp, Greenwood area, origin: Carswell, H. T.

Mineral deposits—Continued

British Columbia—Continued

Sunshine Lardeau mine, metallic:
Keys, M. R.

Texada and Vancouver Islands, magnetite: Bacon, W. R., 2.

Tulsequah Chief and Big Bull mines, copper-lead-zinc: Irvine, W. T., 1.

Violamac mine, silver-lead-zinc, structural control: Ambrose, J. W., 1.

Zoning, examples: Gunning, H. C., 3.
California: Calif. Dept. Nat. Res. Div. Mines, 1.

Borates: Calif. Dept. Nat. Res. Div. Mines, 6.

Island Mtn. mine, copper, origin: Stinson, M. C.

Lead-zinc: Goodwin, J. G., 2.

Mariposa County, metallic and non-metallic: Bowen, O. E., Jr.

Pala pegmatite district, gem materials: Sinkankas, J., 2.

Pumice, pumicite, and volcanic cinders: Chesterman, C. W.

West Shasta district, copper-zinc, origin: Kinkel, A. R., Jr.

Canada: Stockwell, C. H.

Brucite limestone: Goudge, M. F., 1.
Columbium and tantalum: Jones, R. J.

Industrial: Canadian Inst. Mining and Metallurgy Indus. Minerals Div.

Lithium: Mulligan, R., 2.

Research, geological, proposed program: Gunning, H. C., 2.

Structural geology, symposium: Canadian Inst. Mining and Metallurgy Geology Div.

Central America, strategic, and base metals: Roberts, R. J.

Colorado, Bitter Creek mine, Uravan area, uranium-vanadium zoning, origin: Heyl, A. V., Jr.

Caribou silver-mining area, uranium, origin: Moore, F. B.

Central City district, pitchblende, origin: Sims, P. K.

Climax, molybdenite, ring-fracture mineralization: Wallace, S. R.

Garfield quadrangle: Dings, M. G.

Golden Gate Canyon-Ralston Creek area, uranium: Bird, A. G.

Guffey area, radioactive: Heinrich, E. W., 2.

Idarado mine, metallic, origin: Hillebrand, J. R., 1.

Morrison area, Dakota formation, uranium, origin: Goldstein, E. H.

Ouray area, metallic, origin: Kelley, V. C., 6.

Ouray to Red Mtn. Pass, metallic: Hillebrand, J. R., 2.

Mineral deposits—Continued

Colorado—Continued

Park-Fremont Counties, sillimanite: Heinrich, E. W., 3.

Pegmatites, origin: Heinrich, E. W., 1.

San Juan Basin, titaniferous heavy-mineral sandstones: Chenoweth, W. L.

San Juan Mts., lithologic control: Bejnar, W.

Silverton quadrangle, metallic: Rosenzweig, A.

Uravan district, uranium-vanadium, diagenesis and mineralization: Weeks, A. D.

Uranium-vanadium zoning: Heyl, A. V., Jr.

Whitepine area, Tomichi district, metallic: Robinson, C. S., 2.

Wood-East Calhoun area, Central City district, uranium and metallic minerals, origin: Drake, A. A., Jr.

Colorado Plateau, Salt Wash member, uranium-vanadium, relation to lithofacies: Mullens, T. E.

Uranium-vanadium, classification: Bottinelly, T.

Conglomerate reefs, ancient, Blind River, Ontario, cf. Witwatersrand, uranium, origin, hypotheses: Davidson, C. F., 1.

Connecticut, exclusive of clay, sand, gravel, and peat: Pearre, N. C., 3.

Florida, Alachua County, pebble phosphate, origin: Pirkle, E. C., Jr., 2.

Georgia, kaolin, origin: Kesler, T. L.

Gulf Coastal Plain, salt-dome sulfur, origin: Feely, H. W.

Trinity group, Cretaceous, anhydrite, origin: Forgetson, J. M., Jr., 4.

Hydrothermal, origin, fluid composition, limitations: Barton, P. B., Jr., 1.

Hypogene ores, origin, critical factors in exploration: Blehan, W. J.

Idaho, Baker quadrangle, copper and gold: Anderson, A. L.

Idaho batholith area, placers, radioactive minerals, origin: Mackin, J. H.

Latah County: Hubbard, C. B.

Iowa, Catfish Creek area, lead-zinc: Brown, C. E.

Iron and sulfur deposition, mineralizing solutions: Butler, B. S.

Kansas, general: Tolsted, L. L.

Labrador, Knob Lake area, iron: Westervelt, R. D.

Knob Lake area, iron, origin: Douglas, G. V., 3.

Lead-zinc, supergene alteration: Takahashi, T.

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Magmatic, classification evaluation:
Mutch, A. D.

Maine, Dudley manganese deposit: Ellertsen, N. A.

Manganese, sedimentary origin, separation from iron: Krauskopf, K. B., 1.

Manitoba, Cuprus mine, copper-zinc: Hudson Bay Min. and Smelt. Co. Ltd. Geol. Staff, 2.

Lithium: Mulligan, R., 1.

Lynn Lake area, sulfides, origin: Ruttan, G. D.

Nor-Acme mine, gold: Hogg, N.

North Star and Don Jon mines, copper: Hudson Bay Min. and Smelt. Co. Ltd. Geol. Staff, 1.

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Metallogenic provinces, cosmic origin: Skerl, A. C.

Mexico, Boleo district, Baja California, copper, origin: Nishihara, H., 2; Wilson, I. F.

Canoas district, Zacatecas, mercury, origin: Gallagher, D.

Chihuahua, pyrometasomatic zinc deposits, origin: Allen, V. T.

Concepción del Oro district, Zacatecas, phosphate, origin: Rogers, C. L.

Durango, tin, origin: Smith, Ward C.
Lucifer mine, Baja California, manganese, origin: Nishihara, H., 1.

Mineral and geologic provinces, relationship: Behre, C. H., Jr., 2.

