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UNITED STATES DEPARTMENT OF THE INTERIOR

BIBLIOGRAPHY
OF
NORTH AMERICAN GEOLOGY
1929 AND 1930

GEOLOGICAL SURVEY BULLETIN 834

UNITED STATES DEPARTMENT OF THE INTERIOR

Ray Lyman Wilbur, Secretary

GEOLOGICAL SURVEY

Director

Bulletin 834

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1929 AND 1930

BY

JOHN M. NICKLES



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CONTENTS

BY

	Page
Introduction.....	1
Serials examined.....	3
Bibliography.....	9
Index.....	195

II



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BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY 1929 AND 1930

By JOHN M. NICKLES

INTRODUCTION

The bibliography of North American geology, including paleontology, petrology, and mineralogy, for the years 1929 and 1930 lists publications on the geology of the Continent of North America and adjacent islands and on Panama and the Hawaiian Islands. It includes textbooks and papers of general character by American authors, but not those by foreign authors, except papers that appear in American publications.

The papers, with full title and medium of publication, are listed under the names of their authors, which are arranged in alphabetic order. The author list is followed by an index to the literature cited.

The bibliography of North American geology to the end of the year 1928 is contained in Bulletins 746 (Bibliography) and 747 (Index), covering the period 1785-1918, and Bulletin 823, covering the period 1919-1928, in which previous bibliographies and cumulations of the United States Geological Survey have been combined.

SERIALS EXAMINED

- Academy of Natural Sciences of Philadelphia: Proceedings, vols. 81, 82; Special Publication no. 3. Philadelphia, Pa.
- Alabama Geological Survey: Bulletins 33, 35-41; Circulars 6, 7, 9, 10; Museum Paper, no. 9. Montgomery, Ala.
- Alberta, Scientific and Industrial Research Council: Reports 18, 21, 24, 25. Edmonton, Alberta.
- American Academy of Arts and Sciences: Proceedings, vols. 63, no. 12, 64. Boston, Mass.
- American Association of Petroleum Geologists: Bulletin, vols. 13, 14. Tulsa, Okla.
- American Institute of Mining and Metallurgical Engineers: Year Book 1929; Technical Publications 158-385. New York. See also Mining and Metallurgy.
- American Journal of Science, 5th ser., vols. 17-20. New Haven, Conn.
- American Mineralogist, vols. 14, 15. Menasha, Wis.
- American Museum of Natural History: Bulletin, vols. 56, 60; American Museum Novitates, nos. 338-447. New York. See also Natural History.
- American Naturalist, vols. 63, 64. New York.
- American Philosophical Society: Proceedings, vols. 68, 69; Transactions, new ser., vol. 23, pt. 1. Philadelphia, Pa.
- Annales de paléontologie, t. 17-19. Paris.
- Annales des mines, 12^e sér., t. 15-18. Paris.
- Annals and Magazine of Natural History, 10th ser., vols. 3-6. London.
- Appalachia, vols. 17 (no. 4)-18 (no. 2). Boston, Mass.
- Arizona State Bureau of Mines: Bulletins 127, 129. Tucson, Ariz.
- Arkansas Geological Survey: Bulletins 1, 3-5. Little Rock, Ark.
- Association of American Geographers: Annals, vols. 19, 20. Albany, N. Y.
- Bernice Pauahi Bishop Museum: Bulletin, nos. 58, 65-68, 71, 72, 74, 75, 77, 78; Memoirs, vol. 11; Occasional Papers, vol. 9; Special Publication nos. 15, 16. Honolulu, Hawaiian Islands.
- Boston Society of Natural History: Proceedings, vol. 39, nos. 5-7; Occasional Papers, vol. 5, pp. 251-332. Boston, Mass.
- Botanical Gazette, vols. 87-90. Chicago, Ill.
- British Columbia, Bureau of Mines: Annual Reports of Minister of Mines, 1928, 1929. Victoria, B. C.
- Buffalo Society of Natural Science: Bulletin, vols. 14, nos. 2, 3, 15, no. 1. Buffalo, New York.
- Bulletins of American Paleontology, vol. 15, nos. 54-58, 62. Ithaca, New York.
- California Academy of Sciences: Proceedings, 4th ser., vols. 18, 19, nos. 1-11. San Francisco, Calif.
- California, Department of Natural Resources, Division of Mines and Mining: Bulletin, nos. 102, 103; Mining in California, vols. 25, 26. San Francisco, Calif.

- California, University of, Department of Geology: Bulletin, vols. 18, 19, nos. 1-17; Memoirs, vol. 10; Seismographic Stations; Bulletin, vol. 2, nos. 16-19; Publications in Geography, vol. 3, nos. 2-7. Berkeley, Calif.
- Canada, Geological Survey: Summary Reports 1928, 1929; Memoirs 155-164; Museum Bulletins 54-64; Economic Geology Series, no. 6; Miscellaneous Series, no. 2. Ottawa, Ont.
- Canadian Alpine Journal, vol. 17. Banff, Alberta.
- Canadian Field Naturalist, vols. 43, 44. Ottawa, Ont.
- Canadian Institute of Mining and Metallurgy; Transactions, vols. 31, 32; Canadian Mining and Metallurgical Bulletin, nos. 201-224. Montreal, Quebec.
- Canadian Mining Journal, vols. 50, 51. Gardenvale, Quebec.
- Carnegie Institution of Washington: Year Book, nos. 28, 29. Washington, D. C.
- Carnegie Museum: Annals, vols. 19, nos. 2-4, vol. 20, no. 1. Pittsburgh, Pa.
- Centralblatt für Mineralogie, Geologie und Paläontologie, Abt. A and B, 1929, 1930. Stuttgart, Germany.
- Chicago, University of, Walker Museum Memoirs, vol. 1, no. 1. Chicago, Ill.
- Colorado, University of: Studies, vols. 17, 18, nos. 1, 2. Boulder, Colo.
- Colorado School of Mines Magazine, vols. 19, 20. Golden, Colo.
- Colorado Scientific Society: Proceedings, vol. 12, nos. 1-9. Denyer, Colo.
- Connecticut Academy of Arts and Sciences: Transactions, vols. 30, 31, pp. 1-191. New Haven, Conn.
- Connecticut State Geological and Natural History Survey: Bulletins 45-47. Hartford, Conn.
- Cuba, Dirección de montes y minas: Boletín de minas, no. 14. Habana, Cuba.
- Denison University, Scientific Laboratories; Bulletin, vols. 24, 25. Granville, Ohio.
- Deutsche geologische Gesellschaft: Zeitschrift, Bd. 81, 82. Berlin, Germany.
- Economic Geology, vols. 24, 25. Lancaster, Pa.
- Elisha Mitchell Scientific Society: Journal, vols. 44, no. 1-46, no. 1. Chapel Hill, N. C.
- Engineering and Mining Journal, vols. 127-130. New York.
- Engineers and Engineering (Engineers' Club of Philadelphia), vols. 46, 47. Philadelphia, Pa.
- Engineers' Society of Western Pennsylvania: Proceedings, vols. 45, 46. Pittsburgh, Pa.
- Field Museum of Natural History: Publications 254, 260 (Geological series, vol. 4, no. 5, vol. 5, no. 2); Geology, Memoirs, vol. 1, no. 1. Chicago, Ill.
- Florida State Geological Survey: Annual Report, 20th; Bulletin, nos. 3-5. Tallahassee, Fla.
- Franklin Institute: Journal, vols. 207-210. Philadelphia, Pa.
- Geographical Journal, vols. 73-76. London.
- Geographical Review, vols. 19, 20. New York.
- Geographical Society of Philadelphia: Bulletin, vols. 27, 28. Philadelphia, Pa.
- Geological Magazine, new ser., vols. 66-67. London.
- Geological Society of America: Bulletin, vols. 40, 41, no. 3. New York.
- Geological Society of London: Quarterly Journal, vols. 85, 86. London.
- Geologische Rundschau, Bd. 20, 21. Leipzig.
- Geologists' Association, London: Proceedings, vols. 40, 41. London.
- Georgia Geological Survey: Bulletin 44. Atlanta, Ga.
- Harvard College, Museum of Comparative Zoology: Bulletin, vols. 69, 70, nos. 1-5, 71, nos. 1-3; Memoirs, vols. 43, pt. 5, 50, nos. 3, 4. Cambridge, Mass.

- Hawaiian Volcano Observatory: Monthly Bulletin, vol. 17, nos. 1-7. Honolulu, Hawaii.
- Idaho, Bureau of Mines and Geology: Bulletin no. 12; Pamphlets 32-34. Moscow, Idaho.
- Illinois State Academy of Science: Transactions, vols. 21, 22. Springfield, Ill.
- Illinois State Geological Survey: Bulletins 42, 56, 57; Press Bulletin Series, Illinois Petroleum, nos. 17, 18; Cooperative Mining Series, nos. 32, 33; Report of Investigations, nos. 17-21. Springfield, Ill.
- Indiana, Department of Conservation, Division of Geology: Annual report, 10th; Publications 90, 91. Indianapolis, Ind.
- Indiana Academy of Science: Proceedings, vol. 38. Indianapolis, Ind.
- Institution of Mining and Metallurgy: Bulletin, nos. 292-315. London.
- Institution of Mining Engineers: Transactions, vols. 76, pts. 4-6, 77-79, 80, pts. 1-3. Newcastle upon Tyne, England.
- Institution of Petroleum Technologists: Journal, vols. 15, 16. London.
- Iowa Academy of Sciences: Proceedings, vols. 35, 36. Des Moines, Iowa.
- Japan, Imperial Earthquake Investigation Committee: Bulletin, vol. 11, no. 4. Tokyo, Japan.
- Johns Hopkins University: Studies in Geology, nos. 9, 10. Baltimore, Md.
- Journal of Geography, vols. 28, 29. Menasha, Wis.
- Journal of Geology, vols. 37, 38. Chicago, Ill.
- Journal of Paleontology, vols. 3, 4. Chicago, Ill.
- Kansas Academy of Sciences: Transactions, vols. 31, 32. Topeka, Kans.
- Kansas State Geological Survey: Bulletins 12, 15-16. Lawrence, Kans.
- Kansas University, Science Bulletin, vol. 19, nos. 1-7 (pt. 1). Lawrence, Kans.
- Kentucky Academy of Science: Transactions, vols. 3, 4. Lexington, Ky.
- Kentucky Geological Survey: Fourth Series, vols. 31-33, 35; Pamphlet 22. Frankfort, Ky.
- Lake Superior Mining Institute: Proceedings, vols. 27, 28. Ishpeming, Mich.
- Los Angeles Museum: Publication, nos. 1, 2. Los Angeles, Calif.
- Maine, State Geologist; First Annual Report. Augusta, Me.
- Maryland Geological Survey: Baltimore County. Baltimore, Md.
- Meddelelser om Grönland, Bd. 71-76. Copenhagen, Denmark.
- Mexico, Instituto geológico: Anales, t. 3, 4; Boletín, nos. 48, 49; Folleto de divulgación, nos. 32, 35, 36. Mexico City, D. F.
- Michigan Academy of Science, Arts, and Letters: Papers, vols. 9-11. Ann Arbor, Mich.
- Michigan, University of, Museum of Paleontology: Contributions, vol. 3, nos. 1-8. Ann Arbor, Mich.
- Mining and Metallurgical Society of America: Bulletin, vols. 22, 23, nos. 198-215. New York.
- Mining and Metallurgy (American Institute of Mining and Metallurgical Engineers), vols. 10, 11. New York.
- Mining Congress Journal, vols. 15, 16. Washington, D. C.
- Mining Magazine, vols. 40-43. London.
- Mississippi State Geological Survey: Bulletin 23. Jackson, Miss.
- Missouri Bureau of Geology and Mines: Second Series, vols. 23, 24; Biennial Report. Jefferson City, Mo.
- National Academy of Sciences: Proceedings, vols. 15, 16. Washington, D. C.
- Natural History; the Journal of the American Museum of Natural History, vols. 29, 30. New York.
- Nautilus vols. 42-44, nos. 1, 2. Philadelphia, Pa.

- Nevada State Bureau of Mines and Mackay School of Mines: Bulletin, vol. 1, no. 1. Carson City, Nev.
- New Jersey Geological Survey: Bulletins 32-35. Trenton, N. J.
- New Mexico, State School of Mines: Bulletin, nos. 5, 6; circular, nos. 1, 2. Socorro, N. Mex.
- New York Academy of Sciences: Annals, vols. 31, 32. New York.
- New York State Museum Bulletin, nos. 279-285. Albany, N. Y.
- North Carolina Geological and Economic Survey: 3d Biennial Report; Bulletins 36, 37; Economic Papers 61, 62. Raleigh, N. C.
- Nova Scotian Institute of Science: Proceedings and Transactions, vol. 17, pts. 3, 4. Halifax, Nova Scotia.
- Ohio Academy of Science: Proceedings, vol. 8, pts. 6, 7. Columbus, Ohio.
- Ohio Geological Survey: Fourth Series, Bulletin 34. Columbus, Ohio.
- Ohio Journal of Science, vols. 29, 30. Columbus, Ohio.
- Oklahoma Academy of Science: Proceedings, vols. 7-9. Norman, Okla.
- Oklahoma Geological Survey: Bulletins 14, 40 (vols. 2, 3), 46, 48-54; Circulars 18-21. Norman, Okla.
- Ontario Department of Mines: Reports, vols. 37-39, pts. 1, 4, 5. Toronto, Ontario.
- Paleontologische Zeitschrift, Bd. 11, 12. Berlin, Germany.
- Pan-American Geologist, vols. 51-54. Des Moines, Iowa.
- Pennsylvania Academy of Science: Proceedings, vols. 2, 3. Harrisburg, Pa.
- Pennsylvania Geological Survey: Fourth Series; Administrative Report; Bulletins (mimeographed) 95-100; Bulletins G3, M6 pt. 1, M13, M14; Topographic and Geologic Atlas no. 168. Harrisburg, Pa.
- Portland Society of Natural History: Proceedings, vol. 4, pt. 1. Portland, Me.
- Quebec (Province), Bureau of Mines: Reports on Mining Operations, 1928-1929. Quebec, Canada.
- Rochester Academy of Science: Proceedings, vol. 6, no. 8, 7 no. 1. Rochester, N. Y.
- Royal Society of Canada: Proceedings and Transactions, 3d ser., vols. 23, 24. Ottawa, Ontario.
- San Diego Society of Natural History: Transactions, vol. 5, nos. 14-20, vol. 6, nos. 1-18. San Diego, Calif.
- Science, new ser., vols. 69-72. New York.
- Scientific Monthly, vols. 28-31. New York.
- Seismological Society of America: Bulletin, vols. 19, 20. Stanford University, Calif.
- Sierra Club Bulletin, vols. 14, no. 1, 15, no. 1. San Francisco, Calif.
- Smithsonian Institution: Smithsonian Miscellaneous Collections, vols. 73, no. 6, 81, nos. 7-15, 82-84; Annual reports, 1928, 1929. Washington, D. C.
- Société de géographie de Québec: Bulletin, vols. 23, nos. 1, 2, 24, no. 1. Quebec, Canada.
- South Dakota Geological Survey: Report of Investigations nos. 3, 5-9. Vermillion, S. Dak.
- South Dakota School of Mines: Bulletin, no. 16. Rapid City, S. Dak.
- Southern California Academy of Sciences: Bulletin, vols. 28, 29. Los Angeles, Calif.
- Stanford University, Department of Geology: Contributions, vol. 1, no. 1. Stanford University, Calif.
- Staten Island Institute of Arts and Sciences: Proceedings, vol. 5, pt. 1. Staten Island, N. Y.

- Tennessee Academy of Science: Journal, vols. 4, 5. Nashville, Tenn.
- Texas, University, Bureau of Economic Geology and Technology: Bulletins 2901, 2907, 2913, 3025, 3027. Austin, Tex.
- Toronto University, Studies: Geological Series, nos. 28, 29. Toronto, Ontario.
- Torrey Botanical Club: Bulletin, vols. 56, 57. Lancaster, Pa.
- Torreya, vols. 29, 30. Lancaster, Pa.
- United States Bureau of Mines: Bulletins 285, 290, 294, 296-325, 327-332; Economic Papers 1-10; Technical Papers 441-483, 485, 487, 488, 495. Washington, D. C.
- United States Geological Survey: Annual Report, 50th, 51st; Professional Papers 144-165 (pts.); Bulletins 803-817, 821 (A, B), 822 (A-C), 824 (A); Water-Supply Papers 593-595, 597-619, 621-632, 634-636, 637 (A), 644, 646-650, 655; Geologic Atlas of the United States, Folio 225. Washington, D. C.
- United States National Museum: Reports for 1928-29 and for 1930; Bulletins 76, 100 (vol. 10), 149, 150; Proceedings, vols. 75-78. Washington, D. C.
- Virginia Academy of Science: Proceedings, 1928-29, 1929-30. Richmond, Va.
- Virginia Geological Survey: Bulletin 32. Charlottesville, Va.
- Washington Academy of Sciences: Journal, vols. 19, 20. Washington, D. C.
- Western Society of Engineers: Journal, vols. 34, 35. Chicago, Ill.
- West Virginia Academy of Science: Proceedings (W. Va. Univ. Bull.), vol. 3 Morgantown, W. Va.
- West Virginia Geological Survey: (County Reports) Pocahontas County. Morgantown, W. Va.
- Wisconsin Academy of Science, Arts, and Letters: Transactions, vols. 24, 25. Madison, Wis.
- Wisconsin Geological and Natural History Survey: Bulletins 46, 71, 72, 77 Madison, Wis.
- Wyoming, State Geologist: Bulletins 21, 22. Cheyenne, Wyo.
- Zeitschrift für praktische Geologie, Jg. 37, 38. Berlin, Germany.
- Zeitschrift für Vulkanologie, Bd. 12. Berlin, Germany.

BIBLIOGRAPHY

Ackers, A. L.

1. (and DeChicchis, R., and Smith, R. H.). Hendrick field, Winkler County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 7, pp. 923-944, 12 figs., July, 1930.

Adams, George Irving.

2. The streams of the Coastal Plain of Alabama and the Lafayette problem: Jour. Geology, vol. 37, no. 3, pp. 193-203, 4 figs., April-May, 1929.
3. Molding sands of Alabama: Alabama Geol. Survey, Bull. no. 35, 94 pp., 67 figs., 1929.
4. The significance of the quartzites of Pine Mountain in the crystallines of west-central Georgia: Jour. Geology, vol. 38, no. 3, pp. 271-279, 2 figs., April-May, 1930.
5. Gold deposits of Alabama and occurrences of copper, pyrite, arsenic, and tin: Alabama Geol. Survey, Bull. 40, 91 pp., 6 figs., 4 pls., September, 1930.
6. Origin of the white clays of Tuscaloosa age (Upper Cretaceous) in Alabama, Georgia, and South Carolina: Econ. Geology, vol. 25, no. 6, pp. 621-626, 1 fig., September-October, 1930.

Adams, John Emery.

7. Triassic of west Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 1045-1055, 2 figs., August, 1929.
8. Origin of oil and its reservoir in Yates pool, Pecos County, Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 6, pp. 705-717, 1 fig., June, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, p. 224, April, 1930.

Adams, Leason H.

9. The general character of deep-seated materials in relation to volcanic activity: Am. Geophysical Union, Tenth and Eleventh Annual Meetings, Trans., pp. 309-314, 1 fig., National Research Council, June, 1930.

Adams, Leverett Allen.

10. (and Martin, H. T.). A new urodele from the lower Pliocene of Kansas: Am. Jour. Sci., 5th ser., vol. 17, pp. 504-520, 3 figs., June, 1929.

Addington, Arch R.

11. Special topographic features and the physiographic background of the Bloomington, Indiana, quadrangle: Indiana Acad. Sci., Proc., vol. 38, pp. 247-261, 7 figs., 1929.

Adkins, Walter Scott.

12. Some Upper Cretaceous Taylor ammonites from Texas: Texas, Univ., Bull., no. 2901, pp. 203-222, 2 pls., August, 1929.
13. Some recent literature on the western Mesozoic: Jour. Paleontology, vol. 4, no. 1, pp. 73-87, March, 1930.

Agar, William MacDonough.

14. Proposed subdivisions of the Becket gneiss of northwest Connecticut and their relation to the surrounding formation: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 197-238, 9 figs., March, 1929.
15. (and Flint, Richard Foster, and Longwell, Chester R.). *Geology from original sources; organized collateral readings for students in general geology.* 527 pp., 16 figs., 47 pls., New York, Henry Holt & Co., 1929.
16. The Hodges nickel prospect, Torrington, Conn.: *Am. Jour. Sci.*, 5th ser., vol. 19, pp. 185-194, 7 figs., March, 1930.

Ageton, C. N.

17. *Geología del anticlinal de Jovellanos: Cuba, Direc. montes y minas, Bol. minas*, no. 14, pp. 23-29, 1929.

Ahlman, H. W: son.

18. On the formation of hoarfrost and its relation to glacial growth: *Jour. Geology*, vol. 37, no. 3, pp. 275-280, 2 figs., April-May, 1929.

Alcock, Frederick James.

19. Notes on a Devonian plant and other observations on a visit to Cross Point, Gaspé: *Canadian Field Naturalist*, vol. 43, no. 3, pp. 47-49, 2 figs., March, 1929.
20. Some mineral occurrences of economic interest in New Brunswick: *Canada, Geol. Survey, Summ. Rept.*, 1928, pt. C, pp. 90-93, 1930.
21. Zinc and lead deposits of Canada: *Canada, Geol. Survey, Econ. Geol. ser.* no. 8, 406 pp., 34 figs., 8 pls., map, 1930.

Alden, William Clinton.

22. Thomas Chrowder Chamberlin's contributions to glacial geology: *Jour. Geology*, vol. 37, no. 4, pp. 293-319, May-June, 1929.

Alderson, W. P.

23. (and MacKay, A. A.). The Aldermac mine, Rouyn, Quebec: *Canadian Min. Jour.*, vol. 51, no. 50, pp. 1190-1193, 2 figs., Dec. 12, 1930.

Aldrich, H. R. See also Bean, 159; Hotchkiss, 1185.

24. The geology of the Gogebic iron range of Wisconsin: *Wisconsin Geol. and Nat. Hist. Survey, Bull.* 71, 279 pp., 32 figs., 16 pls. (incl. maps), 4 tables, township maps, 1929.
25. A demonstration of the reflection of geologic conditions in observed magnetic intensity: *Am. Inst. Min. and Met. Eng., Geophysical Prospecting*, pp. 385-400, 9 figs., 1929.
26. (and Fassett, N. C.). Botanical and geological evidence for an ancient lake [in northwestern Wisconsin]: *Science*, new ser., vol. 70, pp. 45-46, July 12, 1929.

Aldrich, Truman Heminway, sr.

27. (and Jones, Walter B.). Footprints from the coal measures of Alabama: *Alabama, Geol. Survey, Mus. Paper* no. 9, 64 pp., 17 pls., 1930.

Alexander, Charles Ivan. See also Cushman, 606.

28. Ostracoda of the Cretaceous of north Texas: *Texas, Univ., Bull.*, no. 2907, 137 pp., 10 pls., February 15, 1929.

Allan, John Andrew.

29. Geological problems of the Spray water-power project in Alberta: *Eng. Jour. (Eng. Inst. Canada)*, vol. 10, no. 10, pp. 447-451, 4 figs., October, 1927.

Allan, John Andrew—Continued.

30. Geological Survey division [Alberta]; summary of investigations in 1928: Alberta, Sci. and Ind. Research Council, Ninth Ann. Rept., 1928, Rept. no. 24, pp. 20-32, 10 figs., 1929.
31. Geological Survey division [Alberta]; report of progress, 1929: Alberta, Sci. and Ind. Research Council, 10th Ann. Rept. (Rept. no. 25), pp. 27-30, Edmonton, 1930.
32. Salt and gypsum in Alberta: Canadian Min. and Met. Bull., no. 207, pp. 765-787, 14 figs., June, 1929; Canadian Inst. Min. and Met., Trans., vol. 32, pp. 232-254, 14 figs. [1930].

Allan, Thomas H.

33. (and Valerius, M. M.). Fairport oil field, Russell County, Kans.: Structure of typical American oil fields, vol. 1, pp. 35-48, 10 figs., Am. Assoc. Petroleum Geologists, 1929.

Allen, Eugene Thomas. See Wright, 2932.

Allen, Maxwell W.

34. The tidal factor in earthquake causation: Seismol. Soc. America, Bull., vol. 19, no. 1, pp. 28-37, 1 fig., March, 1929.

Allen, Victor Thomas.

35. Altered tuffs in the Ordovician of Minnesota: Jour. Geology, vol. 37, no. 3, pp. 239-248, 2 figs., April-May, 1929.
36. The Ione formation of California: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 14, pp. 347-448, 10 figs., 14 pls., December 28, 1929; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, pp. 175-176, March 30, 1929.
37. Petrography of the weathered zones of glacial deposits (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 129-130, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 85-86, March 31, 1930.
38. Triassic bentonite of the Painted Desert: Am. Jour. Sci., 5th ser., vol. 19, pp. 283-288, 1 fig., April, 1930.

Allende, Roque.

39. Los depósitos de cromo de Camagüey: Cuba, Direc. montes y minas, Bol. minas, no. 14, pp. 11-22, 6 figs., 1929.
40. Informe relativo á la determinación de una faja protectora para las manantiales de Martín mesa con relación á la explotación de las canteras existentes en la finca "Cañita," que linda con dichos manantiales por su parte sur: Cuba, Direc. montes y minas, Bol. minas, no. 14, pp. 31-36, 1 fig., 2 pls., 1929.

Alling, Harold Lattimore.

41. A porphyritic monzonitic bostonite: Vermont, State Geologist, 16th Rept., pp. 290-291 [1929].
42. The indices of refraction of plagioclase feldspars: Jour. Geology, vol. 37, no. 5, pp. 462-482, 4 figs., July-August, 1929.
43. The ages of the Adirondack gabbros: Am. Jour. Sci., 5th ser., vol. 18, pp. 472-476, December, 1929.
44. Feldspars in the Adirondack anorthosite: Am. Mineralogist, vol. 15, no. 7, pp. 267-271, July, 1930.

Ames, E. R.

45. Present activities among southern Louisiana salt domes (abstract): Pan-Am. Geologist, vol. 53, no. 3, pp. 220-221, April, 1930.

- Anderson, Alfred Leonard. See also Ross, 2204.
46. Geology and ore deposits of Lava Creek district, Idaho: Idaho, Bur. Mines and Geology, Pam. no. 32, 70 pp. (mimeographed), 4 pls. (incl. map), August, 1929.
 47. Cretaceous and Tertiary planation in northern Idaho: Jour. Geology, vol. 37, no. 8, pp. 747-764, 1 fig., November-December, 1929.
 48. Geology and ore deposits of the Clark Fork district, Idaho: Idaho Bur. Mines and Geology, Bull. no. 12, 132 pp., 2 figs., 14 pls. (incl. map), March, 1930.
 49. Sequence of ore deposition in north Idaho: Econ. Geology, vol. 25, no. 2, pp. 160-175, March-April, 1930.
 50. The geology and mineral resources of the region about Orofino, Idaho: Idaho, Bur. Mines and Geology, Pam. no. 34, 63 pp. (multigraphed), 7 pls., June, 1930.
 51. The incipient oxidation of galena: Econ. Geology, vol. 25, no. 5, pp. 528-542, 9 figs., August, 1930.
- Anderson, Charles A. See also Finch, 821; Knopf, 1460.
52. Opal stalactites and stalagmites from a lava tube in northern California: Am. Jour. Sci., 5th ser., vol. 20, pp. 22-26, 1 fig., July, 1930.
- Anderson, Frank Marion.
53. Kreyenhagen shales and Cantua shale (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 77, August, 1930.
 54. Age of Horsetown beds of California (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 158, September, 1930.
- Anderson, George H.
55. White Mountain quadrangle of California-Nevada (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 156, September, 1930.
- Anderson, Harvey W.
56. Some Cretaceous Foraminifera of South Dakota: South Dakota Geol. and Nat. Hist. Survey, Rept. of Investigations, no. 5, 7 pp., 10 pls. (mimeographed), June, 1930.
- Antevs, Ernst. See also Reeds, 2120.
57. Quaternary marine terraces in nonglaciated regions and changes of level of sea and land: Am. Jour. Sci., 5th ser., vol. 17, pp. 35-49, January, 1929.
 58. Conditions of varve correlations (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 126, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 151-152, March, 1929.
 59. Maps of the Pleistocene glaciations: Geol. Soc. America, Bull., vol. 40, no. 4, pp. 631-720, 21 figs. (maps), December 31, 1929; abstract, no. 1, p. 201, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 160, March, 1929.
 60. Preparation of new maps of Pleistocene glaciations: Carnegie Inst. Washington, Year Book no. 28, p. 387, 1929.
 61. Varved sediments: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 61-65, 1930.
 62. Last ice recession in northern Manitoba (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 94, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, pp. 135-136, March, 1930.
 63. A geological chronometer; the varved glacial clays give an accurate measure of the ages: Canadian Min. Jour., vol. 51, no. 17, pp. 388-390, April 25, 1930.

Apfel, Earl T. See Kay, 1317.

Applin, Esther Richards. See Weinzierl, 2792.

Arnold, Chester Arthur.

64. Petrified wood in the New Albany shale: *Science*, new ser., vol. 70, pp. 581-582, December 13, 1929.

65. The genus *Callixylon* from the upper Devonian of central and western New York: *Michigan Acad. Sci., Papers*, vol. 11, pp. 1-50, 1 fig., 19 pls., 1930.

66. Bark structure of *Callixylon*: *Bot. Gazette*, vol. 90, no. 4, pp. 426-431, 6 figs., December, 1930.

Ashley, George Hall. See also Pa. G. S., 2008.

67. The Monongahela series of Pennsylvania: *West Virginia Acad. Sci., Proc.*, vol. 3, pp. 147-158, 1 fig., *West Virginia Univ. Bull. ser.* no. 30, no. 1 [1930].

68. Age of the Appalachian peneplains (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 101, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 137, March, 1930.

Athy, Lawrence Ferdinand.

69. Density, porosity, and compaction of sedimentary rocks: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 1, pp. 1-24, 5 figs., January, 1930.

70. Compaction and oil migration: *Am. Assoc. Petroleum Geologists, Bull.* vol. 14, no. 1, pp. 25-35, 1 fig., January, 1930.

Auer, Vaino.

71. Peat bogs in southeastern Canada: *Canada, Geol. Survey, Mem.* 162, 32 pp., 1 fig., 3 sheets of profiles and sections, 1930.

Aurand, Harry A. See Johnson, 1277.

Austin, George M.

72. Surface geology of Clinton County, Ohio. 68 pp., map, published by Wilmington College, Wilmington, Ohio, 1930.

Backlund, Helge G.

73. Contributions to the geology of northeast Greenland: *Meddelelser om Grönland*, Bd. 74, pp. 207-296, 10 figs., 2 pls., 1930.

Bailey, Edgar Henry Summerfield.

74. Water solubility an economic force: *Kansas Acad. Sci., Trans.*, vol. 31, pp. 56-59 [1930?].

Bailey, H. B.

75. Hydration factors in gypsum deposits of the maritime provinces [of Canada]: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 308, 11 pp., March, 1930.

Bailey, R. K. See Wells, 2810.

Bailey, Reed. See Branson, 303.

Bailey, Thomas L.

76. Eocene age of Markeley formation (abstract): *Pan-Am. Geologist*, vol. 54, no. 1, pp. 78-79, August, 1930.

77. The geology of the Potrero Hills and Vacaville region, Solano County, Calif.: *California, Univ., Dept. Geol. Sci., Bull.*, vol. 19, no. 15, pp. 321-323, 2 pls. [incl. map], November 29, 1930.

Bailey, Willard F.

78. Petroleum possibilities in Tennessee: *Oil and Gas Jour.*, vol. 28, no. 46, pp. 42, 148, 150, 1 fig., April 3, 1930.

Bain, George W.

79. The graphite deposits of Louisa, Quebec: *Econ. Geology*, vol. 24, no. 7, pp. 733-752, 7 figs., November, 1929.
80. Structure of gold-bearing quartz in northern Ontario and Quebec: *Am. Inst. Min. and Met. Eng., Tech. Pub. no. 327*, 44 pp., 17 figs., May, 1930.

Baker, Arthur A. See also Reeside, 2122.

81. (and Reeside, J. B., jr.). Some features of Permian sedimentation in northern Arizona and southern Utah (abstract): *Washington Acad. Sci., Jour.*, vol. 19, no. 11, p. 234, June 4, 1929.
82. (and Reeside, J. B., jr.). Correlation of the Permian of southern Utah, northern Arizona, northwestern New Mexico, and southwestern Colorado: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 11, pp. 1413-1448, 12 figs., November, 1929.
83. (and Dane, C. H., and Reeside, J. B.). Correlation of the Jurassic formations of southern Utah, northern Arizona, northwestern New Mexico, and southwestern Colorado (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 131, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 87, March 31, 1930.

Baker, Charles Laurence.

84. Depositional history of the red beds and saline residues of the Texas Permian: *Texas, Univ., Bull.* no. 2901, pp. 9-72, August, 1929.
85. Discussion of Permian symposium: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 8, pp. 1057-1063, August, 1929.
86. Nonarid genesis of American red beds: *Pan-Am. Geologist*, vol. 52, no. 5, pp. 343-354, December, 1929.
87. Overthrusting in trans-Pecos Texas: *Pan-Am. Geologist*, vol. 53, no. 1, pp. 23-28, 1 fig., 1 pl., February, 1930.
88. Tectonics of the eastern Mexico Cordillera and the Laramide thrusts of trans-Pecos Texas (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 168-169, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 4, pp. 304-306, May, 1930.
89. Geological cross section of Isthmus of Tehuantepec: *Pan-Am. Geologist*, vol. 53, no. 3, pp. 161-174, 1 pl., April, 1930.
90. Natural regions of Mexico (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, pp. 311-312, May, 1930.
91. Salient structural features of Mexico (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, pp. 313-314, May, 1930.
92. Cenozoic history of Texas plains (abstract): *Pan-Am. Geologist*, vol. 54, no. 2, p. 139, September, 1930.

Baker, Frank Collins.

93. A study of the Pleistocene Mollusca collected in 1927 from deposits in Fulton County, Ill.: *Illinois State Acad. Sci., Trans.*, vol. 21, pp. 288-312, February, 1929.
94. The molluscan fauna of the southern part of Lake Michigan and its relationship to old glacial Lake Chicago: *Illinois State Acad. Sci.*, vol. 22, pp. 186-194, 3 figs., 1930.

Baker, Frank Collins—Continued.

95. A review of our present knowledge concerning the character and distribution of the Pleistocene aquatic molluscan life of Illinois: Illinois State Acad. Sci., Trans., vol. 22, pp. 411-434, 2 figs., April, 1930.
96. A new record of *Castoroides ohioensis* from Illinois: Science, new ser., vol. 71, p. 389, April 11, 1930.
97. Influence of the glacial period in changing the character of the molluscan fauna of North America: Ecology, vol. 11, no. 3, pp. 469-479, 9 figs., July, 1930.
98. The variation of molluscan life during Pleistocene and Recent time: Nautilus, vol. 44, no. 1, pp. 21-24, July, 1930.

Balk, Robert.

99. Primary structure of the Adirondack anorthosite (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 183-184, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, pp. 67-68, February, 1929.
100. Structural survey of the Adirondack anorthosite: Jour. Geology, vol. 38, no. 4, pp. 289-302, May-June, 1930; abstract, Washington Acad. Sci., Jour., vol. 20, no. 12, pp. 241-242, June 19, 1930.

Ball, John R.

101. Brachiopoda of certain Silurian horizons of southeastern Missouri (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 213, March 30, 1929.
102. The Silurian faunas of southeastern Missouri: Illinois State Acad. Sci., Trans., vol. 21, pp. 326-328, February, 1929.
103. (and Powers, William E.). Shore recession in southeastern Wisconsin: Illinois State Acad. Sci., Trans., vol. 22, pp. 435-441, April, 1930.

Ball, Oscar M.

104. A partial revision of fossil forms of *Artocarpus*: Bot. Gazette, vol. 90, no. 3, pp. 312-325, 17 figs., November, 1930.

Ball, Sydney.

105. (and Singewald, Joseph T., jr.). An alnoite pipe, its contact phenomena, and ore deposition near Avon, Mo., by Joseph T. Singewald, jr., and Charles Milton; a discussion: Jour. Geology, vol. 38, no. 5, pp. 456-459, July-August, 1930.

Bancroft, M. F. See Walker, 2747.

Bandy, Mark C.

106. The genesis of lodestone: Econ. Geology, vol. 25, no. 8, pp. 868-870, December, 1930.

Bannerman, H. M.

107. Mineral deposits of the eastern part of Rush River map area, Woman River district, Ontario: Canada, Geol. Survey, Summ. Rept., 1928, pt. C, pp. 17-27, 1930.
108. Mineral occurrences in Woman River district, Ontario: Canada, Geol. Survey, Summ. Rept., 1929, pt. C, pp. 1-19, 1930.

Barbour, Erwin Hinckley.

109. Ancient elephants of Nebraska: Pan-Am. Geologist, vol. 53, no. 1, pp. 39-40, February, 1930.
110. Proboscidea of Nebraska (abstract): Pan-Am. Geologist, vol. 53, no. 4 p. 302, May, 1930.

Barbour, George P.

111. Origin of the Bedford augen gneiss: *Am. Jour. Sci.*, 5th ser., vol. 19 pp. 351-358, May, 1930.

Barksdale, Jelks.

112. Possible salt deposits in the vicinity of the Jackson fault, Alabama: Alabama, Geol. Survey, Circ. 10, 23 pp., 3 pls., February, 1929.
 113. Lignite in Alabama: Alabama, Geol. Survey, Bull. 33, 64 pp., 7 pls., May, 1929.
 114. Statistics of the mineral production of Alabama for 1926: Alabama Geol. Survey, Bull. no. 36, 206 pp., May, 1929.
 115. Statistics of the mineral production of Alabama for 1927: Alabama Geol. Survey, Bull. 37, 197 pp., July, 1929.
 116. Statistics of the mineral production of Alabama for 1928: Alabama, Geol. Survey, Bull. 39, 59 pp., July, 1930.
 117. Ochers of Alabama: Alabama, Geol. Survey, Bull. 41, 33 pp., 3 pls., July, 1930.

Barnes, Virgil E.

118. Changes in hornblende at about 800° C.: *Am. Mineralogist*, vol. 15, no. 9, pp. 393-417, 6 figs., September, 1930.

Barnsley, Edward R.

119. A new brachiopod from the Silurian of central Pennsylvania: *Jour. Paleontology*, vol. 3, no. 3, pp. 290-291, 6 figs., September, 1929.

Barrell, Joseph, 1869-1919.

120. On continental fragmentation and the geologic bearing of the moon's surficial features: *Am. Jour. Sci.*, 5th ser., vol. 13, pp. 283-314, 4 figs., April, 1927; *Smithsonian Inst., Ann. Rept.* 1928, pp. 283-306, 3 pls., 1929.

Barrera, Tomás.

121. Las arcillas y la fabricación de loza de Oaxaca: Mexico, *Inst. geol., Anales*, t. 4, pp. 97-126, 9 pls., 1930.

Barret, William M.

122. Magnetometer study of the Caddo-Shreveport uplift, Louisiana: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 2, pp. 175-183, 4 figs., February, 1930; discussion, no. 3, pp. 328-329, March, 1930.

Barringer, Daniel Moreau, jr. See also Trischka, 2675.

123. A new meteor crater [near Odessa, Ector County, Tex.]: *Acad. Nat. Sci. Philadelphia, Proc.*, vol. 80, pp. 307-311, 1929.

Barth, Tom. F. W.

124. Pacificite, an anemousite basalt: *Washington Acad. Sci., Jour.*, vol. 20, no. 4, pp. 60-68, 1 fig., February 19, 1930.
 125. Mineralogy of the Adirondack feldspars: *Am. Mineralogist*, vol. 15, no. 4, pp. 129-143, 4 figs., 1 pl., April, 1930.

Bartlett, Harley Harris.

126. Fossils of the Carboniferous coal pebbles of the glacial drift at Ann Arbor: *Michigan Acad. Sci., Papers*, vol. 9, pp. 11-25, 23 pls., March, 1929.
 127. The genus *Triletes* Reinsch: *Michigan Acad. Sci., Papers*, vol. 9, pp. 29-38, March, 1929.

Barton, Donald Clinton. See also Rieber, 2158.