Northeastern, guano: Rodríguez Cabo, J., Jr., 3.

Zimapán district, Hidalgo, lead-zinc-silver, origin: Simons, F. S.

Michigan, copper, native, origin: White, W. S.

Iron ranges: Reed, R. C.

Marquette range, Negaunee formation, iron, origin: Anderson, G. J.

Northern, uranium, origin: Vickers, R. C., 2.

White Pine mine, copper, origin: Rand, J. R.

Missouri, Bonne Terre mine, lead, origin: Eckelmann, F. D., 2.

Iron Mtn., iron, origin: Ridge, J. D.

Southeastern Lead Belt, mining geology: Snyder, F. G., 1.

Montana, Beaverhead County, chrysotile asbestos: Boots, D. A.

Butte district, manganese oxidation and enrichment: Allsman, P. L.

Mineral deposits—Continued

Montana—Continued

Eastern, lignite basin, uranium: Towse, D. F., 3.

Lone Eagle mine, Boulder batholith, uranium: Wright, H. D., 2.

Missoula-Ravalli Counties: Sahinen, U. M., 1.

Sheridan-Alder area: Levandowski, D. W.

Uranium and thorium: Jarrard, L. D.

W. Wilson mine, secondary uranium: Wright, H. D., 1.

Nevada, Broken Hills Range, rhyolite alteration, paragenesis: Vitaliano, C. J., 2.

Elko County, metallic: Granger, A. E., 1.

Kaiser mine, fluorite: Matson, E. J.

New Brunswick, Bathurst area, sulfides, origin: Holyk, W. K.

Burnt Hill mine, tungsten, origin: Victor, I.

Keymet mine, Bathurst area, sulfides: McAllister, A. L.

Uranium: Gross, G. A.

Woodstock area, iron-manganese, origin: Sidwell, K. O. J.

New Hampshire, exclusive of clay, sand, gravel, and peat: Pearre, N. C., 2.

New Jersey, Edison area, magnetite, origin: Baker, D. R.

Franklin-Sterling area, zinc-manganese, origin: Sampson, E., 1.

Highlands, magnetite, origin: Budington, A. F., 1.

Sterling Hill, zinc: Metsger, R. W.

New Mexico, Ambrosia Lake area, uranium: Zitting, R. T.

Ambrosia Lake area, uranium, origin, relation to preexisting oil pool: Birdseye, H. S.

Cerrillos area, lead-zinc: Disbrow, A. E., 1.

Haystack and Poison Canyon mines, uranium, origin: Mathewson, D. E., 2.

Metallic: Anderson, E. C., 2.

Northeastern, clay: Glassmire, S. H.

Pelican area, Palomas district, metallic: Jahns, R. H., 1.

Pyrometasomatic zinc deposits, origin: Allen, V. T.

San Juan Basin, titaniferous heavy-mineral sandstones: Chenoweth, W. L.

Sangre de Cristo Mts.: Anderson, E. C., 1.

South-central, dolomite: Kottlowski, F. E., 2.

New York, Lake Sanford district, titaniferous magnetite, origin: Gillson, J. L., 1.

St. Lawrence and Jefferson Counties, pyrite, origin: Frucha, J. J.

Mineral deposits—Continued

New York—Continued

Schroon Lake area, epidote, origin: Rowley, E. B.

Newfoundland, Grey River area, tungsten: Bahryrycz, G. S.

Port au Port Peninsula, strontium: Baird, D. M., 4.

St. Lawrence district, fluorite: Williamson, D. H.

Wabana area, Conception Bay, iron, origin: Lyons, J. C.

Nicaragua: Nicaragua Servicio Geol. Nac.

Monte Carmelo, iron: Zoppis de Sena, R., 1.

Palacagüina area, antimony, origin: Zoppis Bracci, L., 1.

North Carolina, Beaufort County, phosphorite, origin: Brown, P. M., 2.

Ore Knob mine, copper: Eckman, L. P.

North Dakota, uranium in lignite: Towse, D. F., 1.

Western, lignite basin, uranium: Towse, D. F., 3.

Northwest Territories, Consolidated Discovery Yellowknife mine, gold: Wiwchar, M. B.

Coppermine River area, copper: Jenney, C. P., 1.

Giant Yellowknife gold mine, origin: Coleman, L. C.

Pine Point area, Great Slave Lake, lead-zinc: Campbell, N.

Port Radium mine, pitchblende, paragenesis: Campbell, D. D., 1.

Nova Scotia, gypsum, origin: Goodman, N. R.

Mindamar mine, Cape Breton Island, copper-lead-zinc: Watson, K. D., 2.

Uranium: Gross, G. A.

Walton barite deposit, origin: Jewett, G. A.

Ontario, Algoma district, Quirke Lake trough, uranium, origin: Hart, R. C.

Algoma district, uranium, sedimentary features: Joubin, F. R., 3.

Bancroft area, radioactive: Satterly, J.

Bass Lake area, aplites, metallic minerals: Sampson, E., 2.

Black Donald mine and Kirkham property, graphite: Hewitt, D. F., 1.

Blind River area, uranium, origin: Robertson, D. S.; Roscoe, S. M., 1.

Canadian Dyno Mines property, uranium: Vallance, R. F.

Cobalt camp, Temiskaming area, silver-cobalt: Thomson, Robert, 1.

Cochénour Willans mine, gold: Kuryliw, C. J.

Mineral deposits—Continued

Ontario—Continued

Copper: Thomson, J. E., 1.

Eastern, phlogopite-apatite, origin: Wilson, M. E., 2.

Errington and Vermilion Lake mines, Sudbury area, sulfides, origin: Martin, W. C.

Frood-Stobie mine, nickel-copper and accessories: Zurbriigg, H. F.

Gowganda area, silver, origin: Moore, E. S., 2.

Hardy mine, Sudbury district, nickel-copper: Mitchell, G. P.

Hislop Township, gold: Prest, V. K., 1.

Johns-Manville properties, asbestos, origin: Hendry, N. W.