128. The Eötvös torsion balance method of mapping geologic structure: *Am. Inst. Min. and Met. Eng., Geophysical prospecting*, pp. 416-479, 22 figs., 1929.
129. Calculation in the interpretation of observations with the Eötvös torsion balance: *Am. Inst. Min. and Met. Eng., Geophysical prospecting*, pp. 480-504, 14 figs., 1929.
130. The seismic method of mapping geologic structure: *Am. Inst. Min. and Met. Eng., Geophysical prospecting*, pp. 572-624, 37 figs., 1929.
131. Control and adjustment of surveys with the magnetometer or the torsion balance: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 9, pp. 1163-1186, 10 figs., September, 1929.
132. Geophysical prospecting for oil: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 2, pp. 201-226, 17 figs., February, 1930.
133. (and Summers, E. Buhler). Review of the geophysical methods of prospecting: *Geog. Rev.*, vol. 20, no. 2, pp. 288-300, April, 1930.
134. Deltaic coastal plain of southeastern Texas: *Geol. Soc. America, Bull.*, vol. 41, no. 3, pp. 359-382, 5 figs., September 30, 1930; abstract, no. 1, pp. 90-91, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 133, March, 1930.
135. Review of geophysical prospecting for petroleum, 1929: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 9, pp. 1105-1127, September, 1930.
136. Torsion-balance survey of Esperson salt dome, Liberty County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 9, pp. 1129-1143, 3 figs., September, 1930.
137. Surface geology of coastal southeast Texas: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 10, pp. 1301-1320, 7 figs., October, 1930; abstract, *Pan-Am. Geologist*, vol. 53, no. 3, p. 230, April, 1930.
138. Petroleum potentialities of Gulf coast petroleum province of Texas and Louisiana: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 11, pp. 1379-1400, 3 figs., November, 1930; abstract, *Pan-Am. Geologist*, vol. 53, no. 3, pp. 230-232, April, 1930.
139. Petrographic study of salt-dome cap rock: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 12, pp. 1573-1574, December, 1930.

Bartram, John G.

140. Elk Basin oil and gas field, Park County, Wyo., and Carbon County, Mont.: Structure of typical American oil fields, vol. 2; pp. 577-588, 1 fig., 1 pl., *Am. Assoc. Petroleum Geologists*, 1929.
141. (and Hupp, J. E.). Subsurface structure of some unsymmetrical anticlines in the Rocky Mountains: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 10, pp. 1275-1289, 11 figs., October, 1929.
142. Triassic-Jurassic red beds of the Rocky Mountain region: *Jour. Geology*, vol. 38, no. 4, pp. 335-345, May-June, 1930.

Bass, Nathan Wood.

143. The geology of Cowley County, Kans., with special reference to the occurrence of oil and gas: *Kansas, State Geol. Survey, Bull.* 12, 203 pp., 23 figs., 12 pls., 1929.

Bassler, Ray Smith.

144. Proceedings of the twentieth annual meeting of the Paleontological Society held at New York City, December 27-29, 1928: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 207-272, March 30, 1929.
145. Paleontological work in Europe; Smithsonian Inst., Explorations and field work in 1929, pp. 9-16, 6 figs., 1930.
146. Proceedings of the twenty-first annual meeting of the Paleontological Society, held at Washington, D. C., December 26-28, 1929: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 181-208, March 31, 1930.
147. Report on the department of geology: U. S. Nat. Mus., Report ... 1930, pp. 91-102, 1 pl., Washington, 1930.

Bastin, Edson Sunderland.

148. (and Greer, Frank E.). Additional data on sulphate-reducing bacteria in soils and waters of Illinois oil fields: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 2, pp. 153-159, 2 figs., February, 1930.

Bateman, Alan Mara.

149. Some covellite-chalcocite relationships: Econ. Geology, vol. 24, no. 4, pp. 424-439, 3 figs., June-July, 1929.
150. [Results from geophysical surveys], Kennecott mines, Alaska: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 369, pp. 7-11, October, 1930.

Bauer, Lawson H. See also Palache, 1971.

151. (and Berman, Harry). Loseyite, a new Franklin mineral: Am. Mineralogist, vol. 14, no. 4, pp. 150-153, 2 figs., April, 1929.
152. (and Berman, Harry). Mooreite, a new mineral, and fluoborite from Sterling Hill, N. J.: Am. Mineralogist, vol. 14, no. 5, pp. 165-172, 1 fig., May, 1929.
153. (and Berman, Harry). Notes on some Franklin minerals: Am. Mineralogist, vol. 15, no. 8, pp. 340-348, 4 figs., August, 1930.

Bauernschmidt, A. J., jr.

154. Lignite in dolomite: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 4, pp. 517-520, 3 figs., April, 1930.
155. Sulphur dome, Calcasieu Parish, La.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 8, pp. 1079-1086, August, 1930.

Bay, Harry X.

156. Sedimentary study of the Strawn conglomerates of north-central Texas (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 176-177, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 4, pp. 299-300, May, 1930.

Bayley, William Shirley.

157. Guide to the study of nonmetallic mineral products (except building stones), 530 pp., New York, Henry Holt & Co., 1930.

Beal, Carl H.

158. (and Heller, A. H.). The Kettleman Hills oil field [California]: Oil Bull., vol. 15, no. 12, pp. 1289-1295, 8 figs., December, 1929.

Bean, Ernest F. See also Hotchkiss, 1185.

159. (and Aldrich, H. R.). Recent work of the State geological surveys in Huronian and Keweenawan areas; (B) Wisconsin Geological Survey: Lake Superior Min. Inst., Proc., vol. 27, pp. 173-178, 1 fig., 1929.

Beaton, W. W.

160. (and Sugden, F. J.). Coxheath copper mine, Cape Breton, Nova Scotia: Canadian Min. and Met. Bull. no. 218, pp. 834-842, 2 figs., June, 1930.

Beck, Elfred.

161. Salt Creek oil field, Natrona County, Wyo.: Structure of typical American oil fields, vol. 2, pp. 589-603, 4 figs., Am. Assoc. Petroleum Geologists, 1929.

Becker, Clyde M. See also Lloyd, 1576.

162. Structure and stratigraphy of southwestern Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 1, pp. 37-56, 8 figs., January, 1930.

Becking, L. B.

163. Studies on sedimentation at the Jacques Loeb Laboratory, Stanford University: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 54-55, 1930.

Beckner, Lucien.

164. The Utica shale in Kentucky: Kentucky Acad. Sci., Trans., vol. 3, pp. 40-43, 1930.

Beekly, A. L.

165. Virgil pool, Greenwood County, Kans.: Structure of typical American oil fields, vol. 2, pp. 142-149, 4 figs., Am. Assoc. Petroleum Geologists, 1929.

Behre, Charles Henry, jr.

166. Tertiary volcanic tuffs and sandstones used as building stones in the upper Salmon River Valley, Idaho: U. S. Geol. Survey, Bull. 811, pp. 237-248, 1 fig., 3 pls., 1929.
167. Revision of structure and stratigraphy in the Mosquito Range and the Leadville district, Colorado: Colorado Sci. Soc., Proc., vol. 12, pp. 37-57, 8 figs., 1929.
168. The proposed field trip of the Kentucky and Ohio Academies of Science, geologic sections (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 166, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 303, 1929.
169. Edge facies of mineralization at Leadville, Colo. (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 174, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 311, 1929.

Belknap, Ralph L.

170. Some Greenland sand dunes: Michigan Acad. Sci., Papers, vol. 10, pp. 191-198, 5 pls., April, 1929.
171. Evidence of block faulting on the coast of southwestern Greenland (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 186, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 69, February, 1929.

Bell, Alfred Hannam. See also Moulton, 1860.

172. The Dupu oil field: Illinois, State Geol. Survey, Press Bull. Ser., Illinois Petroleum no. 17, pp. 1-14, 2 figs., March 2, 1929.
173. (and Leighton, Morris M.). Nebraskan, Kansan, and Illinoian tills near Winchester, Ill.: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 481-489, 4 figs. (incl. map), June 30, 1929; abstract, no. 1, p. 124, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 155, March, 1929.

Bell, Alfred Hannam—Continued.

174. The Darmstadt anticline and related structures, St. Clair County: Illinois State Geol. Survey, Press Bull. Ser., Illinois Petroleum no. 18, pp. 2-13, 2 figs., November 2, 1929.

Bell, James Mackintosh.

175. Great Slave Lake: Roy. Soc. Canada, Trans., ser. 3, vol. 23, sec. 4, pp. 5-38, 1 fig., May, 1929; Geog. Rev., vol. 19, no. 4, pp. 556-580, 18 figs, October, 1929.
176. The lead-zinc deposits near Pine Point, Great Slave Lake: Canadian Min. and Met. Bull., no. 210, pp. 1141-1157, 8 figs., October, 1929; Canadian Inst. Min. and Met., Trans., vol. 32, pp. 122-139, 8 figs. [1930].

Bell, L. V.

177. (and MacLean, A.). Report on the geology of Bousquet-Cadillac gold area, Abitibi district: Quebec Bur. Mines, Ann. Rept. 1929, pt. C, 71 pp., 3 pls., maps, 1930.
178. Boston-Skead gold-copper area, District of Timiskaming: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 6, pp. 86-113, illus., map, 1930.

Bell, Robert N.

179. Northwestern porphyry copper deposits [Oregon-Idaho]: Min. Jour., Phoenix, Ariz., vol. 13, no. 15, pp. 7-9, 54-55, 2 figs., December 30, 1929.

Bell, Walter Andrew.

180. Horton-Windsor district, Nova Scotia: Canada, Geol. Survey, Mem. 155, 268 pp., 14 figs., 36 pls., map, 1929.
181. A Mississippian fauna collected by Miss Eleanor T. Long from Windsor, Nova Scotia: Acad. Nat. Sci. Philadelphia, Proc., vol. 81, pp. 617-625, 2 pls., 1930.

Bement, Alburto.

182. Illinois coal; a nontechnical account of its occurrence, production, and preparation; Illinois, State Geol. Survey, Bull. no. 56, 112 pp., 44 figs., 1929.

Benjamin, Marcus.

183. George Perkins Merrill: Science, new ser., vol. 70, pp. 274-275, September 20, 1929.
184. George Perkins Merrill: Am. Jour. Sci., 5th ser., vol. 18, p. 364, October, 1929.

Bergquist, Stanard G.

185. The occurrence of glauconite in the Hermansville formation of Alger County, Michigan: Michigan Acad. Sci., Papers, vol. 12, pp. 231-237, 1930.

Berkey, Charles Peter.

186. Proceedings of the Forty-first annual meeting of the Geological Society of America held at New York, New York, Wednesday, Thursday, Friday, and Saturday, December 26, 27, 28, and 29, 1928: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 1-16, March 30, 1929.
187. (and others). Reports of consulting board on safety of the Mulholland dam, Hollywood, Calif.: California, Division of Water Resources, 22 pp. (multigraphed), June, 1930.

Berkey, Charles Peter—Continued.

188. Responsibilities of the geologist in engineering projects: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 215, pp. 4-9, July, 1929.
189. (and others). Report of consulting board on safety of the proposed San Gabriel dam, Los Angeles County, Calif.: California, Division of Water Resources, 10 pp. (multigraphed), November, 1929.
190. Proceedings of the forty-second annual meeting of the Geological Society of America, held at Washington, D. C., Thursday, Friday, and Saturday, December 26, 27, and 28, 1929: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 1-142, March 31, 1930.

Berliner, Julius Frederick Thomas.

191. Potash bibliography to 1928 (annotated); review and compilation of technical literature on potash salts (including the alunites) and their foreign occurrences: U. S. Bur. Mines, Bull. 327, 578 pp., 1930.

Berman, Harry. See also Bauer, 151, 152, 153; Foshag, 863.

192. Composition of the melilite group: Am. Mineralogist, vol. 14, no. 11, pp. 389-407, 1 fig., November, 1929.
193. (and Gonyer, F. A.). Pegmatite minerals of Poland, Maine: Am. Mineralogist, vol. 15, no. 8, pp. 375-387, 8 figs., August, 1930.

Perry, Edward Wilber. See also Stephenson, 2491.

194. Paleontology. 392 pp., 175 figs., New York, McGraw-Hill Book Co., 1929.
195. Shall we return to cataclysmal geology?: Am. Jour. Sci., 5th ser., vol. 17, pp. 1-12, January, 1929.
196. An *Anacardium* in the lower Eocene of Texas: Washington Acad. Sci., Jour., vol. 19, no. 2, pp. 37-39, 2 figs., January 19, 1929.
197. Seeds of a new species of Vitaceae from the Wilcox Eocene of Texas: Washington Acad. Sci., Jour., vol. 19, no. 2, pp. 39-41, 1 fig., January 19, 1929.
198. The genus *Amygdalus* in North America: Washington Acad. Sci., Jour., vol. 19, no. 2, pp. 41-43, 1 fig., January 19, 1929.
199. A walnut in the Pleistocene at Frederick, Okla.: Washington Acad. Sci., Jour., vol. 19, no. 4, pp. 84-86, 3 figs., February 19, 1929.
200. A fossil *Meliosma* from the Miocene of California: Washington Acad. Sci., Jour., vol. 19, no. 5, pp. 99-100, 2 figs., March 4, 1929.
201. Climatic significance of Arctic fossil floras (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 236, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 228-229, April, 1929.
202. Development of knowledge concerning the physical features of Baltimore County: Maryland Geol. Survey, Baltimore County, pp. 21-57, figs. (maps), 1929.
203. The Coastal Plain deposits: Maryland Geol. Survey, Baltimore County, pp. 200-217, 4 pls., 1929.
204. A revision of the flora of the Latah formation: U. S. Geol. Survey, Prof. Paper 154, pp. 225-265, 16 pls., April 18, 1929.
205. The age of the St. Eugene silt in the Kootenay Valley, British Columbia: Roy. Soc. Canada, Trans., ser. 3, vol. 23, sec. 4, pp. 47-48, May, 1929.
206. Fossil plants and mountain uplift in the Pacific States: Nat. Acad. Sci., Proc., vol. 15, no. 6, pp. 477-480, June, 1929.
207. The flora of the Frontier formation: U. S. Geol. Survey, Prof. Paper 158, pp. 129-135, 2 pls., 1929.

Berry, Edward Wilber—Continued.

208. The Kootenay and lower Blairmore floras [Alberta]: Canada, Nat. Mus., Bull. no. 58, pp. 28-54, 5 pls., 1929.
209. The upper Blairmore flora [Alberta]: Canada, Nat. Mus., Bull. no. 58, pp. 55-65, 2 pls., 1929.
210. The Allison flora [Blairmore district, Alberta]: Canada, Nat. Mus., Bull. no. 58, pp. 66-72, 2 pls., 1929.
211. *Gordonia* from the Miocene of Idaho and Washington: Am. Jour. Sci., 5th ser., vol. 18, pp. 429-432, 3 figs., November, 1929.
212. Revision of the lower Eocene Wilcox flora of the Southeastern States; with descriptions of new species, chiefly from Tennessee and Kentucky: U. S. Geol. Survey, Prof. Paper 156, 196 pp., 32 figs., 50 pls., 1930.
213. The past climate of the north polar region: Smithsonian Misc. Coll., vol. 82, no. 6, 29 pp., 6 figs., April 9, 1930.
214. A new Miocene *Cercis* from Idaho and Washington: Torrey Bot. Club, Bull., vol. 57, no. 4, pp. 239-244, 1 fig., 1 pl., April, 1930.
215. Fossil plants from the Cypress Hills of Alberta and Saskatchewan: Canada, Nat. Mus., Bull. no. 63, pp. 15-28, 2 pls., 1930.
216. A flora of Green River age in the Wind River Basin of Wyoming: U. S. Geol. Survey, Prof. Paper 165, pp. 55-81, 3 figs., 10 pls., 1930.
217. A new *Pterophyllum* from the Shinarump conglomerate in Utah: Washington Acad. Sci., Jour., vol. 20, no. 18, pp. 458-463, 3 figs., November 4, 1930.

Berry, Willard.

218. (and Kelley, Louis). The Foraminifera of the Ripley formation of Coon Creek, Tenn.: U. S. Nat. Mus., Proc., vol. 76, art. 19, 20 pp., 3 pls., 1929.
219. A new hypural fan from the Miocene of Maryland: Washington Acad. Sci., Jour., vol. 20, no. 3, pp. 41-42, 2 figs., February 4, 1930.
220. Evidence for the spread of East Indian forms to equatorial America during Eocene time: Geol. Soc. America, Bull., vol. 41, no. 3, pp. 351-357, September 30, 1930.

Bevan, Arthur.

221. Significance of conglomerates in interpreting the Mesozoic history of the northern Rocky Mountains: Illinois State Acad. Sci., Trans., vol. 21, pp. 329-333, February, 1929.
222. Fault block of Cambrian strata in northern Illinois (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 88, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 79, February, 1929.
223. Rocky Mountain front in Montana: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 427-456, 8 figs., June 30, 1929.

Billings, Marland. See also Croneis, 590, 592.

224. Structural geology of the eastern part of the Boston Basin: Am. Jour. Sci., 5th ser., vol. 18, pp. 97-137, 5 figs., August, 1929; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, p. 193, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 68, February, 1929.

Billingsley, Paul. See Locke, 1583.

Black, Maurice.

225. Rooted land plants in a Jurassic limestone (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 222-223, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 234-235, April, 1929.

Black, Maurice—Continued.

226. *Equisetites* in position of growth in the Sundance limestone: Am. Mid-land Naturalist, vol. 11, no. 10, pp. 534-541, 1 fig., 1 pl., July, 1929.
227. Great Bahama bank; a modern shelf lagoon (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 141-142, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 109-110, March 31, 1930.

Blackwelder, Eliot.

228. A mastodon skeleton near San Francisco Bay: Washington Acad. Sci., Jour., vol. 19, no. 2, pp. 29-30, January 19, 1929.
229. A recent earthquake in the Sierra Nevada: Seismol. Soc. America, Bull., vol. 19, no. 1, pp. 52-53, March, 1929.
230. Glacial history of the east side of the Sierra Nevada (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 127, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 152, March, 1929.
231. Wind abrasion in the arid Southwest (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 164, March 30, 1929.
232. Origin of the Piedmont Plains of the Great Basin (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 168-169, March 30, 1929.
233. Moraines of Convict Lake glaciers (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 171, March 30, 1929.
234. Cavernous weathering in arid regions (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 173, March 30, 1929.
235. Sand-blast action in relation to the glaciers of the Sierra Nevada: Jour. Geology, vol. 37, no. 3, pp. 256-260, 3 figs., April-May, 1929.
236. Cavernous rock surfaces of the desert: Am. Jour. Sci., 5th ser., vol. 17, pp. 393-399, 5 figs., May, 1929.
237. Lake deposits in the Basin and Range province: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 74-75, 1930.
238. Memorial of John Flesher Newsom: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 30-33, portr., March 31, 1930.
239. Correlation of glacial epochs in western United States (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 133-134, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 91-92, March 31, 1930.
240. Specific evidence of deflation in deserts (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 145, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, pp. 365-366, June, 1929.
241. Geology of Death Valley (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 150, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 369, June, 1929.
242. Striated boulders as evidence of glacial action (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 154, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, pp. 374-375, June, 1929.
243. Geologic age of existing topographic features (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 155-156, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 372, June, 1929.
244. Landslide family and its relations (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 73, August, 1930.
245. Ice as a rock (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 152, September, 1930.
246. Pleistocene lakes of Basin Range province (abstract): Pan-Am. Geologist, vol. 54, no. 2, pp. 156-157, September, 1930.

Blanchard, Roland. See also Boswell, 256.

247. (and Boswell, P. F.). Limonite types derived from bornite and tetrahedrite: *Econ. Geology*, vol. 25, no. 6, pp. 557-580, 8 figs., September-October, 1930.

Blanchard, W. Grant, jr.

248. (and Davis, Morgan J.). Permian stratigraphy and structure of parts of southeastern New Mexico and southwestern Texas: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 8, pp. 957-995, 10 figs., 2 pls. (incl. map), August, 1929.

Blaney, Harry F. See Fortier, 859.

Bodle, R. R. See Heck, 1103.

Boeggild, Ove Balthasar.

249. The meteoric iron from Savik, near Cape York, north Greenland: *Meddelelser om Grönland*, Bd. 74, pp. 9-30, 5 figs., 6 pls., 1930.

Bohn, J. Lloyd. See Engel, 762.

Bollinger, C. J.

250. A general relief map of Oklahoma: *Oklahoma Acad. Sci., Proc.*, vol. 9 (Oklahoma, Univ., *Bull. new ser.*, no. 456), p. 83, 1 pl. (relief map), November 15, 1929.

Bonine, Chesleigh Arthur.

251. An unusual college monument (the polylith at Pennsylvania State College): *Am. Mineralogist*, vol. 14, no. 5, p. 200, May, 1929.

252. (and Honess, A. P.). Bentonite in Pennsylvania: *Pennsylvania Acad. Sci., Proc.*, vol. 3, pp. 18-25, 1929.

Bonnema, J. H.

253. Orientation of the carapaces of Paleozoic Ostracoda: *Jour. Paleontology*, vol. 4, no. 2, pp. 109-120, 2 pls., June, 1930.

Boos, Margaret Fuller.

254. Stratigraphy and fauna of the Luta limestone (Permian) of Oklahoma and Kansas: *Jour. Paleontology*, vol. 3, no. 3, pp. 241-253, 3 figs., 1 pl., September, 1929.

Bostock, H. S.

255. Geology and ore deposits of Nickel Plate Mountain, Hedley, British Columbia: Canada, *Geol. Survey, Summ. Rept.* 1929, pt. A, pp. 198-252, 5 figs., map, 1930.

Boswell, P. F. See also Blanchard, 247.

256. (and Blanchard, Roland). Cellular structure in limonite: *Econ. Geology*, vol. 24, no. 8, pp. 791-796, 1 fig., December, 1929.

Bowen, Charles Franklin. See Dobbin, 682.

Bowen, Norman Levi.

257. Source of plateau basalts (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 105, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 145, March, 1929.

258. (and Schairer, J. F.). The system leucite-diopside: *Am. Jour. Sci.*, 5th ser., vol. 18, pp. 301-312, 2 figs., October, 1929.

259. (and Schairer, J. F.). The fusion relations of acmite: *Am. Jour. Sci.*, 5th ser., vol. 18, pp. 365-374, 1 fig., November, 1929.

Bowie, William.

260. Isostasy and geological thought: *Sci. Monthly*, vol. 28, no. 5, pp. 385-392, May, 1929.
261. Zones of weakness in the earth's crust: *Science*, new ser., vol. 70, pp. 589-592, December 20, 1929.
262. The status and importance of isostasy: *Mining and Metallurgy*, vol. 11, no. 278, pp. 93-95, February, 1930.
263. Scientific and practical values of triangulation (abstract): *Pan-Am. Geologist*, vol. 53, no. 1, pp. 73-74, February, 1930.
264. Elements of isostasy—observations and interpretation: *Sci. Monthly*, vol. 31, no. 2, pp. 163-175, August, 1930.

Bowman, Isaiah.

265. Memorial of Henry Hollister Robinson: *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 25-27, portr., March 31, 1930.

Bownocker, J. A., 1865-1928.

266. (and Dean, Ethel S.). Analyses of the coals of Ohio: *Ohio, Geol. Survey*, 4th ser., *Bull.* 34, 360 pp., 6 maps, 1929.

Boyd, Julian.

267. The saline deposits of Death Valley [Inyo County, Calif.]: *Min. Jour.*, Phoenix, Ariz., vol. 13, no. 11, pp. 7-9, 14-16, 2 figs., October 30, 1929.
268. The saline deposits of Death Valley, Calif.: *Chem. Eng. and Min. Rev.*, Melbourne, vol. 21, no. 248, pp. 287-290, 4 figs., May 6, 1929.

Boyd, Walter Halcro.

269. The Niagara Falls survey of 1927: *Canada, Geol. Survey, Mem.* 164, 15 pp., 18 pls., 1930.

Boydell, H. C.

270. Operative causes in ore deposition (discussion): *Inst. Min. and Met.*, *Bull.* no. 296, pp. 15-24, May, 1929.

Boyle, J. Philip.

271. Okfuskee County: *Oklahoma Geol. Survey, Bull.* no. 40, vol. 3, pp. 431-450, 5 figs., map, July, 1930 (*Bull.* 40-KK, August, 1929).
272. Hughes County: *Oklahoma Geol. Survey, Bull.* no. 40, vol. 3, pp. 611-625, 5 figs., 1 pl., July, 1930 (*Bull.* 40-XX, May, 1930).

Bradley, John Hodgdon, jr.

273. Parade of the living. 308 pp., New York, Coward-McCann, 1930.

Bradley, Walter Wadsworth.

274. Barite in California: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 266, 9 figs., January, 1930.
275. Barite in California: *Mining in California* (California, Dept. Nat. Res., Div. Mines), vol. 26, no. 1, pp. 45-57, January, 1930.
276. (and Jenkins, Olaf P.). A geological survey of California: *Mining and Metallurgy*, vol. 11, no. 287, pp. 520-521, November, 1930.

Bradley, Wilmot H.

277. Algae reefs and oolites of the Green River formation: *U. S. Geol. Survey, Prof. Paper* 154, pp. 203-223, 21 pls., March 28, 1929.
278. Varves and duration of Eocene epoch (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 133, March 30, 1929.

Bradley, Wilmot H.—Continued.

279. The occurrence and origin of analcite and meerschaum beds in the Green River formation of Utah, Colorado, and Wyoming: U. S. Geol. Survey, Prof. Paper 158, pp. 1-7, 3 pls., 1929.
280. The varves and climate of the Green River epoch: U. S. Geol. Survey, Prof. Paper 158, pp. 87-110, 2 figs., 4 pls., 1929.
281. Cultures of algal oolites: Am. Jour. Sci., 5th ser., vol. 18, pp. 145-148, 3 figs., August, 1929.
282. Fresh-water algae from the Green River formation of Colorado: Torrey Bot. Club, Bull., vol. 56, no. 8, pp. 421-428, 2 pls. November, 1929.
283. The behavior of certain mud-crack casts during compaction: Am. Jour. Sci., 5th ser., vol. 20, pp. 136-144, 2 figs., August, 1930.

Brady, F. Howard.

284. Minnelusa formation near Beulah, Wyo. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 175-176, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 5, pp. 379-380, December, 1929.

Brady, L. F. See also Heineman, 1116.

285. Prehistoric Arizona meteorite: Pan-Am. Geologist, vol. 51, no. 4, pp. 287-288, May, 1929.
286. New meteorite from northern Arizona (abstract): Pan-Am. Geologist, vol. 53, no. 4, p. 316, May, 1930.

Bramlette, Milton N.

287. Natural etching of detrital garnet: Am. Mineralogist, vol. 14, no. 9, pp. 336-337, 2 figs., September, 1929.

Brand, L. S.

288. Calcified wood found in Pleistocene sand (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, p. 409, 1930.

Branner, George Casper.

289. An outline of the petroleum and natural gas resources of Arkansas: Arkansas Geol. Survey, 47 pp., 1927.
290. An outline of the metallic minerals of Arkansas: Arkansas Geol. Survey, 62 pp., 1928. (Revised reprint from Outlines of Arkansas' mineral resources.)
291. Geologic map of Arkansas. Prepared by the Arkansas Geol. Survey. Scale 1:500,000. 1929.
292. Geology of America's diamond fields: Pan-Am. Geologist, vol. 51, no. 5, pp. 339-353, 1 fig., 1 pl., June, 1929.
293. Occurrence of bentonite in southern Arkansas: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 239, 11 pp., 3 figs., September, 1929.
294. Arkansas Geological Survey [activities]: Pan-Am. Geologist, vol. 52, no. 3, pp. 219-224, October, 1929.

Branson, Carl C.

295. Paleontology and stratigraphy of the Phosphoria formation: Missouri, Univ., Studies, vol. 5, no. 2, 99 pp., 1 fig., 16 pls., April 1, 1930.

Branson, Edwin Bayer.

296. "Triassic-Jurassic 'Red Beds' of the Rocky Mountain region"; a reply [to a discussion by John B. Reeside]: Jour. Geology, vol. 37, no. 1, pp. 64-75, January-February, 1929.
297. (and Mehl, M. G.). Triassic amphibians from the Rocky Mountain region: Missouri, Univ., Studies, vol. 4, no. 2, 87 pp., 11 figs., 15 pls., April 1, 1929.

Branson, Edwin Bayer—Continued.

298. Stratigraphy and paleontology of the Kinderhookian of Missouri (abstract) : Geol. Soc. America, Bull., vol. 40, no. 1, p. 131, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 154, March, 1929.
299. New localities for Devonian fishes (abstract) : Geol. Soc. America, Bull., vol. 40, no. 1, p. 245, March 30, 1929.
300. Jurassic-Triassic contact in western Wyoming (abstract) : Geol. Soc. America, Bull., vol. 41, no. 1, pp. 120-121, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 134, March, 1930.
301. Productidae of the basal Mississippian in Missouri (abstract) : Pan-Am. Geologist, vol. 53, no. 2, p. 134, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 121, March 31, 1930.
302. (and Mehl, M. G.). Primitive fishes from the Devonian of Utah and Wyoming (abstract) : Geol. Soc. America, Bull., vol. 41, no. 1, p. 180, March 31, 1930.
303. (and Bailey, Reed). Recent fault near Lander, Wyo. (abstract) : Pan-Am. Geologist, vol. 53, no. 2, p. 149, March, 1930.
304. (and Mehl, M. G.). Devonian fishes from Jefferson dolomite of Utah (abstract) : Pan-Am. Geologist, vol. 53, no. 4, p. 308, May, 1930.
305. (and Mehl, M. G.). Webbed-foot record from the Pennsylvanian of Wyoming (abstract) : Geol. Soc. America, Bull., vol. 41, no. 1, p. 180, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 4, pp. 307-308, May, 1930.

Breeze, Fred J.

306. A striking case of differential erosion : Indiana Acad. Sci., Proc., vol. 38, pp. 243-244, 1929.

Bretz, J. Harlen.

307. Valley deposits immediately east of the channeled scabland of Washington : Jour. Geology, vol. 37, no. 5, pp. 393-427, no. 6, pp. 505-541, 6 figs., July to September, 1929.
308. Lake Missoula and the Spokane flood (abstract) : Geol. Soc. America, Bull., vol. 41, no. 1, pp. 92-93, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 135, March, 1930.
309. Relation of Yakima Valley to the channeled scabland (abstract) : Geol. Soc. America, Bull., vol. 41, no. 1, p. 93, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 135, March, 1930.
310. Valley deposits immediately west of the channeled scabland : Jour. Geology, vol. 38, no. 5, pp. 385-422, 14 figs., July-August, 1930.

Brewster, Eugene B. See Giles, 918.

Bridge, Josiah.

311. (and Dake, C. L.). Initial dips peripheral to resurrected hills : Missouri Bur. Geology and Mines, Bienn. Rept. State Geologist [1927-28], pp. 93-99, 1 pl., 1929.
312. Geology of the Eminence and Cardareva quadrangles : Missouri Bur. Geology and Mines, Second ser., vol. 24, 228, iv pp., 10 figs., 2 tables, 22 pls., maps, 1930.

Briggs, G. See also Miller, 1798, 1801, 1802; Shideler, 2370.

813. Oil and gas map of Meade County, Ky. : Kentucky Geol. Survey, ser. 6, 1929. Scale 1:62,500.

Brigham, Albert Perry.

314. Glacial geology and geographic conditions of the lower Mohawk Valley; a survey of the Amsterdam, Fonda, Gloversville, and Broadalbin quadrangles: New York State Mus. Bull. no. 280, 12 figs., 39 pls., map, 1929.

Bristol, John.

315. Gilsomite deposits of the Uintah Basin: Min. Jour., Phoenix, Ariz., vol. 13, no. 3, pp. 5-6, 63-64, June, 1929.

Britton, H.

316. Bibliography of petroleum and allied substances, 1922 and 1923: U. S., Bur. Mines, Bull. 290, 667 pp., 1929.

Britton, Wilton Everett.

317. Thirteenth biennial report of the commissioners of the State Geological and Natural History Survey of Connecticut, 1927-1928, Bull. no. 45, 32 pp., 3 pls. (portraits of Wm. North Rice, Herbert E. Gregory, and H. H. Robinson), 1929.

Broderick, Thomas Monteith. See also Butler, 391.

318. (and Hohl, C. D.). Geophysical methods applied to exploration and geologic mapping: U. S. Geol. Survey, Prof. Paper 140, pp. 156-168, 1929.

319. Zoning in Michigan copper deposits and its significance: Econ. Geology, vol. 24, no. 2, pp. 149-162, 3 figs., March-April, no. 3, pp. 311-324, 5 figs., May, 1929.

320. Review of Professional Paper No. 144, U. S. Geological Survey [The copper deposits of Michigan, by B. S. Butler, W. S. Burbank, and others]: Lake Superior Min. Inst., Proc., vol. 37, pp. 76-83, 1929.

Brooks, Baylor. See Davis, 642.

Brooks, Betty Watt.

321. *Celtis microendocarpica* Brooks, not a *Lithospermum*: Carnegie Mus., Annals, vol. 19, no. 2, pp. 135-137, 1 pl., May, 1929.

Broom, R.

322. On a new primitive theromorph (*Eumatthevia bolli*): Am. Mus. Novitates no. 446, 4 pp., 4 figs., December 20, 1930.

Brown, Barnum.

323. A Miocene camel bed ground: Nat. Hist. (Am. Mus. Nat. Hist., Jour.), vol. 29, no. 6, pp. 658-662, illus., November-December, 1929.

324. Folsom culture and its age (abstract, with discussion by Kirk Bryan): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 128-129, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 153, March, 1929.

Brown, Charles Wilson.

325. Geology of Mount Desert Island, Maine (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 108, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 147, March, 1929.

326. Correlation of the Cambrian sediments at Nahant, Mass., with the Bar Harbor series (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 113, 249-250, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 148, March, 1929.

Brown, Irving C.

327. A method for the separation of heavy minerals of fine soil: Jour. Paleontology, vol. 3, no. 4, pp. 412-414, December, 1929.

Brown, Levi S.

328. Appearance of tourmaline in sediments: *Am. Mineralogist*, vol. 14, no. 6, pp. 238-239, June, 1929.

Brown, P. E.

329. The new soil science: *Science*, new ser., vol. 70, pp. 619-622, December 27, 1929.

Brown, Robert M. See Dodge, 687.

Brown, Roland W.

330. Additions to the flora of the Green River formation: *U. S. Geol. Survey, Prof. Paper 154*, pp. 279-293, 7 pls., April 22, 1929.
331. Section at Stiles (North Haven Brick Co.) clay pit, opposite Montowese: *Connecticut State Geol. and Nat. Hist. Survey, Bull.*, no. 47, pp. 263-266, 1 fig., 1930.

Brown, Thomas Clachar.

332. Late glacial history of the Nashua Valley in central Massachusetts (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 128, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, pp. 152-153, March, 1929.
333. Evidence of stagnation during deglaciation of the Nashua Valley: *Am. Jour. Sci.*, 5th ser., vol. 19, pp. 359-367, 5 figs., May, 1930; abstract, *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 93-94, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 135, March, 1930.

Brown, W. Horatio.

334. Arroyo running in the desert: *Pan-Am. Geologist*, vol. 51, no. 4, pp. 279-280, 1 pl., May, 1929.
335. Centripetal concretions: *Am. Jour. Sci.*, 5th ser., vol. 18, pp. 433-536, 5 figs., November, 1929.

Bruce, Everend Lester.

336. Gold deposits of Woman, Narrow, and Confederation lakes, District of Kenora (Patricia portion); *Ontario Dept. Mines, 37th Ann. Rept.*, vol. 37, pt. 4, pp. 1-51, illus., map, 1929.
337. The Sherritt-Gordon copper-zinc deposit, northern Manitoba: *Econ. Geology*, vol. 24, no. 5, pp. 457-469, 5 figs., August, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 154, March, 1929.
338. Geology of the Sherritt Gordon Mine [northern Manitoba]: *Eng. and Min. Jour.*, vol. 128, no. 22, p. 853, November 30, 1929.
339. (and Matheson, A. F.). The Kisseyenew gneiss of northern Manitoba and similar gneisses occurring in northern Saskatchewan: *Roy. Soc. Canada, Trans.*, ser. 3, vol. 24, sec. 4, pp. 119-132, 3 pls., May, 1930.
340. The Sherritt-Gordon copper-zinc deposit, northern Manitoba: *Econ. Geology*, vol. 25, no. 8, pp. 868-870, December, 1930.

Brucks, Ernest W.

341. Luling oil field, Caldwell and Guadalupe Counties, Texas: Structure of typical American oil fields, vol. 1, pp. 256-281, 7 figs., 1 pl. (map), *American Assoc. Petroleum Geologists*, 1929.

Bruscantini, G.

342. Informe sobre un yacimiento carbonifero situado en la provincia de Camagtiey: Cuba, *Direc. montes y minas, Bol. minas*, no. 14, pp. 55-63, 1929.

Burchard, Ernest Francis.

377. Occurrence of bentonite in southern Arkansas: *Mining and Metallurgy*, vol. 10, no. 275, p. 541, November, 1929.

Burfoot, J. D., jr.

378. The origin of the talc and soapstone deposits of Virginia: *Econ. Geology*, vol. 25, no. 8, pp. 805-826, 10 figs., December, 1930.

Burford, S. O. See McCollum, 1648.

Burroughs, Wilbur Greeley.

379. Mineral resources of Kentucky and their future development: *Kentucky Geol. Survey*, ser. 6, vol. 32, pp. 169-185, 1930.

Burrows, Alfred Granville.

380. The wire-gold discovery south of the Porcupine district, Ontario: *Eng. and Min. Jour.*, vol. 127, no. 6, p. 241, February 9, 1929.

381. (and Rickaby, H. C.) Sudbury Basin area: *Ontario Dept. Mines*, 38th Ann. Rept., vol. 38, pt. 3, 55 pp., illus., map, 1930.

Burt, Frederick Arthur.

382. The origin of the Bennington kaolins: *Vermont, State Geologist*, 16th Rept., pp. 65-84, 11 figs. [1929].

383. Capsular silica [Brazos County, Tex.]: *Am. Mineralogist*, vol. 14, no. 6, pp. 222-226, 4 figs., June, 1929.

384. Origin and significance of clay galls: *Pan-Am. Geologist*, vol. 53, no. 2, pp. 105-110, 1 pl., March, 1930.

Burt, William Henry.

385. A new goose, *Branta*, from the lower Pliocene of Nevada: *California, Univ., Dept. Geol. Sci., Bull.*, vol. 18, no. 6, pp. 221-224, 1 pl., March 19, 1929.

Burton, George E.

386. Hewitt oil field, Carter County, Okla.: Structure of typical American oil fields, vol. 2, pp. 290-299, 4 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Burwash, Edward Moore.

387. Geology of the Fort Hope gold area, District of Kenora (Patricia portion): *Ontario Dept. Mines*, 38th Ann. Rept., vol. 38, pt. 2, pp. 1-48, illus., map, 1930.

388. Preliminary report on Caviar Lake gold area [Ontario]: *Canadian Min. Jour.*, vol. 51, no. 47, pp. 1124-1125, 1 fig., November 28, 1930.

Burwash, L. T.

389. Coronation Gulf copper deposits [Northwest Territories]: *Canadian Min. Jour.*, vol. 51, no. 27, pp. 641-644, 3 figs., July 14, 1930.

Bushnell, T. M.

390. Geological information from the Monroe and Lawrence County soil maps: *Indiana Acad. Sci., Proc.*, vol. 38, p. 245, 1929.

Butler, Bert Sylvenus. See also Broderick, 320; Singewald, 2406.

391. (and Burbank, W. S., in collaboration with T. M. Broderick, L. C. Graton, C. D. Hohl, Charles Palache, M. J. Scholz, Alfred Wandke, and R. C. Wells). The copper deposits of Michigan: *U. S. Geol. Survey, Prof. Paper* 144, 238 pp., 18 figs., 75 pls. (incl. maps), 1929.

Butler, Bert Sylvenus—Continued.

392. (and Burbank, W. S.). Relation of electrode potentials of some elements to formation of hypogene mineral deposits: *Am. Inst. Min. and Met. Eng., Tech. Pub. no. 166*, 15 pp., 1 fig., February, 1929; *Trans.*, 1929, Year Book, 341–353, 1 fig., 1929.
393. Relation of the ore deposits of the southern Rocky Mountain region to the Colorado Plateau: *Colorado Sci. Soc., Proc.*, vol. 12, pp. 23–36, 1 pl. (map), 1929.
394. (and Vandervelt, J. W.). Geological relations in Climax molybdenum district, Colorado (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, p. 316, May, 1930.

Butler, Gurdon M. See also Wilson, 2893.

395. Geological occurrence of Arizona asbestos: *Pan-Am. Geologist*, vol. 52, no. 1, pp. 19–26, 2 pls., August, 1929.

Butts, Charles.

396. Some issues in Chester stratigraphy in Kentucky and Illinois: *Jour. Geology*, vol. 37, no. 1, pp. 30–46, 1 pl., January–February, 1929.

Buwalda, John Peter. See also Wood, 2907.

397. A Neocene erosion surface in central Oregon: *Carnegie Inst. Washington, Pub. no. 404*, pp. 1–10, 1 fig., 1 pl., 1930; abstract, *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 173, March 30, 1929.
398. (and Moore, Bernard N.). Age of the Dalles beds and the "Satsop" formation and history of the Columbia River gorge (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 176–177, March 30, 1929.
399. Nature of the late movements on the Haywards rift, central California: *Seismol. Soc. America, Bull.*, vol. 19, no. 4, pp. 187–199, 2 pls., December, 1929.
400. Geological events in the history of the Indio Hills and the Salton Basin, southern California: *Science, new ser.*, vol. 71, pp. 104–106, January 24, 1930.
401. (and Moore, Bernard N.). The Dalles and Hood River formations and the Columbia River gorge: *Carnegie Inst. Washington, Pub. no. 404*, pp. 11–26, 1 fig., 1930.
402. (and Gazin, C. L., and Sutherland, J. C.). Frazier Mountain, a crystalline overthrust slab, west of Tejon Pass, southern California (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 146–147, March 31, 1930; *Pan-Am. Geologist*, vol. 54, no. 1, pp. 71–72, August, 1930.