Kerr-Addison mine, Larder Lake area, gold-silver: Baker, J. W.

Kyanite, origin: Hewitt, D. F., 2.

Lead: Thomson, J. E., 1.

Lithium: Mulligan, R., 1.

Madoc, talc: Hewitt, D. F., 5.

Manitouwadge Lake area, sulfides, origin and controls: Pye, E. G.

Michipicoten siderites, origin: Goodwin, A. M., 2.

Nemegosenda Lake area, columbium: Parsons, G. E.

Nickel: Thomson, J. E., 1.

North Bay area, columbium-uranium, origin: Gill, J. E., 3.

Pronto mine, uranium, sedimentary types: Holmes, S. W.

Quirke Lake-Elliott Lake area, uranium, origin: Roscoe, S. M., 2.

Renfrew County, corundum, origin: Carlson, H. D.

Sudbury area, nickel-copper, recent survey problems: Thomson, J. E., 9.

Sudbury basin, copper-lead-zinc: Thomson, J. E., 2.

Willroy property, Manitouwadge area, sulfides, silver-bearing: Chown, E. H. M.

Zinc: Thomson, J. E., 1.

Oregon, southwestern, chromite, origin: Ramp, L.

Origin, blister hypothesis: Wolfe, C. W.

Heat and temperature: Sullivan, C. J., 1.

Review: Mutch, A. D.

Stability diagrams, related to assemblages and Lindgren classification: Holland, H. D., 2.

Pennsylvania, Allegheny Plateau, uranium, sedimentary: McCauley, J. F.

Cornwall iron mine: Geyer, A. R.

Pipelike ore bodies, plutonic rocks, origin: Douglas, G. V., 2.

Quebec, Barvue mine, Barraute Township, zinc-silver: Weber, W. W. L., 1.

Beetz Lake area: Grenier, P. E., 1.

Mineral deposits—Continued

Quebec—Continued

- Bevecon mine, Louvicourt Township, gold: Kempthorne, H. R.
 British Canadian mine, asbestos, origin: Riordon, P. H., 3.
 Candego mine, silver-lead-zinc: Wolofsky, L., 1.
 Carey-Canadian asbestos deposit, origin: Merrill, R. J.
 Chibougamau area, mining properties: Assad, R. J., 1.
 Sulfides: Malouf, S. E., 1.
 Chibougamau Explorers mine, North Lake area, gold: Malouf, S. E., 2.
 Copper Mtn. and Needle Mtn., Gaspé Peninsula, copper: Bell, A. M.
 Gaspé Peninsula, uranium: Gross, G. A.
 Huntingdon mine, Eastman area, copper: Carrière, G. E., 1.
 Jeffrey mine, asbestos, origin: Allen, C. C.
 Johan Beetz area: Cooper, G. E., 1.
 Kilmar area, magnesite, origin: Bray, W. T.
 Knob Lake area, iron: Westervelt, R. D.
 Iron, origin: Douglas, G. V., 3.
 Labrador trough, base metals, origin: Slipp, R. M.
 La Chaloupe River area, anorthosite-ilmenite-pegmatite relations: Jenkins, J. T., 2.
 Lake Renzy nickel area, sulfides, origin: Forrester, M. R.
 Laurentian Highlands, phlogopite-apatite, origin: Wilson, M. E., 2.
 Lesueur Township, gold and sulfides: Graham, R. B., 1.
 Lithium: Mulligan, R., 1.
 Normandie and Vimy Ridge mines, asbestos: Riordon, P. H., 4.
 Opemiska copper mine: Derry, D. R., 1.
 Potton Township, talc: Morgan, J. H.
 Quemont mine, Rouyn Township, sulfides: Taylor, B.
 Quesabe mine, Duprat Township, gold: Halet, R. A.
 St. Donat Mtn., quartz, origin: MacIntosh, J. A.
 Southeastern, asbestos, origin: Riordon, P. H., 1.
 Suffield mine, Sherbrooke area, sulfides: Carrière, G. E., 2.
 Thetford Mines, asbestos, origin: Riordon, P. H., 2.
 Thetford-Black Lake area, asbestos, origin: Riordon, P. H., 6.
 Thorne-Leslie-Clapham area: Kretz, R. A., 2.
 Saskatchewan, Beaverlodge mines, pitchblende, structural features: Buffam, B. S. W.

Mineral deposits—Continued

Saskatchewan—Continued

- Gunnar mine, Beaverlodge area, uranium: Jolliffe, A. W.
 Hanson Lake area, sulfides: Byers, A. R., 2.
 Manawan Lake area, sulfides and radioactive pegmatite: Kirkland, S. J. T.
 Middle Foster Lake area, radioactive pegmatite prospect: Mawdsley, J. B., 2.
 Rix Athabasca mine, uranium: Joubin, F. R., 2.
 Uranium City area, pitchblende: Tremblay, L. P., 1.
 Verna mine, Beaverlodge area, uranium: Campbell, D. D., 2.
 Sediments and sedimentary rocks, ore patterns, origin: Bain, G. W., 3.
 South Carolina, kaolin, origin: Kesler, T. L.
 Monazite, stream placers: Perry, E. S.
 South Dakota, Black Hills, Fall River sandstone, uranium, origin: Vickers, R. C., 1.
 Black Hills, uranium: King, J. W.
 Peerless pegmatite, Keystone district, beryl and accessory minerals: Sheridan, D. M.
 Spilitic differentiation products: Amstutz, G. C., 2.
 Sulfides, phase assemblages: McKinstry, H. E., 2.
 Sequence of phases: McKinstry, H. E., 1.
 Texas, Karnes County area, uranium, origin: Eargle, D. H.
 United States, Great Basin, relation to intrusive porphyry: Stringham, B. F., 1.
 Uranium, sandstone-type, bibliography: Melin, R. E.
 Western, asphalt and uranium, origin: Hall, W. J., Jr.
 Uranium, selenium in sulfides, source: Coleman, R. G., 2.
 Uranium and thorium: Jarrard, L. D.
 Uranium, characteristics, aid to exploration: Kratchman, J., 1.
 Sedimentary rocks, origin: Gruner, J. W.
 Types, classification: Kratchman, J., 2.
 Origin: Klepper, M. R., 2.
 Utah, Chief mine, Tintic district, metallic: Evans, M. T.
 Dragon mine, halloysite: Kildale, M. B., 1.
 East Tintic district, metallic: Bush, J. Bernard, 1.
 Main Tintic district, metallic, zoning, origin: Cook, Douglas R.
 Marysville uranium district, specific areas, origin: Kerr, P. F., 3.