Byerly, Perry.

403. Nature of the first motion of two earthquakes (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 169, March 30, 1929.
404. (and Dyk, Robert). The registration of earthquakes at the Berkeley station and at the Lick Observatory station from April 1, 1929, to September 30, 1929: *California, Univ., Seismographic Stations, Bull.*, vol. 2, no. 18, pp. 361–397, March 11, 1930.
405. (and Dyk, Robert). The registration of earthquakes at the Berkeley station and the Lick Observatory station from October 1, 1929, to March 31, 1930: *California, Univ., Seismographic Stations, Bull.*, vol. 2, no. 19, pp. 399–439, 1930.
406. The California earthquake of November 4, 1927: *Seismol. Soc. America, Bull.*, vol. 20, no. 2, pp. 53–66, 3 figs., June, 1930.

Byerly, Perry—Continued.

407. Thickness of surface layer of earth under the Pacific (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 156, September, 1930.
408. The earthquakes of November 28, 1929, and the surface layers of the earth in California (abstract): Science, new ser., vol. 72, p. 373, October 10, 1930.

Cable, Emmett.

409. Duration of Peorian interglacial interval: Pan-Am. Geologist, vol. 51, no. 3, pp. 183-192, 1 fig., April, 1929.

Cahn, A. R.

410. Information concerning *Castoroides*: Science, new ser., vol. 70, p. 635, December 27, 1929.

Cairnes, Clive Elmore.

411. Geological reconnaissance in Slocan and Upper Arrow Lakes area, Kootenay district, British Columbia: Canada, Geol. Survey, Summ. Rept. 1928, pt. A, pp. 94-108, map, 1929.
412. (and Gunning, H. C.). Big Ledge (Consolidated) property, Upper Arrow Lake, Kootenay district, British Columbia: Canada, Geol. Survey, Summ. Rept. 1928, pt. A, pp. 109-118, 1 fig., 1 pl., 1929.
413. The serpentine belt of Coquihalla region, Yale district, British Columbia: Canada Geol. Survey, Summ. Rept. 1929, pt. A, pp. 144-197, 6 figs., 1 pl., 1930.
414. Oil possibilities of the north Okanagan Valley, British Columbia: Canadian Min. Jour., vol. 51, no. 34, pp. 765-766, August 8, 1930.

Caley, J. F. See Evans, 773.

Calkins, Frank Cathcart.

415. The granitic rocks of the Yosemite region: U. S. Geol. Survey, Prof. Paper 160, pp. 120-129, 1 pl., map, 1930.

Callahan, W. H.

416. (and Newhouse, W. H.). A study of the magnetite ore body at Cornwall, Pa.: Econ. Geology, vol. 24, no. 4, pp. 403-411, 3 figs., June-July, 1929.

Callisen, Karen.

417. Petrographische Untersuchung einiger Gesteine von Nordgrönland: Meddelelser om Grønland, Bd. 71, pp. 217-255, 2 figs., 1 pl., 1929; Mus. minér. et géol. Univ. Copenhagen, Comm. géol., no. 6, 1929.

Calumet & Hecla Consolidated Copper Co., Geological Department.

418. Genetic classification of the Michigan copper deposits: Econ. Geology, vol. 24, no. 3, pp. 325-326, May, 1929.

Calvert, Robert.

419. Diatomaceous earth. 251 pp., Am. Chem. Soc., Monograph ser., New York, Chemical Catalog Co., 1930.

Cameron, A. E.

420. The gypsum deposits on Peace River: Alberta, Sci. and Ind. Research Council, 10th Ann. Rept. (Rept. no. 25), pp. 39-47, 1 fig., 1930.

Camp, Charles L.

421. History of the Chinle Triassic formation in the Southwest (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 165, March 30, 1929.
422. Stratigraphic distribution of Arizona phytosaurs (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 213, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, p. 158, September, 1929.

Camp, Charles L.—Continued.

423. A study of the phytosaurs with description of new material from western North America: California, Univ., Mem., vol. 10, 174 pp., 49 figs., 6 pls., 1930.

Campbell, Angus D.

424. Gowganda silver area: Canadian Min. and Met. Bull., no. 216, pp. 453-470, 5 figs., 1 pl., April, 1930.

Campbell, Douglas H.

425. The origin of land plants: Science, new ser., vol. 72, pp. 177-187, August 22, 1930.

Campbell, Marius Robinson.

426. Late geologic deformation of the Appalachian Piedmont as determined by river gravels: Nat. Acad. Sci., Proc., vol. 15, no. 2, pp. 156-161, 2 figs., February 15, 1929.
427. The river system; a study in the use of technical geographic terms: Jour. Geography, vol. 28, no. 3, pp. 123-128, March, 1929.
428. Geomorphic value of river gravel: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 515-532, June 30, 1929; abstract, no. 1, p. 100, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 143-144, March, 1929.
429. The problem of the scientific classification of coal (abstract): Washington Acad. Sci., Jour., vol. 20, no. 17, p. 435, October 19, 1930.
430. Coal as a recorder of incipient rock metamorphism: Econ. Geology, vol. 25, no. 7, pp. 675-696, 4 figs., November, 1930.

Campbell, Robert B.

431. Fish otoliths, their occurrence and value as stratigraphic markers: Jour. Paleontology, vol. 3, no. 3, pp. 254-279, 2 figs., 3 pls., September, 1929.

Campbell, Stewart.

432. Thirtieth annual report of the mining industry of Idaho for the year 1928. 270 pp., illus. [1929].
433. Thirty-first annual report of the mining industry of Idaho for the year 1929. 300 pp., illus. [1930].

Campbell, W. P.

434. Oil-field waters of Alberta and Saskatchewan: Canadian Min. and Met. Bull., no. 212, pp. 1396-1411, 7 figs., December, 1929; Canadian Inst. Min. and Met., Trans., vol. 32, pp. 316-334, 7 figs. [1930].

Camsell, Charles.

435. Report of the Department of Mines [of the Dominion of Canada] for the fiscal year ending March 31, 1928, pp. 1-7, 1929.
436. Report of the Department of Mines [of the Dominion of Canada] for the fiscal year ending March 31, 1929, pp. 1-5, 1929.

Canada, Department of Mines.

437. Report of the Department of Mines for the fiscal year ending March 31, 1929. 58 pp., Ottawa, 1929.

Canada, Geological Survey.

438. Prospecting in Canada, by officers of the Geological Survey, Ottawa: Canada, Geol. Survey, Econ. Geology Series no. 7, 288 pp., 25 figs., 23 pls., 1930.

Capps, Stephen Reid.

439. The Skwentna region, Alaska: U. S. Geol. Survey, Bull. 797, pp. 67-98, 1 fig., 1 pl. (map), 1929.
440. The Mount Spurr region, Alaska: U. S. Geol. Survey, Bull. 810, pp. 141-172, 2 pls., 1929.
441. The Chakachamna-Stony region, Alaska: U. S. Geol. Survey, Bull. 813, pp. 97-123, 2 pls. (maps), 1930.

Carlson, Anders J.

442. Geothermal variations in oil fields of Los Angeles Basin, Calif.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 8, pp. 997-1011, 5 figs., August, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, pp. 221-222, April, 1930.
443. Geothermal conditions in oil-producing areas of California: Am. Petroleum Inst., Production Bull. no. 205, pp. 109-139, 84 figs., October, 1930.

Carlson, Charles Gordon.

444. Geology of the Saginaw oil field, Michigan, and discussion of Michigan's oil prospects: Structure of typical American oil fields, vol. 1, pp. 105-111, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Carlton, D. P.

445. West Columbia salt dome and oil field, Brazoria County, Tex.: Structure of typical American oil fields, vol. 2, pp. 451-469, 11 figs., Am. Assoc. Petroleum Geologists, 1929.

Carman, Joel Ernest. See also Williams, 2878.

446. (and Schillhahn, Ernest O.). A new interpretation concerning the Hillsboro sandstone (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 169, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 306, 1929.
447. (and Schillhahn, Ernest O.). The Hillsboro sandstone of Ohio: Jour. Geology, vol. 38, no. 3, pp. 246-261, 8 figs., April-May, 1930; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, pp. 113-114, 250-251, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 149, March, 1929.
448. Drainage changes in the Toledo region: Ohio Jour. Sci., vol. 30, no. 3, pp. 187-193, 3 figs., May, 1930; abstract, Ohio Acad. Sci., Proc., vol. 8, pt. 7, pp. 404-405, 1930.

Carman, Katharine.

449. Some Foraminifera from the Niobrara and Benton formations of Wyoming: Jour. Paleontology, vol. 3, no. 3, pp. 309-315, 1 pl., September, 1929.

Carnochan, R. K. See Spence, 2450.

Carpenter, Everett.

450. Morrison field, Pawnee County, Okla.: Structure of typical American oil fields, vol. 1, pp. 148-157, 7 figs., Am. Assoc. Petroleum Geologists, 1929.

Carpenter, Frank M.

451. A fossil ant from the lower Eocene (Wilcox) of Tennessee: Washington Acad. Sci., Jour., vol. 19, no. 14, pp. 300-301, 1 fig., August 19, 1929.
452. The fossil ants of North America: Harvard Coll., Mus. Comp. Zool., Bull., vol. 70, no. 1, pp. 1-66, 11 pls., January, 1930.

Carpenter, Frank M.—Continued.

453. The lower Permian insects of Kansas; Part 1, Introduction and the order Mecoptera: Harvard Coll., Mus. Comp. Zool., Bull., vol. 70, no. 2, pp. 69–101, 3 figs., 5 pls., February, 1930.

Carpenter, Jay A.

454. The mineral resources of southern Nevada: Nevada State Bur. Mines, Bull., vol. 1, no. 1, pp. 9–21, November, 1929.

Carr, Raymond M. See Gish, 943.

Carroll, Don. L.

455. New methods in the study of fossil shark teeth: Science, new ser., vol. 70, pp. 331–332, October 4, 1929.

Cartwright, Lon D., jr.

456. Subsurface correlation methods in the west Texas Permian Basin: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 2, pp. 171–176, 3 figs., February, 1929; Oil Weekly, vol. 52, no. 6, pp. 46, 48, 50, January 25, 1929.

457. Transverse section of Permian basin, west Texas and southeast New Mexico: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 8, pp. 969–981, 3 figs., 1 pl., August, 1930.

Case, Ermine Cowles. See also Dott, 697; Whipple, 2836.

458. Description of a nearly complete skeleton of *Ostodolepis brevispinatus* Williston: Michigan, Univ., Mus. Paleontology, Contrib. vol. 3, no. 5, pp. 81–107, 12 figs., 3 pls., July 15, 1929.

459. Jaw of large phytosaur showing complete dentition (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 150, March, 1930.

460. On the lower jaw of *Brachysuchus megalodon*: Michigan, Univ., Mus. Paleontology, Contr., vol. 3, no. 8, pp. 155–161, 2 figs., 5 pls., July 15, 1930.

Caster, Kenneth E.

461. Higher fossil faunas of the upper Allegheny: Bull. Am. Paleontology, vol. 15, no. 58, 316 pp., 59 pls., July 28, 1930.

Chadwick, George Halcott.

462. Texas Eocene; corrections (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 117, 253, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 150–151, March, 1929.

463. Genetic classification of rocks (abstract): Pan-Am. Geologist, vol. 53, no. 1, pp. 71–72, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 45–46, March 31, 1930.

464. Subdivision of geologic time (abstract): Pan-Am. Geologist, vol. 53, no. 1, p. 73, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 47–48, March 31, 1930.

465. Studies in the New York Siluric (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 80–82, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 127, March, 1930.

466. New York pre-Cambrian names (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 82, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, pp. 127–128, March, 1930.

Chamberlin, Rollin Thomas.

- 467. The level of base-level: Jour. Geology, vol. 38, no. 2, pp. 166-173, 1 fig., February-March, 1930.
- 468. Isostasy from the geologic point of view: Washington Acad. Sci., Jour., vol. 20, no. 18, pp. 454-458, November 4, 1930.

Chaney, Ralph Works.

- 469. Proceedings of the twenty-seventh annual meeting of the Cordilleran section of the Geological Society of America held at Berkeley, California, March 2 and 3, 1928: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 161-177, March 30, 1929.
- 470. Proceedings of the twenty-eighth annual meeting of the Cordilleran section of the Geological Society of America, held at Berkeley, California, April 12 and 13, 1929: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 143-159, March 31, 1930.
- 471. Suggestions regarding the age of the southern Cascade Range (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 147-148, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, pp. 366-367, June, 1929.
- 472. The fossil flora of Goshen, and its bearing on the problems of climatic change (abstract): Science, new ser., vol. 72, pp. 375-376, October 10, 1930.
- 473. A *Sequoia* forest of Tertiary age on St. Lawrence Island: Science, new ser., vol. 72, pp. 653-654, December 26, 1930.

Chapin, Theodore. See Buddington, 362.

Charles, Homer H. See also Riggs, 2163.

- 474. (and Page, James H.). Shale-gas industry of eastern Kansas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 4, pp. 367-381, 4 figs., April, 1929.
- 475. Oklahoma City oil field, Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 12, pp. 1515-1533, 6 figs., December, 1930.

Charlewood, G. H. See Moore, 1838.

Chase, J. L.

- 476. The Santa Barbara Mesa discovery [oil field, California]: Oil Bull., vol. 15, no. 7, pp. 690-693, 6 figs., July, 1929.

Cheney, M. G.

- 477. Gravitational theory of orogeny reconsidered (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 197, March 30, 1929.
- 478. Stratigraphic and structural studies in north-central Texas: Texas, Univ., Bull., no. 2913, 29 pp., 8 pls. (incl. maps), April 1, 1929.
- 479. History of the Carboniferous sediments of the Mid-Centinent oil field: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 6, pp. 557-594, 9 figs., June, 1929.
- 480. Quarter-centennial, Illinois State Geological Survey: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 6, pp. 806-807, June, 1930.

Cheney, William Fitch, jr. See Lane, 1500.

Cheyney, A. E.

- 481. Madison shoestring pool, Greenwood County, Kans.: Structure of typical American oil fields, vol. 2, pp. 150-159, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Church, C. C. See also Cushman, 611.

- 482. Some recent shallow-water Foraminifera dredged near Santa Catalina Island, Calif.: Jour. Paleontology, vol. 3, no. 3, pp. 302-305, 3 figs., September, 1929.
- 483. The occurrence of *Kyphopyxa* in California: Jour. Paleontology, vol. 3, no. 4, p. 411, December, 1929.
- 484. Foraminifera of Cantua shale (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 79, August, 1930.

Clapp, Frederick Gardner.

- 485. Rôle of geologic structure in the accumulation of petroleum: Structure of typical American oil fields, vol. 2, pp. 667-716, Am. Assoc. Petroleum Geologists, 1929.
- 486. Tectonics of oil accumulation: Pan-Am. Geologist, vol. 53, no. 1, pp. 29-38, February, 1930.

Clark, Alex.

- 487. Pliocene beds at Timms Point, San Pedro, Calif. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 210, March 31, 1930; Pan-Am Geologist, vol. 52, no. 2, p. 156, September, 1929.

Clark, Bruce Lawrence.

- 488. Tectonics of the Valle Grande of California: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 3, pp. 199-238, 6 figs., March, 1929; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, p. 165, March 30, 1929.
- 489. Tectonics and paleogeography of the San Ramon Basin [California] (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 151, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, pp. 368-369, June, 1929.
- 490. Origin of the marine Tertiary faunas of the Pacific coast (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 215, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, pp. 159-160, September, 1929.
- 491. Stratigraphic relationships in Mount Diablo area (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 78, August, 1930.

Clark, Frank R.

- 492. En échelon fault belts (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 3, p. 330, March, 1930.

Clark, Hubert Lyman.

- 493. A new Miocene echinoid from California [*Megapetalus lovenioides*]: San Diego Soc. Nat. Hist., Trans., vol. 5, no. 17, pp. 257-262, 1 pl., August 5, 1929.

Clark, Karl Adolf.

- 494. The bituminous sands of Alberta, part 3: Alberta, Sci. and Ind. Res. Council, Rept. no. 18, 33 pp., 2 figs., 1929.
- 495. The availability of the Alberta bituminous sands for production of fuel oil: Fuel Conference (World Power Conference, London, 1928), Trans., vol. 1, pp. 581-584 [1929].

Clark, Stuart K.

- 496. (and Daniels, James I.). Relation between structure and production in the Mervine, Ponca, Blackwell, and South Blackwell oil fields, Kay County, Okla.: Structure of typical American oil fields, vol. 1, pp. 158-175, 12 figs., Am. Assoc. Petroleum Geologists, 1929.

Clark, William O. See Stearns, 2482.

Cleland, Herdman Fitzgerald.

497. Post-Tertiary erosion and weathering: *Am. Jour. Sci.*, 5th ser., vol. 19 pp. 289-296, 5 figs., April, 1930.

Clements, Thomas.

498. Structure of Tejon quadrangle (abstract): *Pan-Am, Geologist*, vol. 54, no. 2, p. 159, September, 1930.

Cleves, Arthur B. See Willard, 2872.

Clifton, R. L.

499. Permian structure and stratigraphy of northwestern Oklahoma and adjacent areas: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 2, pp. 161-173, 2 figs., February, 1930, abstract; *Pan-Am. Geologist*, vol. 54, no. 2, p. 138, September, 1930.

Clinton, H. G.

500. Vashegyite and barrandite in Nevada: *Am. Mineralogist*, vol. 14, no. 11, pp. 434-436, November, 1929.

Cloos, Hans.

501. Bau und Bewegung der Gebirge in Nordamerika, Skandinavien und Mitteleuropa: *Fortschritte der Geologie und Paleontologie*, Bd. 7, H. 21, pp. 241-327, 16 figs., 5 pls., 1928.

Cloud, W. F.

502. Sampling and coring in prospecting for oil and gas: *Oklahoma Acad. Sci., Proc.*, vol. 8 (Oklahoma, Univ., Bull., n. s. no. 410), pp. 128-134 [1929].
503. Some laboratory data relative to drainage, flow, and recovery of crude oil in sand and sandstones: *Oklahoma Acad. Sci., Proc.*, vol. 9 (Okla., Univ., Bull. new ser., no. 456), pp. 106-108, November, 15, 1929.
504. Tulsa County: *Oklahoma Geol. Survey, Bull.* no. 40, vol. 3, pp. 627-651, 3 pls. (incl. map), July, 1930 (*Bull.* 40-RR, May, 1930).

Cockerell, Theodore Dru Alison.

505. The description and figuring of imperfect fossils: *Science*, new ser., vol. 72, p. 654, December 26, 1930.

Cockfield, William Egbert.

506. Little Salmon area, Yukon: Canada, *Geol. Survey, Summ. Rept.* 1928, pt. A, pp. 1-10, 1929.
507. The mining industry of Yukon, 1929: Canada, *Geol. Survey, Summ. Rept.* 1929, pt. A, pp. 1-15, 1930.

Coffey, George N.

508. Preglacial, interglacial, and postglacial changes of drainage in north-eastern Ohio with special reference to the upper Muskingum drainage basin: *Ohio Jour. Sci.*, vol. 30, no. 6, pp. 373-384, 1 fig., November, 1930; abstract, *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, p. 404, 1930.

Cole, Lionel Heber.

509. The gypsum industry of Canada: Canada, *Dept. Mines, Mines Branch*, 164 pp., 23 figs., 20 pls., map, 1930. (Pub. no. 714.)
510. The salt industry of Canada: Canada *Dept. Mines, Mines Branch*, 116 pp., 31 figs., 15 pls., 2 maps, 1930. (Pub. no. 716.)

Cole, Lionel Heber—Continued.

511. Potash salts in the maritime provinces of Canada: Canada, Mines Branch, Investigations of Mineral Resources, 1928, pp. 19-27, 3 figs., 1 pl., 1930.
512. The story of gypsum in Canada: Canadian Min. and Met. Bull. no. 221, pp. 1206-1229, 8 figs., September, 1930.

Cole, William Storrs. See also Cushman, 606.

513. Three new Claiborne fossils: Bull. Am. Paleontology, vol. 15, no. 56, 8 pp., 2 pls., March 14, 1929.
514. A new Oligocene brachiopod from Mexico [*Argyrotheca wegemanni*]: Bull. Am. Paleontology, vol. 15, no. 57a, 6 pp., 1 pl., Ithaca, N. Y., Harris Co., November 24, 1929.
515. (and Gillespie, Ruth). Some small Foraminifera from the Meson formation of Mexico: Bull. Am. Paleontology, vol. 15, no. 57b, 15 pp., 4 pls., February 28, 1930.
516. The interpretation of intrenched meanders: Jour. Geology, vol. 38, no. 5, pp. 423-436, 8 figs., July-August, 1930.
517. (and Ponton, Gerald M.). The Foraminifera of Marianna limestone of Florida: Florida State Geol. Survey, Bull. no. 5, pp. 19-69, 7 pls., December, 1930.

Coleman, Arthur Philemon.

518. (and others). Contributions to Canadian mineralogy, 1929; the Sudbury nickel intrusive: Toronto, Univ., Studies, Geol. ser. no. 28, 54 pp., 5 figs., 3 pls., 1929.
519. Long-range correlation of varves: Jour. Geology, vol. 37, no. 8, pp. 783-789, November-December, 1929.
520. The extent of Wisconsin glaciation: Am. Jour. Sci., 5th ser., vol. 20, pp. 180-183, September, 1930.

Collet, Léon W.

521. Structure of the Canadian Rockies (abstract): Geol. Soc. London, Abstracts of Proc., no. 1214, pp. 91-92, April 15th, 1930.

Collier, Arthur James.

522. The Kevin-Sunburst oil field and other possibilities of oil and gas in the Sweetgrass arch, Montana: U. S. Geol. Survey, Bull. 812, pp. 57-189, 3 figs., 8 pls., 1929.
523. Memorial of Joseph Silas Diller: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 61-79, 1 pl. (portr.), March 30, 1929.

Collingwood, Douglas Moore.

524. Magnetometer study of Caddo-Shreveport uplift, Louisiana (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 3, pp. 327-328, March, 1930.
525. Magnetic susceptibility and magnetite content of sands and shales: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 9, pp. 1187-1190, 1 fig., September, 1930.
526. Magnetics and geology of Yoast field, Bastrop County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 9, pp. 1191-1197, 3 figs., September, 1930.

Collins, William Dennis.

527. (and Foster, Margaret D., Reeves, Frank, and Meacham, R. P.). Springs of Virginia; a report on the discharge, temperature, and chemical character of springs in the southern part of the Great Valley: Virginia, Div. Water Resources and Power, Bull. no. 1, 55 pp., Richmond, 1930.

Collins, William Henry. See also Quirke, 2072, 2074.

528. [Report of the] Geological Survey [of Canada]: Canada, Dept. Mines, Rept. 1928, pp. 11-31, 1929.
 529. [Report of the] Geological Survey [of Canada]: Canada, Dept. Mines, Rept. 1929, pp. 9-28, 1929.
 530. The Geological Survey of Canada: Canadian Min. Jour., Fiftieth Anniversary Number, pp. 53-65, August, 1929.
 531. Southwestern part of Sudbury nickel irruptive: Canada, Geol. Survey, Summ. Rept., 1928, pt. C, pp. 12-16, 1 fig., 1930.
 532. The disappearance of the Huronian: Canadian Min. Jour., vol. 51, no. 49, 1164-1165, 1 fig., December 5, 1930.

Collom, Roy Edward.

533. Oil accumulation and structure of the Santa Maria district, Santa Barbara County, Calif.: Structure of typical American oil fields, vol. 2, pp. 18-22, 2 figs., Am. Assoc. Petroleum Geologists, 1929.

Colony, Roy Jed.

534. Mining geology in 1929: Mining and Metallurgy, no. 277, pp. 23-25, January, 1930.

Colton, Harold S.

535. Fossil fresh-water shells from Winona, Coconino County, Ariz.: Nautilus, vol. 42, no. 3, pp. 93-94, January, 1929.
 536. (and Park, C. F.). Anosma of Flagstaff volcanic fields (abstract): Pan-Am. Geologist, vol. 53, no. 4, pp. 312-313, May, 1930.
 537. (and Park, Charles F., jr.). Anosma or "squeeze-ups": Science, new ser., vol. 72, p. 579, December 5, 1930.

Conard, Henry S.

538. A *Pityoxylon* from Yellowstone National Park: Am. Jour. Botany, vol. 17, no. 6, pp. 547-553, 5 figs., June, 1930.

Condra, George Evert.

539. (and Dunbar, C. O., and Moore, R. C.). Persistence of thin beds in the Pennsylvanian of the northern Mid-Continent region (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 104, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 140, March, 1930.

Conkling, Russell C. See Jones, 1293.

Connolly, Joseph Peter.

540. Gold deposits of the Keystone district [South Dakota]: Black Hills Engineer, vol. 17, no. 1, pp. 12-20, January, 1929.
 541. Economic minerals of the pegmatites: Black Hills Engineer, vol. 17, no. 1, pp. 21-38, 3 figs., January, 1929.
 542. (and O'Harra, Cleophas C.). The mineral wealth of the Black Hills: South Dakota School of Mines, Bull. no. 16, 418 pp., 35 figs., 64 pls., May, 1929.
 543. The sand-calcite crystals of Devils Hill [Washabaugh County, S. Dak.]: Black Hills Engineer, vol. 18, no. 3, pp. 264-273, illus., May, 1930.

Connolly, Joseph Peter—Continued.

544. The geology of Mount Rushmore and vicinity [Black Hills, S. Dak.] Black Hills Engineer, vol. 18, no. 4, pp. 355-366, illus., November, 1930.

Conrey, Guy Woolard.

545. Some features of the surface deposits of Ottawa County, Ohio (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 166, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 303, 1929.
546. The composition of the weathered zone of the Illinoian drift in southwestern Ohio (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, pp. 400-401, 1930.

Cook, Charles Wilford.

547. An exceptional specimen showing rhythmic banding: Michigan Acad. Sci., Papers, vol. 10, pp. 199-203, 3 pls., April, 1929.

Cook, Harold James. See also Hay, 1093.

548. Occurrence of mammoth and giant bison in glacial moraines in the high mountains of Colorado: Science, new ser., vol. 72, p. 68, July 18, 1930.
549. New rhinoceroses from the Pliocene of Colorado and Nebraska: Colorado Mus. Nat. Hist., Proc., vol. 9, no. 4, pp. 44-51, 7 pls., December 15, 1930.

Cook, John H.

550. The glacial geology of the capital district: New York State Mus. Bull. no. 285, pp. 181-199, 3 figs., December, 1930.

Cooke, Charles Wythe.

551. (and Mossom, Stuart). Geology of Florida: Florida State Geol. Survey, 20th Ann. Rept., 1927-1928, pp. 29-227, 29 pls., 1929; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, p. 92, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 140, March, 1929.
552. (and Mossom, Stuart). Geologic map of Florida. Scale 1:1,000,000. Florida State Geol. Survey in cooperation with United States Geol. Survey, 1929.
553. Pleistocene seashores: Washington Acad. Sci., Jour. vol. 20, no. 16, pp. 389-395, October 4, 1930.
554. Correlation of coastal terraces: Jour. Geology, vol. 38, no. 7, pp. 577-589, October-November, 1930.

Cooke, Harold Caswell.

555. Gisement d'or et de cuivre du Québec occidental: Soc. géog. Québec, Bull., vol. 23, nos. 1-2, pp. 46-60, January-July, 1929.
556. Studies of the physiography of the Canadian shield; I, Mature valleys of the Labrador Peninsula: Roy. Soc. Canada, Trans., ser. 3, vol. 23, sec. 4, pp. 91-120, May, 1929; II, Glacial depression and postglacial uplift: Idem., vol. 24, sec. 4, pp. 51-87, 5 figs., May, 1930.
557. The compound laccolith of Lake Dufault, Quebec: Roy. Soc. Canada, Trans., ser. 3, vol. 24, sec. 4, pp. 89-98, 1 fig., May, 1930.
558. The Amulet mine, Quebec: Canadian Min. and Met. Bull., no. 219, pp. 907-917, 2 figs., July, 1930.
559. Origin of Aldermac ore [western Quebec]: Canadian Min. Jour., vol. 51, no. 27, pp. 638-639, July 4, 1930.

- Cooper, Chalmer Lewis. See also Stone, 2529.
560. Accomplishments of the Oklahoma Geological Survey during the past year: Oklahoma Acad. Sci., Proc., vol. 9 (Oklahoma Univ., Bull., new ser., no. 456), pp. 78-82, November 15, 1929.
- Cooper, G. Arthur. See also Schuchert, 2324.
561. Fossil fauna of the marl deposits in the vicinity of New Milford: Connecticut State Geol. and Nat. Hist. Survey, Bull. no. 47, pp. 238-259, 4 pls., 1930.
562. Stratigraphy of the Hamilton group of New York: Am. Jour. Sci., 5th ser., vol. 19, pp. 116-134, 214-236, 6 figs., February-March, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 2, p. 146, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 116, March 31, 1930.
563. *Pionodema* and brachiopod homeomorphy (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 157, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 202, March 31, 1930.
564. The brachiopod genus *Pionodema* and its homeomorphs: Jour. Paleontology, vol. 4, no. 4, pp. 369-382, 1 fig., 3 pls., December, 1930.
- Cooper, William S.
565. Glacier Bay [Alaska] in 1929 (abstract): Assoc. Am. Geographers, Annals, vol. 20, no. 1, p. 26, March, 1930.
- Cordry, Cletus D.
566. Heavy minerals in the Roubidoux and other sandstones of the Ozark region, Missouri: Jour. Paleontology, vol. 3, no. 1, pp. 59-85, 5 pls., March, 1929.
- Core, Earl L.
567. Stratigraphy of the Dunkard series near Core, W. Va.: West Virginia Acad. Sci., Proc., vol. 3, pp. 199-209, 3 pls., West Virginia Univ., Bull. ser., no. 30, no. 1 [1930].
- Corey, W. H.
568. Fauna and stratigraphy of the Vaqueros formation in Ventura and Santa Barbara Counties, Calif. (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 261, March 30, 1929.
- Corless, C. V.
569. The Frood ore deposit [Sudbury, Ontario]; a suggestion as to its origin: Canadian Min. and Met. Bull., no. 203, pp. 447-453, March 1929; Canadian Inst. Min. and Met., Trans., vol. 32, pp. 140-150 [1930].
- Cottingham, Kenneth.
570. Structural conditions in portions of eastern Ohio: Structure of typical American oil fields, vol. 1, pp. 124-137, 11 figs., Am. Assoc. Petroleum Geologists, 1929.
- Courtier, William H. See Heiland, 1111.
- Cox, E. P. See Gabriel, 893.
- Cox, P. E.
571. Antiquity of man in America: Tennessee Acad. Sci., Jour., vol. 4, no. 3, pp. 90-96, July, 1929.

Crabb, Dean H. See also Miller, 1803.

572. Map of the geology of the Morehead quadrangle, Rowan, Elliott, Morgan, Bath, Carter, and Menifee Counties, Ky.: Kentucky Geol. Survey, ser. 6, 1930. Scale 1:62,500.

Craig, Edward Hubert Cunningham.

573. The oil fields of Alberta (with discussion): Inst. Petroleum Technologists, Jour., vol. 16, no. 82, pp. 390-422, 4 figs., May, 1930.

Craig, E. K. See Hudson, 1200.

Cram, Ira H.

574. Early Paleozoic stratigraphy of Wichita Mountain uplift, Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 5, pp. 623-626, May, 1930.

575. Cherokee and Adair Counties: Oklahoma Geol. Survey Bull. no. 40, vol. 3, pp. 531-586, 4 figs., map, July, 1930 (Bull. 40-QQ, May, 1930).

Crandall, K. H.

576. Permian stratigraphy of southeastern New Mexico and adjacent parts of western Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 927-944, 6 figs., August, 1929.

Crawford, A. L. See Head, 1097.

Crawford, Wm. P.

577. Notes on rickardite, a new occurrence: Am. Mineralogist, vol. 15, no. 7, pp. 272-273, July, 1930.

Crickmay, Colin Hayter.

578. Revision of the geology of Dead Man Island, California (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 164, March 30, 1929.

579. Delimitation of Jura and Trias in British Columbia (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 176, March 30, 1929.

580. On a new pelecypod, *Calyptogena gibbera* [Deadman Island, California]: Canadian Field Naturalist, vol. 43, no. 5, p. 93, 1 fig., May, 1929.

581. The anomalous stratigraphy of Deadman's Island, California: Jour. Geology, vol. 37, no. 7, pp. 617-638, October-November, 1929.

582. A Pleistocene fauna from British Columbia: Canadian Field Naturalist, vol. 43, no. 9, pp. 205-206, December, 1929.

583. Fossils from Harrison Lake area, British Columbia: Canada, Nat. Mus., Bull. no. 63, pp. 33-66, 7 figs., 16 pls., 1930.

584. Geologic importance of forest fires (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 148, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 368, June, 1929.

585. The Jurassic rocks of Ashcroft, British Columbia: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 2, pp. 23-74, 1 fig., 6 pls., April 3, 1930.

586. Geology of Mount Jura, Calif. (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 159, September, 1930.

587. The structural connection between the Coast Range of British Columbia and the Cascade Range of Washington: Geol. Mag., vol. 67, pp. 482-491, 2 figs., map, November, 1930.

Crickmay, Geoffrey W.

588. Structure and stratigraphy of the Matapedia Valley, Gaspé, Quebec (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 146, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 116-117, March 31, 1930.

Crider, Albert Foster.

589. Pine Island deep sands, Caddo Parish, La.: Structure of typical American oil fields, vol. 2, pp. 168-182, 5 figs., Am. Assoc. Petroleum Geologists, 1929.

Croneis, Carey Gardiner. See also Mather, 1715.

590. (and Billings, Marland). New areas of alkaline igneous rocks in central Arkansas: Jour. Geology, vol. 37, no. 6, pp. 542-561, 2 figs., August-September, 1929.
591. Geology of the Arkansas Paleozoic area, with special reference to oil and gas possibilities: Arkansas Geol. Survey, Bull. 3, 457 pp., 30 figs., 45 pls. (incl. maps), 1930.
592. (and Billings, Marland). Igneous rocks in central Arkansas: Arkansas Geol. Survey, Bull. 3, pp. 149-162, 2 figs., 1930.
593. Fauna of the Fayetteville formation (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 203, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, pp. 157-158, March, 1930.
594. A new type of paleontologic table: Am. Jour. Sci., 5th ser., vol. 20, pp. 339-343, 1 fig., November, 1930.
595. Earth movements and the accumulation of oil and gas: Western Soc. Eng., Jour., vol. 35, no. 6, pp. 423-438, 18 figs., December, 1930.

Crook, Alja Robinson, 1865-1930.

596. An Illinois record copper erratic: Am. Mineralogist, vol. 14, no. 4, pp. 119-124, 2 pls., April, 1929.
597. Geological history illustrated by actual materials (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 163-164, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 5, p. 368, December, 1929.
598. New plan illustrative of historical geology: Pan-Am. Geologist, vol. 53, no. 2, pp. 88-90, March, 1930.
599. (and Farrington, O. C.). The Tilden meteorites: Illinois State Acad. Sci., Trans., vol. 22, pp. 442-449, 4 figs., April, 1930; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, p. 135, March 30, 1929.

Crosby, Irving Ballard.

600. (and Leonardon, E. G.). Electrical prospecting applied to foundation problems: Am. Inst. Min. and Met. Eng., Geophysical Prospecting, pp. 199-210, 11 figs., 1929.
601. Further evidence of keystone faulting: Jour. Geology, vol. 38, no. 2, pp. 184-186, February-March, 1930; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, p. 195, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 67, February, 1929.
602. Preglacial drainage of St. Maurice Valley in Quebec (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 137-138, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 100, March 31, 1930.

Cumming, George A.

603. San Andreas rift and adjacent features near Redlands (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 74, August, 1930.

Cumming, Jorge L.

604. Geología petrolera de México: Mexico, Depto. exploraciones y estudios geol., 23 pp., 1929.
605. Arcillas, arenas, gravas y yeso de una comarca septentrional del Estado de Coahuila: Mexico, Inst. geol., Anales, t. 4, pp. 79-82, 1930.

Cunningham, C. J. See McCollum, 1648.

Cushman, Joseph Augustine.

606. Contributions from the Cushman Laboratory for Foraminiferal Research, Sharon, Massachusetts.

Vol. 5, pt. 1, March, 1929.

70. *Kyphopyxa*, a new genus from the Cretaceous of Texas, pp. 1-4, 1 pl.
71. *Cycloloculina* in the Western Hemisphere, pp. 4-5.
72. (and Jarvis, P. W.). New Foraminifera from Trinidad, pp. 6-17, 2 pls.
73. (and Leavitt, David H.). On *Elphidium macellum* (Fichtel and Moll), *E. striato-punctatum* (Fichtel and Moll) and *E. crispum* (Linné), pp. 18-22, 1 pl.

Vol. 5, pt. 2, June, 1929.

74. The term "arenaceous Foraminifera" and its meaning, pp. 25-27.
75. The genus *Bolivina* and its species, pp. 28-34, 1 pl.
76. On *Guttulina lactea* (Walker and Jacob). *Polymorphina burdiga iensis* D'Orbigny, and *Pyrulina gutta* D'Orbigny, by Ozawa, Yoshiaki, pp. 34-39, 1 pl.
77. Notes on the Foraminifera of the Byram marl, pp. 40-48, 2 pls.

Vol. 5, pt. 3, September, 1929.

78. An American *Virgulina* related to *V. pertusa* Reuss, pp. 53-54.
79. Some species of *Siphogenerinoides* from the Cretaceous of Venezuela, pp. 55-59, 1 pl.
80. On *Quinqueloculina seminula* (Linné), pp. 59-60.
81. (and Alexander, C. I.). *Frankeina*, a new genus of arenaceous Foraminifera, pp. 61-62.
82. (and Waters, James A.). Some arenaceous Foraminifera, from the Taylor marl of Texas, pp. 63-66, 1 pl.
83. Pliocene Lagenas from California, pp. 67-72, 1 pl.

Vol. 5, pt. 4, December, 1929.

84. A late Tertiary fauna of Venezuela and other related regions, pp. 77-101, 3 pls.
85. *Planulina ariminensis* D'Orbigny and *P. wuellerstorfi* (Schwager), pp. 102-105, 1 pl.
86. *Virgulina gunteri* Cushman—a correction of name, p. 105.

Vol. 6, pt. 1, March, 1930.

87. (and Alexander, C. I.). Some Vaginulinas and other Foraminifera from the Lower Cretaceous of Texas, pp. 1-10, 2 pls.
88. Some notes on the genus *Patellina*, pp. 11-17, 1 pl.
89. Fossil species of *Hastigerinella*, pp. 17-19.

Vol. 6, pt. 2, June, 1930.

90. Notes on Upper Cretaceous species of *Vaginulina*, *Flabellina*, and *Fronicularia* from Texas and Arkansas, pp. 25-38, 2 pls.
91. (and Wickenden, R. T. D.). The development of *Hantkenina* in the Cretaceous with a description of a new species, pp. 39-43, 1 pl.
92. Notes on early Paleozoic Foraminifera, pp. 43-44.

Vol. 6, pt. 3, September, 1930.

93. (and Moyer, Dorothy A.). Some recent Foraminifera from off San Pedro, California, pp. 49-62, 2 pls.
94. On *Uvigerina pigmea* D'Orbigny, pp. 62-63.
95. (and Hedberg, Hollis D.). Notes on some Foraminifera from Venezuela and Colombia, pp. 64-69, 1 pl.

Vol. 6, pt. 4, December, 1930.

96. A résumé of new genera of the Foraminifera erected since early 1928, pp. 74-94, 3 pls.
97. (and Cole, W. Storrs). Pleistocene Foraminifera from Maryland, pp. 94-100, 1 pl.
98. The range of *Stigmoidella plummerae* Cushman and Ozawa; a correction, p. 101.

Cushman, Joseph Augustine—Continued.

607. A fossil member of the family Peggidiidae: *Washington Acad. Sci., Jour.*, vol. 19, no. 6, pp. 125-127, 1 fig., March 19, 1929.
608. Structural characters in Foraminifera and their bearing on relationships (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 254, March 30, 1929.
609. Variability in Foraminifera and its bearing on nomenclature (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 254, March 30, 1929.
610. (and Thomas, Norman L.). Abundant Foraminifera of the east Texas greensands: *Jour. Paleontology*, vol. 3, no. 2, pp. 176-184, 2 pls., June, 1929.
611. (and Church, C. C.). Some Upper Cretaceous Foraminifera from near Coalinga: *California Acad. Sci., Proc.*, 4th ser., vol. 18, no. 16, pp. 497-530, 6 pls., October 4, 1929.
612. The Foraminifera of the Choctawhatchee formation of Florida: *Florida State Geol. Survey, Bull.* no. 4, 63 pp., 12 pls., 1930.
613. (and Stewart, Roscoe E., and Stewart, Katherine C.). Tertiary Foraminifera from Humboldt County, Calif.; a preliminary survey of the fauna: *San Diego Soc. Nat. Hist., Trans.*, vol. 6, no. 2, pp. 41-94, 8 pls., February 28, 1930.
614. Common Foraminifera of the east Texas greensands: *Jour. Paleontology*, vol. 4, no. 1, pp. 33-41, 2 pls., March, 1930.
615. A résumé of new genera of the Foraminifera erected since early 1928: *Cushman Lab. Foraminiferal Research, Special Pub.* no. 2, 22 pp., 1 pl., Sharon, Mass., December, 1930.
616. (and Jarvis, P. W.). Miocene Foraminifera from Buff Bay, Jamaica: *Jour. Paleontology*, vol. 4, no. 4, pp. 353-368, 3 pls., December, 1930.