Mineral deposits—Continued

Utah—Continued

North Tintic district, metallic: Disbrow, A. E., 2.

Temple Mtn. area, uranium, origin: Kerr, P. F., 2.

Tintic Standard, North Lily, and Eureka Lilly mines, metallic: Kildale, M. B., 2.

Vanadium, origin, reduction by wood and lignite, experimental: Pommer, A. M.

Vermont, exclusive of clay, sand, gravel, and peat: Pearre, N. C., 1.

Vertical zoning: Park, C. F., Jr., 2.

Virginia, Clifton Forge iron district: Lesure, F. G.

Gossan Lead district: Stose, A. I. J. Southwestern, relation to Late Cretaceous-early Tertiary erosion surface: Sears, C. E., Jr., 2.

Washington, Miners Queen, copper: Magill, E. A.

Uranium: Huntting, M. T.

Wyoming, Black Hills, uranium: King, J. W.

Crooks Gap district, uranium, origin: Melbye, C. E.

Du Noir area: Keefer, W. R., 1.

Gas Hills area, uranium, origin: Erickson, E. C.; Zeller, H. D.

Hulett Creek area, uranium: Goode, H. D.

Mayoworth area, uranium in oolitic limestone, origin: Gullinger, R. R.

Monument Hill area, uranium, origin: Meschter, D. Y.

Pumpkin Buttes area, uranium: Sharp, W. N.

Yukon, field reports, 1898-1933: Bostock, H. S., 2.

Galena Hill area, silver-lead-zinc, origin: Boyle, R. W., 1.

Keno Hill-Galena Hill area, silver-lead-zinc: Boyle, R. W., 2.

United Keno Hill mines, silver-lead-zinc, fracture control: Carmichael, A. D., Jr.

Zonal theory: Park, C. F., Jr., 1.

Mineral descriptions. *See also* Mineralogy.

Acanthite, polymorphism and twinning: Frueh, A. J., Jr., 2.

Allanite, New York: Rowley, E. B.

Radioactive: Smith, W. Lee.

Andalusite, California: Rose, R. L.

Aragonite, Wyoming, twin crystals: Goldring, E. D.

Avelinoite: Lindberg, M. L. L.

Bismutoferrite: Milton, C., 3.

Brannerite, California: Hewett, D. F., 1. Ontario: Moddle, D. A.

Brucite: Goudge, M. F., 1.

Cerite, crystal structure: Gay, P.

Mineral descriptions—Continued

Chalcopyrite, high-temperature modification: Koucky, F. L., Jr.

Chapmanite: Milton, C., 3.

Chloritoid: Halferdahl, L. B.

Crystal structure: Harrison, F. W.

Cinnabar, California: Woodhouse, C. D., 2.

Classification, mineral associations: Smith, S. L.

Columbite, Colorado: Heinrich, E. W., 4.

Corundum, California: Rose, R. L.

Cristobalite, crystal structure: Flörke, O. W.

Cronstedtite, polymorphic: Frondel, C., 4.

Cyrillovite, identical with avelinoite: Lindberg, M. L. L.

Cyrtolite, metamictization: Norton, D. A.

Danalite, British Columbia: Thompson, Robert M.

Doloresite, Colorado Plateau: Stern, T. W.

Duttonite, Colorado: Thompson, M. E. Epidote, Connecticut: Lapham, D. M., 1.

New York: Rowley, E. B.

Erlonite, Oregon: Staples, L. W., 2.

Fassaite, Montana: Knopf, A., 1.

Fergusonite, fused, crystallography: Ferguson, R. B., 1.

Ferritungstite, Nevada: Richter, D. H. Franklinite inclusions in willemite, New

Jersey: Metsger, R. W.

Fuchsite, New Hampshire: Clifford, T. N.

Galapektite, variety of montmorillonite: Faust, G. T., 1.

Garnet, varieties: Van Leuven, E. P.

Genthelvit, Colorado: Scott, G. R.

Gilsonite, Utah: Davis, L. J.

Glinorite, California: Allen, R. D., 2.

Halotrichite, diffraction data: Baur, G. S., 1.

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- Conglomerates and quartzites, Silurian,
 northwestern: Thomson, A. F., 1.
 Edison area, gneiss complex, cf. Ad-
 irondacks: Baker, D. R.
 Franklin-Sterling area, Precambrian:
 Baum, J. L.
 Highlands, magnetite areas: Budding-
 ton, A. F., 1.
 Precambrian: Smith, B. L.
 Lambertville diabase, nickel distribu-
 tion: Storm, T. W.
 Lockatong argillite, Upper Triassic:
 Van Houten, F. B., 3.
 Mt. Gilboa, syenite, origin, metamor-
 phosed basic rocks: Ryan, J. D.
 Teschenitic rock, with Triassic diabase,
 Lambertville area: Milton, C., 2.
 Triassic basalt and diabase: Johnson,
 H., 1.

Physical geology.

- Coastal Plain, Cretaceous-Tertiary, test
 drilling: Johnson, M. E., 3.
 Franklin-Sterling area: Baum, J. L.
 Highlands, Precambrian: Smith, B. L.

Physiographic geology.

- Provinces, soil materials, maps: Hol-
 man, W. W.

New Mexico.

- Gamma-ray logs, radon effects, Grants
 uranium area: Hilpert, L. S.
 Geomagnetism, late Cenozoic basalts,
 northeastern: Muehlberger,
 W. R., 2.
 Guidebook, Glass Mts., Permian: Soc.
 Econ. Paleontologists and Min-
 eralogists, Permian Basin Sec.
 Northeastern: Oklahoma City Geol.
 Soc.
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 Soc., 1.
 Slaughter Canyon area: Roswell Geol.
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 Radium-uranium ratios in ground wa-
 ter, Ogallala formation, Llano
 Estacado: Barker, F. B., 2.
 Seismic exploration, Delaware basin:
 Trostle, M. E.

New Mexico—Continued

- Seismic survey, Anderson Ranch oil
 field: Swenumson, G. H.
 Symposium, oil and gas fields, south-
 eastern: Stipp, T. F., 1.

Areas described.

- Ambrosia Lake area: Zitting, R. T.
 Carlsbad Caverns East quadrangle:
 Hayes, P. T., 1.
 Peloncillo Mts.: Gillerman, E.

Economic geology.

- Barite, Hansonburg district: Callaghan,
 E.
 Carbon dioxide, Union County: Foster,
 R. W., 1.
 Clay, northeastern, possibilities: Glass-
 mire, S. H.
 Coal, San Juan County, reserves: Hayes,
 P. T., 2.
 Dolomite, south-central: Kottlowski,
 F. E., 2.
 Lead-zinc, Cerrillos area: Disbrow,
 A. E., 1.
 Magnesium, dolomites, south-central:
 Kottlowski, F. E., 2.
 Manganese, Luis Lopez district, hydro-
 thermal zoning of lead: Jicha,
 H. L., Jr.
 Metallic minerals, Pelican area, Pa-
 lomas district: Jahns, R. H., 1.
 Resources: Anderson, E. C., 2.
 Mineral deposits, Sangre de Cristo Mts.:
 Anderson, E. C., 1.
 Mineral resources, Dwyer quadrangle:
 Elston, W. E.
 Oil and gas, Bisti area: Devlin, F. J.
 Delaware basin: Barnes, C. E.
 Gallegos-Gallup field: Matheny, M. L.,
 1.
 San Juan Basin, Cretaceous: Reese,
 V. R.; Reneau, W. E., Jr.
 Southeastern fields: Stipp, T. F., 1.
 Perlite, Stendel deposit: Weber, R. H.
 Petroleum, Anderson Ranch field: Swen-
 umson, G. H.
 Bisti field, Gallup sandstone: Tom-
 kins, J. Q.
 Hospah field: King, V. L.
 Medio field: Ostrander, R. E.
 San Juan Basin, rim area: Budd,
 H., 2.
 Upper Cretaceous accumulation:
 Wengerd, S. A., 3.
 Verde-Gallup pool: Speer, W. R.
 Rare-earth minerals, heavy-mineral
 sandstones, San Juan Basin,
 possibilities: Chenoweth, W. L.
 Sulfur: Wideman, F. L.
 Titaniferous heavy-mineral sandstones,
 San Juan Basin, possibilities:
 Chenoweth, W. L.
 Uranium, Ambrosia Lake area: Zitting,
 R. T.
 Ambrosia Lake area, relation to pre-
 existing oil pool: Birdseye,
 H. S.

New Mexico—Continued

Economic geology—Continued

Uranium—Continued

- Grants area, fracture controls :
Mitcham, T. W., 2.
Haystack and Polson Canyon mines :
Mathewson, D. E., 2.
Morrison formation, McKinley
County : Konigsmark, T. A.
Mt. Taylor-Rio Puerco area : Mathew-
son, D. E., 1.
San Juan Basin, controls : Gabelman,
J. W., 3.
Todilto limestone, Grants area : Ealy,
G. K. ; Hilpert, L. S.

Geologic maps.

- Ambrosia Lake area : Birdseye, H. S.
Carlsbad Caverns East quadrangle :
Hayes, P. T., 1.
Cerrillos area : Disbrow, A. E., 1.
Chuska Mts., volcanic centers : Apple-
dorn, C. R.
Clayton area : Baldwin, B., 2.
Dog Springs quadrangle : Givens, D. B.
Dwyer quadrangle : Elston, W. E.
Laguna quadrangles : Moench, R. H., 1,
2.
Luera Spring quadrangle : Willard,
M. E., 1.
Northwestern : Dane, C. H., 3.
Pelican area, Palomas district : Jahns,
R. H., 1.
Piñonville quadrangle : Willard, M. E.,
2.
Puertecito quadrangle : Tonking, W. H.
Questa quadrangle : McKinlay, P. F.
San Juan Basin : Four Corners Geol.
Soc. ; O'Sullivan, R. B.
Sangre de Cristo Mts. : N. Mex. Geol.
Soc., 1.
Satan Pass-Thoreau area : Four Corners
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Stendel perlite deposit : Weber, R. H.
Torrance County : Smith, R. E.

Ground water.

- Clayton area : Baldwin, B., 2.
Crow Flats area : Bjorklund, L. J., 3.
Roswell artesian basin : Bean, R. T., 1.
Streamflow, perennial, relation : Spiegel,
Z. E.
Torrance County : Smith, R. E.
Tucumcari area : Trauger, F. D.

Historical geology.

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revision : Dane, C. H., 4.
Cambrian-Permian, correlation section,
southeastern : Roswell Geol.
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T. F., 2.
Southwestern : Sandeen, W. M.
Carlsbad Caverns East quadrangle, Per-
mian : Hayes, P. T., 1.
Cerrillos area, Eocene-Pleistocene : Dis-
brow, A. E., 1.