Cuyler, Robert H. See Bullard, 370.

617. Georgetown formation of central Texas and its northern Texas equivalents: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 10, pp. 1291-1299, 2 figs., October, 1929.
618. Unique method of locating geologic structures (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 141, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 108, March 31, 1930.
619. Caliche as a fault indicator (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 141, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 109, March 31, 1930.
620. Use of vegetation as indicator of geologic formations (abstract): *Pan-Am. Geologist*, vol. 53, no. 3, p. 222, April, 1930.
621. Probable date of Balcones faulting (abstract): *Pan-Am. Geologist*, vol. 53, no. 3, p. 225, April, 1930.

Dahlgren, B. E.

622. A fossil flower (cycadeoid): *Field Mus. Nat. Hist., Dept. Botany, Leaflet* no. 5, 16 pp., 10 figs., Chicago, 1924.

Dake, Charles Lawrence. See also Bridge, 311.

623. The geology of Potosi and Edgehill quadrangles: *Missouri Bur. Geology and Mines, Second ser.*, vol. 23, 233 pp., 26 pls., maps, 1930.

Dale, Nelson C.

624. Magnetite deposit of Benson mines, St. Lawrence County, N. Y. (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 58, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 1, p. 80, February, 1930.

Dale, T. Nelson.

625. The Ordovician outlier at Hyde Manor in Sudbury, Vt. (third paper): *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 521-524, June, 1929.

Daly, Reginald Aldworth. See also Davis, 649.

626. The effective moduli of elasticity in the outer earth shells (second paper): *Gerlands Beiträge zur Geophysik*, Bd. 22, pp. 29-40, 1929.
627. Meaning of the earth's rigidity (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 82-83, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 78, February, 1929.
628. Swinging sea level of the ice age: *Geol. Soc. America, Bull.*, vol. 40, no. 4, pp. 721-734, December 31, 1929; abstract, no. 1, pp. 201-202, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 156, March, 1929.
629. X-raying the earth: *Smithsonian Inst., Ann. Rept.* 1929, pp. 261-268, 1930.
630. Nature of certain discontinuities in the earth: *Seismol. Soc. America, Bull.*, vol. 20, no. 2, pp. 41-52, June, 1930.

Dane, Carle Hamilton. See also Baker, 83; Dobbin, 683.

631. Upper Cretaceous formations of southwestern Arkansas: *Arkansas Geol. Survey, Bull.* 1, 215 pp., 4 figs., 29 pls. (incl. map), 1929.

Daniels, James I. See Clark, 496.

Dannenberg, A.

632. Die Verbreitung, Ausbildung und tektonischen Verhältnisse der flözführenden unteren Kreide (Wealden) im westlichen Kanada (Prov. Alberta und Brit. Columbia): *Geol. Rundschau*, Bd. 20, H. 4-5, pp. 257-280, 5 figs., 1 pl., September 9, 1929.

Darton, Nelson Horatio.

633. Devonian strata in western Texas (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 116-117, 253, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 150, March, 1929.

Davidson, S. C. See Palache, 1973.

Davis, Charles Wesley.

634. Composition and age of uranium minerals from Katanga, South Dakota, and Utah: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 557-558, June, 1929.
635. Geology of bentonite: *Pan-Am. Geologist*, vol. 51, no. 5, pp. 333-336, June, 1929.

Davis, Morgan J. See also Blanchard, 248.

636. Artesia field, Eddy County, N. Mex.: Structure of typical American oil fields, vol. 1, pp. 112-123, 3 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Davis, N. F. G.

637. Clearwater Lake area, British Columbia: *Canada, Geol. Survey, Summ. Rept.* 1929, pt. A, pp. 274-296, 1930.

Davis, R. N.

638. Glacial potholes of northeastern Pennsylvania (abstract): *Pennsylvania Acad. Sci., Proc.*, vol. 3, p. 26, 1929.

Davis, Ralph E.

639. (and Stephenson, Eugene A.). Synclinal oil fields in southern West Virginia: Structure of typical American oil fields, vol. 2, pp. 571-576, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Davis, William Morris.

640. Geological map of New Mexico [comments on Darton's map]: Science, new ser., vol. 70, pp. 68-70, July 19, 1929.
641. Rock floors in arid and in humid climates: Jour. Geology, vol. 38, no. 1, pp. 1-27, no. 2, pp. 136-158, 7 figs., January-February, February-March, 1930.
642. (and Brooks, Baylor). The Galiuro Mountains, Ariz.: Am. Jour. Sci., 5th ser., vol. 19, pp. 89-115, 9 figs., February, 1930.
643. Periodicity in desert physiography (abstract): Pan-Am. Geologist, vol. 53, no. 4, p. 320, May, 1930.
644. Physiographic contrasts, east and west: Sci. Monthly, vol. 30, nos. 5 and 6, pp. 395-415, 501-519, 7 figs., 4 pls., May and June, 1930.
645. The Peacock Range, Ariz.: Geol. Soc. America, Bull., vol. 41, no. 2, pp. 293-313, 7 figs., June 30, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 4, p. 313, May; vol. 54, no. 2, p. 152, September, 1930.
646. Origin of limestone caverns: Geol. Soc. America, Bull., vol. 41, no. 3, pp. 475-628, 62 figs., 2 pls., September 30, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 4, p. 310, May, 1930; Science, new ser., vol. 72, p. 375, October 10, 1930.
647. (and Killingsworth, Cecil). Origin of caverns (abstract): Pan-Am. Geologist, vol. 54, no. 2, pp. 152-154, September, 1930.
648. (and Putnam, W. C., and Richards, G. L.). Elevated shore lines of Santa Monica Mountains (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 154, September, 1930.
649. (and Daly, Reginald Aldworth). Geology and geography, 1858-1929: The development of Harvard University, 1869-1929 (S. E. Morison, ed.), ch. 19, pp. 307-328, 4 pls. (portr.), Cambridge, Mass., Harvard University Press, 1930.

Davison, E. H.

650. The geology of the Gold River area, Nova Scotia: Roy. Geol. Soc. Cornwall, Trans., vol. 16, pt. 3, pp. 117-121, 4 pls., Penzance, 1930.
651. Tin lodes in Nova Scotia: Min. Mag., vol. 42, no. 1, pp. 20-23, 5 figs., January, 1930.

Day, Arthur Louis.

652. [Report of the] Geophysical Laboratory: Carnegie Inst. Washington, Year Book, no. 28, pp. 67-83, 1929.
653. (and others). Seismology; report of the advisory committee: Carnegie Inst. Washington, Year Book no. 28, pp. 416-424, 1929.
654. [Report of the] Geophysical Laboratory: Carnegie Inst. Washington, Year Book no. 29, pp. 69-89, 1930.
655. (and others). Seismology; report of the advisory committee: Carnegie Inst. Washington, Year Book no. 29, pp. 422-437, 1930.
656. Progress in American seismology: Am. Geophys. Union, Tenth and Eleventh Annual Meetings, Trans., pp. 161-166, National Research Council, June, 1930.
657. Progress in American seismology: Seismol. Soc. America, Eastern section, Proc. 1930 Meeting, Washington, pp. 65-70 [1930].

Dean, David. See Snow, 2445.

Dean, Ethel S. See Bownocker, 266.

DeChicchis, R. See Ackers, 1.

Decker, Charles Elijah.

658. Sandstones in the upper part of the Arbuckle limestone, Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 11, pp. 1477-1479, 1 fig., November, 1929.

659. Subdivision of Simpson formation of Arbuckle Mountains (abstract): Pan-Am. Geologist, vol. 53, no. 3, p. 225, April, 1930.

660. Simpson group of Arbuckle and Wichita Mountains, Okla.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 12, pp. 1493-1505, December, 1930.

Deen, A. H.

661. Cambrian algal reefs of Texas (abstract): Pan-Am. Geologist, vol. 54, no. 3, p. 238, October, 1930.

De Ford, Ronald K. See also Willis, 2889.

662. Surface structure, Florence oil field, Fremont County, Colorado: Structure of typical American oil fields, vol. 2, pp. 75-92, 4 figs., 1 pl., Am. Assoc. Petroleum Geologists, 1929.

De Geer, Gerard.

663. Geochronology, as based on solar radiation, and its relation to archaeology: Antiquity, vol. 2, no. 7, pp. 308-338, 2 figs., 1 pl., September, 1928; Smithsonian Inst., Ann. Rept. 1928, pp. 687-696, 3 figs., 1929.

Delo, David M.

664. Some upper Carboniferous Ostracoda from the shale basin of western Texas: Jour. Paleontology, vol. 4, no. 2, pp. 152-178, 2 pls., June, 1930.

665. Dreikanter in Wyoming and Montana: Science, new ser., vol. 72, p. 604. December 12, 1930.

DeLury, Justin Sarsfield.

666. The mining situation in Manitoba: Canadian Min. and Met. Bull., no. 207, pp. 882-893, July, 1929.

667. Tin prospects in Manitoba: Canadian Min. Jour., vol. 50, no. 35, pp. 810-813, 4 figs., August 30, 1929.

DeMille, John B.

668. Geophysical prospecting; its value to the mining geologist: Canadian Min. Jour., vol. 50, no. 14, pp. 313-315, April 5, 1929.

669. Prospects for natural gas in the St. Lawrence lowland: Canadian Min. and Met. Bull., no. 224, pp. 1522-1541, 5 figs. (incl. map), December, 1930.

Demorest, D. J.

670. The constitution of coal: Ohio State Univ., Eng. Exper. Sta. News, vol. 2, no. 4, pp. 8-10, September, 1930.

Derby, D. R.

671. The age and relationships of intrusions in Maisonville Township, Ontario: Roy. Canadian Inst., Trans., vol. 17, pt. 1, pp. 75-80, July, 1929.

Derby, E. L., jr.

672. Geology of ores on the Marquette range [Michigan]: Min. Congress Jour., vol. 15, no. 10, pp. 731-733, October, 1929.

Derry, Duncan R.

673. Tin-bearing pegmatites in eastern Manitoba: Econ. Geology, vol. 25, no. 2, pp. 145-159, 5 figs., March-April, 1930.
674. Geology of the Ontario-Manitoba boundary between the twelfth base line and latitude $53^{\circ} 40'$: Canadian Min. Jour., vol. 51, no. 46, pp. 1098-1099, 1 fig., November 14, 1930.

DeWolf, Frank Walbridge.

675. Topographic and geologic atlas of Pennsylvania, no. 5, New Castle quadrangle; geology and mineral resources: Pennsylvania Geol. Survey, Fourth ser., 238 pp., 17 figs., 18 pls. (incl. maps), 1929.

Díaz Lozano, Enrique.

676. Algunas palabras acerca de la designación de las formaciones geológicas en la región petrolera de México: Bol. petróleo, vol. 27, no. 3, pp. 325-326, March, 1929.
377. Posibilidades de la existencia de petróleo en la región comprendida entre Córdoba, Veracruz y Tierra Blanca: Bol. petróleo, vol. 28, no. 4-5, pp. 605-616, 4 pls. (incl. map), October-November, 1929.

Dicken, Samuel N.

678. Kentucky karst landscapes (abstract): Assoc. Am. Geographers, Annals, vol. 20, no. 1, pp. 27-28, March, 1930.

Dietz, C. S.

679. The developed and undeveloped mineral resources of Wyoming: Wyoming Geol. Survey, Bull. 21, 194 pp., 1929.

Dillé, Glenn S.

680. Meteorites in the Coe College Museum, Cedar Rapids, Iowa: Iowa Acad. Sci., Proc., vol. 35, pp. 225-232, 2 pls. [1929].
681. Minnelusa of Black Hills of South Dakota: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 5, pp. 619-623, May, 1930.

Dobbin, Carroll Edward.

682. (and Bowen, C. F., and Hoots, H. W.). Geology and coal and oil resources of the Hanna and Carbon Basins, Carbon County, Wyo.: U. S. Geol. Survey, Bull. 804, 88 pp., 3 figs., 27 pls., 1929.
683. (and Hoots, H. W., Dane, C. H., and Hancock, E. T.). Geology of the Rock Creek oil field and adjacent areas, Carbon and Albany Counties, Wyo.: U. S. Geol. Survey, Bull. 806, pp. 131-153, 2 figs., 8 pls. (incl. map), February 16, 1929.
684. The Forsyth coal field, Rosebud, Treasure, and Big Horn Counties, Mont.: U. S. Geol. Survey, Bull. 812, pp. 1-55, 1 fig., 10 pls., 1929.
685. (and Reeside, John B., jr.). The contact of the Fox Hills and Lance formations: U. S. Geol. Survey, Prof. Paper 158, pp. 9-25, 4 figs., 2 pls., 1929.
686. Carbon ratios and oil gravities in the Rocky Mountain region of the United States: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 10, pp. 1247-1255, 2 figs., 1 pl., October, 1929.

Dodge, Richard Elwood.

687. (and others). Albert Perry Brigham; geologist (Philip S. Smith); physiographer (Kirk Bryan); human geographer (R. H. Whitbeck); popularizer of geography and geology in the United States (Lawrence Martin); geographer-envoy from America to Europe (Frank E. Williams); educator (Robert M. Brown); bibliography: *Assoc. Am. Geographers, Annals*, vol. 20, no. 2, pp. 55-104, portr., June, 1930.

Doggett, Ruth Allen. See also Foshag, 863.

688. The orthoclase-plagioclase equilibrium diagram: *Jour. Geology*, vol. 37, no. 7, pp. 712-716, 3 figs., October-November, 1929.

Dolmage, Victor.

689. Rock Candy [fluorspar deposit, British Columbia]: Canada, Geol. Survey, Econ. Geology ser. no. 6, pp. 22-28, 1 fig., 1 pl., 1929.
690. Gun Creek map area, British Columbia: Canada, Geol. Survey, Summ. Rept. 1928, pt. A, pp. 78-93, 1 fig. (map), 2 pls., 1929.
691. Finlay River district, British Columbia: *Canadian Min. Jour.*, vol. 50, no. 8, pp. 164-168, February 22, no. 10, pp. 214-217, 229, 4 figs., March 8, 1929.
692. The Snowflake tin-silver vein [British Columbia]: *Canadian Min. Jour.*, vol. 50, no. 27, pp. 626-627, July 5, 1929.
693. The origin of the Copper Mountain ores [British Columbia]: *Canadian Min. and Met. Bull.*, no. 206, pp. 788-802, June, 1929; *Canadian Inst. Min. and Met., Trans.* vol. 32, pp. 151-165, 3 figs. [1930].

Donnay, Joseph D. H. See also Farrel, 788.

694. Cleavage versus parajointing (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 170, March 30, 1929.
695. Thinned polished sections; a new technique for the investigation of ores in thin slices: *Econ. Geology*, vol. 25, no. 3, pp. 270-274, May, 1930.

Dorr, James B.

696. The "Guayabal" formation of Mexico: *Jour. Paleontology*, vol. 4, no. 4, pp. 418-419, December, 1930.

Dott, Robert H.

697. (and Ginter, Roy L.). Isocon map for Ordovician waters (with discussion by L. C. Case): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 9, pp. 1215-1219, September, 1930.

Dougherty, E. Y.

698. [Geophysical surveying at] Gull Lake, north-central Newfoundland: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 369, pp. 15-21, 2 figs., October, 1930.

Douglass, Alfred E.

699. Background of climatic cycles (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, pp. 318-319, May, 1930.

Dovalina, José.

700. La bauxita: Mexico, *Inst. geol., Anales*, t. 4, pp. 1-5, 1930.
701. Yacimientos de bauxita, cuya existencia pareció haber sido descubierta en Camargo (antes Santa Rosalia), Estado de Chihuahua: Mexico, *Inst. geol., Anales*, t. 4, pp. 9-16, 1930.
702. El yeso: Mexico, *Inst. geol., Anales*, t. 4, pp. 131-139, 1930.
703. Génesis del yeso: Mexico, *Inst. geol., Anales*, t. 4, pp. 141-146, 1930.

Doxsee, W. W. See also Hodgson, 1172.

704. The location of epicenters, 1926-27; Canada, Dominion Observatory, Ottawa, Pub., vol. 7, Seismology, no. 5, pp. 191-259, 1930.

Dresser, John Alexander.

705. (and others). Geological traverses in the counties of Labelle, Papineau, Argenteuil, Terrebonne, Montcalm, Joliette, Berthier, Maskinongé, Two Mountains, Montmorency and Charlevoix: Quebec, Bur. Mines, Rept. on Mining Operations 1928, pp. 164-174, maps, 1929.

Drevermann, F.

706. Permische Insekten mit erhaltener Farbe: Natur und Museum, Frankfurt a. M., Bd. 60, H. 11, pp. 507-513, 6 figs., November, 1930.

Dufresne, A. O.

707. Report on mining in the Province of Quebec during the year 1928: Quebec, Bur. Mines, 189 pp. illus., maps, 1929.

Dunbar, Carl Owen. See also Condra, 539.

708. (and Henbest, Lloyd G.). The fusulinid genera *Fusulina*, *Fusulinella*, and *Wedekindella*: Am. Jour. Sci., 5th ser., vol. 20, pp. 357-364, 1 fig., November, 1930.

Dunn, Paul Heaney.

709. The faunas of the Cumberland sandstone (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 169, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 306, 1929.
710. Geologic map of Bracken County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
711. Map of the areal and structural geology of Harrison County, Ky.: Kentucky Geol. Survey, ser. 6, 1930. Scale 1 inch=1 mile.

Durward, Robert H.

712. Fisk or Shields pool, Coleman County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 9, pp. 1214-1215, September, 1929.

Du Toit, Alex. L.

713. The continental displacement hypothesis as viewed by Du Toit (communication, with reply by Charles Schuchert): Am. Jour. Sci., 5th ser., vol. 17, pp. 179-183, February, 1929.

Dyer, William Spafford. See also Williams, 2880.

714. Geology and economic deposits of the Moose River Basin: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 6, pp. 1-69, illus., map, 1929.
715. New species of invertebrate fossils from the nonmarine formations of southern Alberta: Canada, Nat. Mus., Bull. no. 63, pp. 7-14, 2 pls., 1930.
716. General review of nonmetallic mineral resources, 1928: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 4, pp. 1-18, 1930.
717. Limestones of the Moose River and Albany River Basins: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 4, pp. 31-33, 1930.
718. Sylvania sandstone deposit at Amherstburg: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 4, pp. 41-46, 1930.
719. Paleozoic geology of the Albany River and certain of its tributaries: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 4, pp. 47-60, 1930.
720. Onakawana lignite [Ontario]: Canadian Min. Jour., vol. 51, no. 12, pp. 271-273, 4 figs., March 21, 1930.

Dyer, William Spafford—Continued.

721. The lignite deposit at Onakawana, Moose River Basin, Ontario: Canadian Min. and Met. Bull., no. 219, pp. 884-906, 3 figs., 6 pls. (maps and section), July, 1930.

Dyk, Carl. See Stechschulte, 2484.

Dyk, Robert. See Byerly, 404, 405.

Eakle, Arthur Stagr, 1864-1931.

722. Probertite, a new borate: Am. Mineralogist, vol. 14, no. 11, pp. 427-430, 4 figs., November, 1929.

Eames, Arthur J.

723. Report on ground-sloth coprolite from Dona Ana County, N. Mex.: Am. Jour. Sci., 5th ser., vol. 20, pp. 353-356, November, 1930.

Eardley-Wilmoth, Vere Levinge.

724. Diatomite, its properties and uses: Canadian Min. Jour., vol. 50, no. 7, pp. 147-150, February 15, 1929.

Eastern Gulf Oil Co.

725. Preliminary report on geology and oil exploration in Cape Breton Island, Nova Scotia: Nova Scotia, Rept. on Mines, 1928, pp. 261-301, 15 pls., Halifax, 1929.

Eaton, Harry Nelson.

726. Structural features of Long Ridge and West Mountain, central Utah: Am. Jour. Sci., 5th ser., vol. 18, pp. 71-79, 3 figs., July, 1929.

Eaton, J. E.

727. The by-passing and discontinuous deposition of sedimentary materials: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 7, pp. 713-761, 12 figs., July, 1929.

728. Publication of original recommendations: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 6, pp. 794-797, June, 1930.

Eaton, Lucien.

729. Method and cost of mining hard specular hematite on the Marquette range, Michigan: Lake Superior Min. Inst., Proc., vol. 27, pp. 190-209, 7 figs., 1929.

Ebbutt, Frank.