New Mexico—Continued

Historical geology—Continued

- Chavez Canyon, Rio Arriba County,
Pennsylvanian, measured sec-
tion : Muehlberger, W. R., 1.
Clayton area, Triassic-Quaternary :
Baldwin, B., 2.
Dakota sandstone and Mancos shale,
Cretaceous, Gallup area : Dane,
C. H., 1.
Delaware basin, Permian-Cretaceous :
Barnes, C. E.
Dog Springs quadrangle, Triassic-
Recent : Givens, D. B.
Dwyer quadrangle, Precambrian-Qua-
ternary : Elston, W. E.
Fra Cristobal Mts., Precambrian-Per-
mian and Quaternary : Jacobs,
R. C.
Galisteo formation, Eocene, Los Cer-
rillos area, age : Robinson, P.,
2.
Gallup sandstone, Cretaceous, age and
correlations : Beaumont, E. C. ;
Dane, C. H., 2.
Bisti oil field : Tomkins, J. Q.
Facies : Budd, H., 1.
Gallup area, brookite-bearing : Sun,
M.-S., 2.
Gallup-Grants area, Pennsylvanian-
Cretaceous : Smith, C. T., 2.
Grants area, Jurassic : Hilpert, L. S.
Guadalupe Mts., Pleistocene cave
fauna, climatic change : Mur-
ray, K. F.
Guadalupe Mts. area, Permian reef
complex : Newell, N. D., 1.
Hospah oil field, Pennsylvanian-Cre-
taceous : King, V. L.
Las Vegas-Raton plains area, Trias-
sic-Quaternary : Griggs, R. L.
Lucy archaeological site, Pleistocene
dating : Harbour, J.
Mancos formation, Cretaceous, San
Juan Basin : Budd, H., 2.
Nacimiento Mts. and San Juan Basin,
geologic history : Parker, J. W.
Navajo country, Upper Triassic-Ju-
rassic : Harshbarger, J. W.
Paleozoic, possible correlations with
northern Mexico subsurface :
Ramirez M., J. C.
Pierce Canyon redbeds, Triassic, Del-
aware basin : Miller, D. N., Jr.
Precambrian-Quaternary, west-central :
Foster, R. W., 2.
Puertecito quadrangle, Permian-Qua-
ternary : Tonking, W. H.
Questa quadrangle, Precambrian-Qua-
ternary : McKinlay, P. F.
Raton basin, Cretaceous-Tertiary : John-
son, Ross B.
Pennsylvanian-Eocene : Osborne,
H. W., 1.
Roswell artesian basin, Permian : Bean,
R. T., 1.

New Mexico—Continued

Historical geology—Continued

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Mopper, J. A., 2.

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Stratigraphic names, catalog: Mopper, J. A., 1.

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Sierra Grande uplift, Cambrian-Cretaceous, subsurface: Neiler, W. D.

Slaughter Canyon area, Permian: Roswell Geol. Soc.

Tecolote Hills, Permian-Cretaceous: Rawson, D. E.

Torrance County, Precambrian-Quaternary: Smith, R. E.

Tucumcari area, Triassic-Quaternary, aquifers: Trauger, F. D.

Union County, Precambrian-Cretaceous, subsurface: Foster, R. W., 1.

Walnut Wells quadrangle, Permian-Pleistocene: Alper, A. M., 2.

Wolfcamp formation, Permian, Glass Mts.: Soc. Econ. Paleontologists and Mineralogists, Permian Basin Sec.

Glass Mts., correlation: Jarvis, D.
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Calcite and chalcedony, strange forms: Alfredo, D.

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Cochiti mining district, wallrock alteration: Bundy, W. M.

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Hansonburg district, list and description: Sun, M.-S., 3.

Iddingsite, complex alteration product of olivine: Sun, M.-S., 1.

Liquid inclusions, Hansonburg and Derry districts, mineral suites: Ames, L. L., Jr., 1.

Pyroxenes, pyrometasomatic zinc deposits: Allen, V. T.

Santafeite: Sun M.-S., 5.

Zircons, Animas stock and associated rocks: Alper, A. M., 1.

Paleontology.

Alamosa Creek area, Cretaceous, Upper, faunal zones: Dane, C. H., 4.

New Mexico—Continued

Paleontology—Continued

Brachiopod, terebratulid, Magdalena formation, Pennsylvanian: Cooper, G. A., 2.

Coryphodon molar, Galisteo formation, Eocene age, Los Cerillos area: Robinson, P., 2.

Folsom-Sandia specimens, Sandia Cave, Quaternary: Hibben, F. C.

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Guadalupe Mts. area, Permian reef complex: Newell, N. D., 1.

Mammals, Burnet Cave, Guadalupe Mts., Pleistocene, ecology and climate: Murray, K. F.

Petrology.

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Chuska Mts., volcanic rocks, Tertiary: Appledorn, C. R.

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Cochiti mining district, wallrock alteration: Bundy, W. M.

Delaware Mtn. sandstone, Permian basin, origin: Hull, J. P. D., Jr.

Dwyer quadrangle, igneous rocks: Elston, W. E.

Hanover mining area, trace element distribution: Barnes, H. L., 2.

Harding pegmatite, melting and recrystallization, experimental: Jahns, R. H., 2.

Haystack and Polson Canyon mines, petrography of ore host: Colman, H. C.

Jackpile sandstone: Schlee, J. S., 2.

Nogal Canyon, volcanic rocks: Gentile, A. L.

Pierce Canyon redbeds, Delaware basin, biotite in reduction spots: Miller, D. N., Jr.

Puertecito quadrangle, igneous rocks: Tonking, W. H.

Pyroxenes, pyrometasomatic zinc deposits: Allen, V. T.

Questa quadrangle: McKinlay, P. F.

Stendel perlite deposit: Weber, R. H.

Tecolote Hills, intrusions: Rawson, D. E.

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Chuska Mts., volcanism, Tertiary: Appledorn, C. R.

Deformations, pre-Onate, southern: Flower, R. H., 4.

Dog Springs quadrangle: Givens, D. P.

Dwyer quadrangle: Elston, W. E.

Fra Cristobal Mts., orogenic periods: Jacobs, R. C.

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Physical geology—Continued

- Grants uranium area, fracture controls: Mitcham, T. W., 2.
 Hoshah oil field: King, V. L.
 Kilbourne Hole and Zuni Salt Lake cf. maar rims, Mexico: Shoemaker, E. M.
 Lava beds and ice caves, popular account: Porter, H. W.
 Major structures, southeastern: Stipp, T. F., 2.
 Nacimiento Mts. and San Juan Basin, geologic history: Parker, J. W.
 Pelican area, Palomas district, faults: Jahns, R. H., 1.
 Peloncillo Mts.: Gillerman, E.
 Puertecito quadrangle: Tonking, W. H.
 Questa quadrangle: McKinlay, P. F.
 Raton basin: Johnson, Ross B.; Osborne, H. W., 1.
 Rio Grande depression, Santa Fe to Taos, tectonics: Kelley, V. C., 1.
 Roswell artesian basin: Bean, R. T., 1.
 Sangre de Cristo Mts., southern, stream characteristics: Miller, J. P.
 Tectonics: Baltz, E. H., Jr.; Gabelman, J. W., 1.
 Sierra Grande uplift: Neller, W. D.
 Solution-subsidence troughs, Gypsum plain: Olive, W. W., 2.
 Turkey Mtn. dome, possible igneous origin: Hayes, P. T., 3.
 Walnut Wells quadrangle: Alper, A. M., 2.
 Zuni Mts.: Smith, C. T., 1.

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 Chihuahuah lake system, playas, southwestern: Zeller, R. A., Jr.
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 Queens Midtown Tunnel: Fluhr, T. W., 1.
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- Paleomagnetism: Graham, J. W., 1.
 Border Belt gneisses, Adirondack Mts.: Balsley, J. R., Jr., 7.

Economic geology

- Construction materials, Brier Hill quadrangle: Dietrich, R. V., 2.
 Oil and gas, Devonian, southwestern: Whorton, C. D., 1.
 Regional basins, possibilities: Kreidler, W. L., 2.
 Pyrite, St. Lawrence and Jefferson Counties: Prucha, J. J.
 Salt, Silurian: Kreidler, W. L., 1.

Geologic maps

- Brier Hill quadrangle: Dietrich, R. V., 2.
 Chazy-Rouses Point area: Stone, D. S.
 Copake quadrangle: Weaver, J. D.
 Kinderhook quadrangle: Craddock, J. C.
 Putnam County, bedrock: Grossman, I. G.
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Ground water

- Putnam County: Grossman, I. G.

Historical geology

- Allegany County, Devonian and Pleistocene: Muller, E. H., 1.
 Bear Mtn. area, potassium-argon ages, Precambrian-Paleozoic relation: Carr, D. R.
 Catskill delta, Devonian, Wellsville area: Rickard, L. V., 2.
 Devonian-Mississippian: Greiner, H. R.
 Cayuga Lake drainage basin, filled gorges, tills, radiocarbon ages: Muller, E. H., 3.
 Chautauqua County, Devonian, deep wells, lithology and correlation: Tesmer, I. H.
 Chazy-Rouses Point area, Ordovician breccias: Stone, D. S.
 Copake quadrangle, Taconic sequences, Cambrian-Ordovician: Weaver, J. D.
 Gardiners clay, Pleistocene, Long Island, cf. continental-shelf cores: Athearn, W. D.
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 Kinderhook quadrangle, Taconic sequences, Cambrian-Ordovician: Craddock, J. C.
 Lower quartzite, stratigraphic problem, southeastern: Norton, M. F.
 Mohawkian series, Ordovician, Wells outlier, biostratigraphy: Fisher, D. W., 1.
 Putnam County: Grossman, I. G.
 Schoharie formation, Devonian, redefinition: Johnsen, J. H.
 Silurian salt zone, cross sections: Kreidler, W. L., 1.

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Historical geology—Continued

- Taconic region, Cambrian-Ordovician, klippe problem: Bucher, W. H., 2.
 Vernon shale, Silurian, type area: Fisher, D. W., 2.
 Washington County, Cambrian, correlation: Theokritoff, G.
 Wellsville area, Devonian-Pennsylvanian: Rickard, L. V., 1.

Mineralogy.

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 Strontianite, Schoharie area: Gosse, R. C.

Paleontology.

- Artifacts, Folsom points, Staten Island: Burgher, E. R.
 Brachiopods, *Cyrtospirifer*, Catskill delta, Devonian-Mississippian: Greiner, H. R.
 Crustacean, anaspid, Moscow formation, Devonian: Wells, J. W., 2.
 Gowanda formation, Devonian, Alfred Station area: Howell, B. F., 5.
 Ferns, Oneonta formation and Delaware River sandstone, Devonian: Beck, C. B.
 Invertebrates, Vernon shale, Silurian, type area: Fisher, D. W., 2.
 Long Island, Pleistocene, continental-shelf cores, Gardiners clay assemblages: Athearn, W. D.
 Mohawkian series, Ordovician, Wells outlier, assemblages: Fisher, D. W., 1.
 Ostracodes, Ludlowville formation, Devonian: Copeland, M. J., 4; Kesling, R. V., 3.
 Popular account, western: Heubusch, C. A.
 Rochester area, Silurian-Devonian, collecting: Eaton, R. M.
 Wellsville area, Devonian fauna: Rickard, L. V., 1.

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 Border Belt gneisses, Adirondack Mts., remanent magnetism: Balsley, J. R., Jr., 7.
 Breccias, Chazy-Rouses Point area: Stone, D. S.
 Brier Hill quadrangle, Precambrian: Dietrich, R. V., 2.
 Grenville gneiss, St. Lawrence and Jefferson Counties, pyrite mineralization: Prucha, J. J.
 Hamilton County, gneisses: Bartholomé, P. M.
 Lake Ontario plain, glacial till: Kaiser, R. F.

New York—Continued

Petrology—Continued

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 Long Island, clay-silt cores from continental shelf cf. Gardiners clay: Athearn, W. D.
 Putnam County: Grossman, I. G.
 Schroon Lake area, intrusions and metamorphism: Rowley, E. B.

Physical geology.

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 Chazy-Rouses Point area: Stone, D. S.
 Copake quadrangle, Taconic klippe: Weaver, J. D.
 Hamilton County, metamorphism: Bartholomé, P. M.
 Kinderhook quadrangle, Taconic klippe: Craddock, J. C.
 Shawangunk Range, Shawangunk conglomerate: Friedman, J. D.
 Taconic klippe hypothesis, problem: Bucher, W. H., 2.

Physiographic geology.

- Allegany County, glaciation: Muller, E. H., 1.
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 Newfoundland. *See also* Labrador.
 Mining geology, Wabana iron mines, structural conditions: Norris, D. K., 2.

Areas described.

- Conche-Northern Grey Island area: Baird, D. M., 1.
 Red Indian Lake area: Canada G.S., 21.

Economic geology.

- Fluorite, St. Lawrence district: Williamson, D. H.
 Gypsum, southwestern: Baird, D. M., 2.
 Iron, Wabana beds, Conception Bay: Lyons, J. C.
 Magnesite, Gander River area: Cooper, G. E., 2.
 Mineral deposits, Dildo area: Canada G.S., 14.
 Port aux Choix-Castor River area, possibilities: Woodard, H. H., 1.
 Mineral resources, popular and elementary: Baird, D. M., 5.
 Pyrophyllite, Manuels area: Baird, D. M., 3.
 Strontium, Port au Port Peninsula: Baird, D. M., 4.
 Tungsten, Grey River area: Bahyrycz, G. S.

Geologic maps.

- Betts Cove-Tilt Cove area: Neale, E. R. W.
 Conche-Northern Grey Island area: Baird, D. M., 1.
 Dildo area: Canada G.S., 14.
 Gander Lake area, east half: Canada G.S., 17.

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Geologic maps—Continued

- Gander River area: Cooper, G. E., 2.
 Port aux Choix-Castor River area:
 Woodard, H. H., 1.
 Red Indian Lake area: Canada G.S.,
 21.

St. Lawrence fluorite district, sketch:
 Williamson, D. H.

Stephenville area: Canada G.S., 16.

Historical geology.

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 Devonian: Neale, E. R. W.
 Conche-Northern Grey Island area, Car-
 boniferous: Baird, D. M., 1.
 Dildo area: Canada G.S., 14.
 Mississippian - Pennsylvanian, south-
 western: Baird, D. M., 2.
 Port au Port Peninsula, Ordovician and
 Mississippian: Baird, D. M., 4.
 Port aux Choix-Castor River area, Pre-
 cambrian-Ordovician: Wood-
 ard, H. H., 1.
 Tectonic history: Marienfeld, F.-W.
 Wabana iron-ore beds, Ordovician, Con-
 ception Bay: Lyons, J. C.

Mineralogy.

- Popular and elementary: Baird,
 D. M., 5.
 Tilting igneous complex, Fogo Island:
 Williams, Harold.

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 E. R. W.
 Conche-Northern Grey Island area, Car-
 boniferous: Baird, D. M., 1.
 Gander Lake area, east half: Canada
 G.S., 17.
 Gander River magnesite areas: Cooper,
 G. E., 2.
 Grey River area, metamorphism: Bahy-
 rycz, G. S.
 Popular and elementary: Baird, D. M., 5.
 Port aux Choix-Castor River area, Cam-
 brian: Woodard, H. H., 1.
 Red Indian Lake area: Canada G.S., 21.
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 Tilting igneous complex, Fogo Island:
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Physical geology.

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 E. R. W.
 Gander Lake area, east half: Canada
 G.S., 17.
 Grey River area, metamorphism: Bahy-
 rycz, G. S.
 Port au Port Peninsula: Baird, D. M., 4.
 Port aux Choix-Castor River area,
 faults: Woodard, H. H., 1.
 Stephenville area: Canada G.S., 16.
 Tectonic history: Marienfeld, F.-W.
 Tilting igneous complex, Fogo Island:
 Williams, Harold.
 Wabana area, Conception Bay, iron-ore
 control: Lyons, J. C.
 Wabana iron mines, mining geology:
 Norris, D. K., 2.

Newfoundland—Continued

Physiographic geology.

- Continental-shelf banks: Marienfeld,
 F.-W.
 Popular and elementary: Baird, D. M., 5.
 Tilting area, Fogo Island: Williams,
 Harold.

Nicaragua. *See also* Central America.

Potentiometric survey, Palacagüina
 area: Laganá, T.

Economic geology.

- Antimony, Palacagüina area: Zoppis
 Braccl, L., 1.
 Clay, Jilóá deposit, Managua area: Zop-
 pis de Sena, R., 4.
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 de Sena, R., 1.
 Iron-bearing sandstone, El Fraile forma-
 tion, Miocene, Puerto Somoza:
 Zoppis Braccl, L., 3.
 Manganese, Terrabona and Matagalpa
 areas, possibilities: Zoppis
 Braccl, L., 2.
 Marble and building stones: Zoppis de
 Sena, R., 5.
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 Pozzuolana, La Trinidad area: Zoppis
 de Sena, R., 3.

Geologic maps.

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 Palacagüina area: Zoppis Braccl, L., 1.

Petrology.

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Physical geology.

- Masaya volcano: Zoppis de Sena, R., 2.

Nickel.

- British Columbia, Pacific Nickel mines,
 origin: Aho, A. E.
 Canadian Shield: Harrison, J. M., 1.
 Manitoba, Lynn Lake area: Ruttan,
 G. D.

New Jersey, Lambertville diabase, dis-
 tribution: Storm, T. W.

Ontario: Thomson, J. E., 1.

Quebec, Hainaut-Champagne area, pos-
 sibilities: Lyall, H. B.

St. Magloire and Rosaire-St. Pam-
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