730. The search for mineral deposits: Sci. Monthly, vol. 29, no. 6, pp. 515-522, 16 figs., December, 1929.

Eby, James Brian. See Hancock, 1041.

Eckel, Edwin B.

731. Boxwork siderite; an analogous occurrence of silica and chrysocolla (discussion): Econ. Geology, vol. 25, no. 3, pp. 290-292, May, 1930.

Edmunds, F. H.

732. Soil mapping as an aid to geological interpretation: Canadian Min. and Met. Bull., no. 211, pp. 1290-1304, November, 1929; Canadian Inst. Min. and Met., Trans., vol. 32, pp. 10-24 [1930].

Edson, Fanny Carter.

733. Pre-Mississippian sediments in central Kansas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 5, pp. 441-458, 1 fig., May, 1929.

Edson, Fanny Carter—Continued.

734. Heavy mineral work in the Mid-Continent region: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 70-74, 1930.

735. Lower Paleozoic unconformities: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 7, p. 947, July, 1930.

Edwards, Everett C.

736. (and Orynski, Leonard W.). Westbrook field, Mitchell County, Tex.; Structure of typical American oil fields, vol. 1, pp. 282-292, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Eggleston, Julius W.

737. Glacial geology and the Vermont flood: Science, new ser., vol. 69, pp. 621-622, June 14, 1929.

Ekblaw, George E.

738. Glacial origin of Beaver Creek, Boone County: Illinois State Acad. Sci., Trans., vol. 21, pp. 283-287, 2 figs., February, 1929.

739. Cause and prevention of potential rock falls north of Savanna, Ill.: Illinois State Acad. Sci., Trans., vol. 22, pp. 450-454, 5 figs., April, 1930.

Ekern, George L.

740. (and Thwaites, F. T.). The Glover Bluff structure, a disturbed area in the Paleozoics of Wisconsin: Wisconsin Acad. Sci., Trans., vol. 25, pp. 89-97, 1 fig., 1 pl., 1930.

Elias, M. K.

741. Origin of cave-ins in Wallace County, Kans.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 3, pp. 316-320, 2 figs., March, 1930.

Eliel, Leon T.

742. Aerial photography and its importance to California geologists: Mining in California (California, Dept. Nat. Res., Div. Mines), vol. 26, no. 1, pp. 64-71, 6 pls., January, 1930.

Elliot, G. R.

743. The Turner Valley oil field [Alberta]: Canadian Min. and Met. Bull., no. 214, pp. 259-283, 10 figs., February, 1930.

Ellis, Robert Walpole.

744. Tables for determining common minerals and rocks (second edition): New Mexico, Univ., Bull. no. 160, Geol. ser., vol. 4, no. 1, 64 pp., 1929.

745. New Mexico mineral deposits except fuels: New Mexico, Univ., Bull., Geol. ser., vol. 4, no. 2, 148 pp., Albuquerque, N. Mex., 1930.

Ellisor, Alva Christine.

746. Correlation of the Claiborne of east Texas with the Claiborne of Louisiana: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 10, pp. 1335-1346, 2 figs., 1 pl., October, 1929.

747. Marine Oligocene of Coastal Plain of Texas and Louisiana (abstract): Pan-Am. Geologist, vol. 53, no. 3, pp. 213-214, April, 1930.

Ells, Sydney Clarke.

748. Core drilling bituminous sands of northern Alberta: Canada, Mines Branch, Investigations of Mineral Resources, 1928, pp. 28-46, 2 pls., 1930.

Ellsworth, E. W.

749. (and Wilgus, W. L.). The varved clay deposit at Waupaca, Wis.: Wisconsin Acad. Sci., Trans., vol. 25, pp. 99-111, 4 figs., 1 pl., 1930.

Ellsworth, H. V. See also Graham, 982.

750. Nickel-cobalt minerals on Calumet Island, Quebec; Canadian Min. Jour., vol. 51, no. 37, pp. 886-888, 1 fig., Sept. 12, 1930.

751. Four stages in the alteration of the Villeneuve uraninite: Am. Mineralogist, vol. 15, no. 10, pp. 455-460, October, 1930.

Elsing, Morris J.

752. Secondary enrichment at Cananea [Mexico]: Eng. and Min. Jour., vol. 130, no. 6, pp. 285-288, 6 figs., September 25, 1930.

Emerson, Benjamin Kendall.

753. James Furman Kemp, 1859-1926: Am. Acad. Arts and Sci., Proc., vol. 63, no. 12, p. 462, March, 1929.

Emery, Wilson B.

754. Lance Creek oil and gas field, Niobrara County, Wyo.: Structure of typical American oil fields, vol. 2, pp. 604-613, 1 fig., Am. Assoc. Petroleum Geologists, 1929.

755. Rock River oil field, Carbon County, Wyo.: Structure of typical American oil fields, vol. 2, pp. 614-622, 1 fig., Am. Assoc. Petroleum Geologists, 1929.

Emmons, Richard Conrad.

756. (and Thomson, Ellis.). Preliminary report on Woman River and Ridout map areas, Sudbury district, Ontario: Canada, Geol. Survey, Mem. 157, 30 pp., 2 maps, 1929.

757. Another petrographic method: Science, new ser., vol. 70, p. 196, August 23, 1929.

758. The double-variation method of refractive-index determination: Am. Mineralogist, vol. 14, no. 11, pp. 414-426, 5 figs., November, 1929.

759. A modified universal stage: Am. Mineralogist, vol. 14, no. 12, pp. 441-461, 2 figs., 2 pls., December, 1929.

760. On gravity separation: Am. Mineralogist, vol. 15, no. 11, p. 536, November, 1930.

Emmons, William Harvey.

761. The origin of the deposits of sulphide ores of the Mississippi Valley: Econ. Geology, vol. 24, no. 3, pp. 221-271, 14 figs., May, 1929.

Engel, Rene.

762. (and Bohn, J. Lloyd.). Relations between geologic problems and the radioactivity of rocks and waters (abstract): Geol. Soc. America. Bull., vol. 41, no. 1, p. 154, March 31, 1930; Pan-Am. Geologist. vol. 51, no. 5, p. 372, June, 1929.

English, Walter Atheling.

763. Notes on the McKittrick, Calif., oil field: Structure of typical American oil fields, vol. 1, pp. 18-22, 1 fig., Am. Assoc. Petroleum Geologists, 1929.

764. Use of airplane photographs in geologic mapping: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 8, pp. 1049-1058, 3 figs., August, 1930.

Erdmann-Klingner, Fritz.

765. Die Erdölprovinzen der Vereinigten Staaten von America und ihre tektonische Stellung: Petroleum, Berlin-Wien, Bd. 26, no. 1, pp. 1-6, January 1, 1930. (A digest of Ver Wiebe's paper; see no. 2733.)

Erich, E. E.

766. Mining opportunities in known districts [occurrence of ore deposits]: Eng. and Min. Jour., vol. 130, no. 7, pp. 333-334, 1 fig., October 9, 1930.

Erimesco, P.

767. Microscopic examination of ores: Eng. and Min. Jour., vol. 130, no. 10, p. 529, 4 figs., November 24, 1930.

Esarey, Ralph E.

768. Tri-County oil field of southwestern Indiana: Structure of typical American oil fields, vol. 1, pp. 23-34, 6 figs., Am. Assoc. Petroleum Geologists, 1929.

Escher, B. G.

769. (and Kuenen, Ph. H.). Experiments in connection with salt domes: Leidsche geologische Mededeelingen, Deel 3, Afl. 3, pp. 151-182, 6 figs., 19 pls., 1929.

Esgen, W. K.

770. Relation of accumulation of petroleum to structure in Stephens County, Tex.: Structure of typical American oil fields, vol. 2, pp. 470-479, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Etherington, Thos. J.

771. Tertiary rocks of part of Chehalis Valley, Wash. (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 256, March 30, 1929.

Evans, C. S.

772. Some stratigraphic sections in the foothill region between Bow and North Saskatchewan Rivers, Alberta: Canada, Geol. Survey, Summ. Rept. 1929, pt. B, pp. 25-35, 1 fig., 1930.
773. (and Cahey, J. F.). Reconnaissance survey of foothill area in Wapiti River basin: Canada, Geol. Survey, Summ. Rept. 1929, pt. B, pp. 36-39, 1 fig., 1930.

Evans, O. F.

774. Old beach markings in the western Wichita Mountains: Jour. Geology, vol. 37, no. 1, pp. 76-82, 4 figs., January-February, 1929.
775. An unexplained form from the red beds: Oklahoma Acad. Sci., Proc., vol. 8 (Oklahoma, Univ., Bull., new ser., no. 410), p. 120 [1929].
776. Old beach markings in the western Wichita Mountains: Oklahoma Acad. Sci., Proc., vol. 8 (Oklahoma, Univ., Bull., new ser., no. 410), pp. 122-124 [1929].
777. The antiquity of man as shown at Frederick, Okla., a criticism: Washington Acad. Sci., Jour., vol. 20, no. 19, pp. 475-479, November 19, 1930.

Eve, A. S.

778. Absorption of electromagnetic induction and radiation by rocks: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 316, 11 pp., 1 fig., March, 1930.

Ewing, Maurice.

779. (and Leet, L. Don.). Seismic propagation paths: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 267, 18 pp., 5 figs., January, 1930.

Faber, Charles L.

780. A review of the genus *Lichenocrinus* and descriptions of two new genera: Am. Midland Naturalist, vol. 11, no. 9, pp. 453-490, 9 pls., May, 1929.

Fábrega, Pablo.

781. Los ciclos de agua subterránea: Cuba, Direc. montes y minas, Bol. minas, no. 14, pp. 3-9, 14 figs., 1929.

Faessler, Carl.

782. Notes on the geological reconnaissance traverses between Beaupré and the Saguenay River in the counties of Montmorency and Saguenay: Quebec, Bur. Mines, Rept. on Mining Operations 1928, pp. 175-184, map, 1929.
783. Geological exploration on the north shore, Tadoussac to Escoumans: Quebec Bur. Mines, Ann. Rept. 1929, pt. D, pp. 73-89, map, 1930.

Fairbairn, W. M.

784. Celestite in central Ontario: Am. Mineralogist, vol. 14, no. 8, pp. 286-289, August, 1929.

Fairchild, Herman Leroy.

785. Meteor Crater exploration: Science, new ser., vol. 69, pp. 485-487, May 10, 1929.
786. New York drumlins: Rochester Acad. Sci., Proc., vol. 7, no. 1, pp. 1-37, 20 pls., October, 1929.
787. Nature and fate of the Meteor Crater bolide: Science, new ser., vol. 72, pp. 463-467, November 7, 1930.

Falomir, Jesus J. See García, 900.

Farrel, J. H.

788. (and Donnay, J. D. H.). Étude de la foot-hill copper belt de Californie comme source possible d'approvisionnement en minerais de zinc: Rev. univ. mines, 8^e sér., t. 1, no. 1, pp. 12-17, 4 figs., January 1, 1929.

Farrington, Oliver Cummings. See also Crook, 599.

789. Amber, its physical properties and geological occurrence: Field Mus. Nat. Hist., Dept. Geology, Leaflet no. 3, 7 pp., 6 figs., 1923.
790. Meteorites: Field Mus. Nat. Hist., Dept. Geology, Leaflet no. 4, 11 pp., 4 pls., 1923.
791. The moon: Field Mus. Nat. Hist., Dept. Geology, Leaflet no. 6, 12 pp., 2 pls., 1927.
792. (and Field, Henry). Neanderthal (Mousterian) man: Field Mus. Nat. Hist., Chicago, Geology Leaflet 11, 14 pp., 8 pls., 1929.
793. Tribute to George Perkins Merrill: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 27-29, March 31, 1930.

Fassett, N. C. See Aldrich, 26.

Fenneman, Nevin M.

794. (in cooperation with the Physiographic Committee of the U. S. Geological Survey). [Map showing] Physical divisions of the United States. U. S. Geological Survey. Scale 1:7,000,000. [n. d., 1929?].

Fenner, Clarence N.

795. The crystallization of basalts: Am. Jour. Sci., 5th ser., vol. 18, pp. 225-253, September, 1929.
796. The significance of the word "eutectic": Jour. Geology, vol. 38, no. 2, pp. 159-165, February-March, 1930.
797. The Engels copper deposits, California (discussion): Econ. Geology, vol. 25, no. 4, pp. 420-425, June-July, 1930.

Fenton, Carroll Lane.

798. (and Fenton, Mildred Adams). Ecologic bases for stratigraphic divisions (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 197, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 73, February, 1929.
799. Apparent orthogenetic evolution in the genus *Spirifer* (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 244-245, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 237-238, April, 1929.
800. (and Fenton, Mildred Adams). *Cranaenella* Fenton and Fenton a synonym of *Cranaena* Hall and Clarke: Am. Jour. Sci., 5th ser., vol. 17, p. 371, April, 1929.
801. *Strophomena flitexta* Hall, a valid species: Am. Midland Naturalist, vol. 11, no. 9, pp. 500-502, 1 pl., May, 1929.
802. (and Fenton, Mildred Adams). Studies on the genus *Atrypa*: Am. Midland Naturalist, vol. 12, no. 1, pp. 1-18, 2 figs., 1 pl., January, 1930.
803. (and Fenton, M. A.). Algal beds in Belt strata of Glacier National Park (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 159-160, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 205, March 31, 1930.
804. Phyletic senescence and paleontologic series (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 159, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 205, March 31, 1930.
805. A message from paleontology: Pan-Am. Geologist, vol. 53, no. 4, pp. 241-254, May, 1930.

Fenton, Mildred Adams. See also Fenton, 798, 800, 802, 803.

806. True reef formed by stromatoporoids (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 244, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, p. 237, April, 1929.
807. Notes on several forms of *Lichenocrinus* from Black River formations: Am. Midland Naturalist, vol. 11, no. 9, pp. 494-499, 1 pl., May 1929.
808. *Aulopora*, a genus of Paleozoic Bryozoa (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 159, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 204, March 31, 1930.

Ferguson, Henry Gardiner.

809. The mining districts of Nevada: Econ. Geology, vol. 24, no. 2, pp. 115-148, 4 figs., March-April, 1929.
810. (and Gannett, Roger W.). Gold quartz veins of the Alleghany district, California: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 211, 40 pp., 17 figs., May, 1929.
811. Vein quartz of the Alleghany district, California (abstract): Washington Acad. Sci., Jour., vol. 20, no. 8, pp. 151-152, April 19, 1930.

Ferguson, W. B. See Heath, 1100.

Fermor, L. Leigh.

812. Tilting at windmills, or what is an ore? (editorial): Econ. Geology, vol. 24, no. 2, pp. 207-210, March-April, 1929.

Fernald, Frederik A.

813. Roundstone, a new geologic term: Science, new ser., vol. 70, p. 240, September 6, 1929.

Fettke, Charles R. See Neby, 1897.

Fiedler, Albert G.

814. (and Nye, S. Spencer). Recommendations for a more efficient utilization of the water resources of the Roswell artesian basin, New Mexico: New Mexico, State Eng., Ninth Bienn. Rept., pp. 389-423, 4 figs., maps [1930].

Field, Henry. See Farrington, 792.

Field, Richard Montgomery. See also Jones, 1298; Thom, 2629, 2630.

815. Paleooceanography of limestone seas (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 110-111, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 142, March, 1930.

Fieldner, Arno Carl.

816. Constitution and classification of coal: Fuel, vol. 8, no. 1, pp. 36-45, 4 figs., January, 1929.
817. The classification of coal: Fuel Conference (World Power Conference, London, 1928), Trans., vol. 1, pp. 220-232 [1929].
818. (and others). Analyses of Maryland coals: U. S. Bur. Mines, Tech. Paper 465, 89 pp., 1 fig., 1930.

Fillman, Louise.

819. Cenozoic history of the northern Black Hills: Iowa, Univ., Studies, Studies in Nat. Hist., vol. 13, no. 1, 50 pp., 12 pls., November 1, 1929.

Finch, Ruy Herbert. See also Jaggar, 1233.

820. Rainfalls accompanying explosive eruptions of volcanoes: Am. Jour. Sci., 5th ser., vol. 19, pp. 147-150, February, 1930.
821. (and Anderson, C. A.). The quartz basalt eruptions of Cinder Cone, Lassen Volcanic National Park, California: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 10, pp. 245-273, 11 figs., May 27, 1930; abstract, Geol. Soc. America, Bull., vol. 41, no. 1, p. 157, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 375, June, 1929.
822. Lava tree casts and tree molds (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 75, August, 1930.

Finley, F. L.

823. The nepheline syenites and pegmatites of Mount Royal, Montreal, Quebec (introductory note by Frank D. Adams): Canadian Jour. Research, vol. 2, no. 4, pp. 231-248, April, 1930.

Fisher, Daniel Jerome.

824. Hübnerite from Kendall, Montana: Am. Mineralogist, vol. 15, no. 3, pp. 104-108, 1 fig., March, 1930.

Fisher, James. See Hotchkiss, 1186.

Fisher, Lloyd W.

825. (and Ohrenschall, R. D.). Geologic examination of dam sites in the Tennessee and Cumberland river basins: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 215, pp. 60-77, 1 fig., July, 1929.
826. Origin of chromite deposits: Econ. Geology, vol. 24, no. 7, pp. 691-721, 11 figs., November, 1929.
827. Chromite; its mineral and chemical compositions: Am. Mineralogist, vol. 14, no. 10, pp. 341-357, 8 figs., October, 1929.
828. Origin of chromite deposits (abstract): Washington Acad. Sci., Jour., vol. 19, no. 13, p. 289-290, July 19, 1929.

Fiske, L. E.

829. Relation of production to structure in five oil and gas fields of the Kentucky eastern coal field: Structure of typical American oil fields, vol. 1, pp. 73-90, 10 figs., Am. Assoc. Petroleum Geologists, 1929.

Flagler, Charles W. See also Waters, 2773.

830. A portable thin section machine: Econ. Geology, vol. 24, no. 2, pp. 213-215, 2 figs., March-April, 1929.

Flaherty, G. F. See Newhouse, 1902.

Fletcher, A. R.

831. Mexico's lead-silver manto deposits and their origin: Eng. and Min. Jour., vol. 127, no. 13, pp. 509-513, 2 figs., March 30, 1929.
832. Where does the ore come from?: Min. Journal, Phoenix, Ariz., vol. 14, no. 15, pp. 9-10, 1 fig., December 30, 1930.

Fletcher, Corbin D.

833. Structure of Caddo field, Caddo Parish, La.: Structure of typical American oil fields, vol. 2, pp. 183-195, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Flint, Richard Foster. See also Agar, 15.

834. The stagnation and dissipation of the last ice sheet: Geog. Rev., vol. 19, no. 2, pp. 256-289, 25 figs., April, 1929; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, p. 189, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 69, February, 1929.
835. The classification of glacial deposits: Am. Jour. Sci., 5th ser., vol. 19, pp. 169-176, March, 1930.
836. The glacial geology of Connecticut: Connecticut State Geol. and Nat. Hist. Survey, Bull. no. 47, 294 pp., 42 figs., 64 pls., 1930.

Flores, Luis Espino.

837. Teorías y experimentos sobre el origen del petróleo: Mexico, Inst. geol., Anales, t. 3, pp. 69-84, 1929.

Flores, Teodoro.

838. Reconocimientos geológicos en la región central del estado de Sonora: Mexico, Inst. geol., Bol. no. 49, 267 pp., 212 figs., 27 pls., 1929.
839. Geología minera de México. 29 pp. Mexico, Depto. exploraciones y estudios geol., 1929.
840. El asbesto: Mexico, Inst. geol., Anales, t. 4, pp. 19-21, 1930.
841. Granates, turmalinas, micas y feldespatos del distrito norte de la Península de la Baja California: Mexico, Inst. geol., Anales, t. 4, pp. 53-78, 4 pls., 1930.

Flynn, A. E.

842. Anhydrite plasters and cements: Canadian Min. and Met. Bull. no. 218, pp. 810-833, 1 fig., June, 1930.

Foerste, August Frederick.

843. Symposium on Arctic and sub-Arctic geology and paleontology (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 223-224, March 30, 1929.
844. The Ordovician and Silurian of American Arctic and sub-Arctic regions: Denison Univ. Bull., vol. 29, no. 2, Sci. Lab., Jour., vol. 24, pp. 27-80, 2 pls., April, 1929; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, p. 225, March 30, 1929.

Foerste, August Frederick—Continued.

845. The evidence in favor of climatic differences during Ordovician and Silurian times (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 167, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 304, 1929.
846. The influence of the Canadian and Baltic shields of pre-Cambrian rocks on the distribution of the Ordovician and Silurian faunas of northern America and Europe (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 168, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 305, 1929.
847. The correlation of the Silurian section of Adams and Highland Counties with that of the Springfield area (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, pp. 168-169, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, pp. 305-306, 1929.
848. Devonian cephalopods from the Moose River Basin: *Ontario Dept. Mines*, 37th Ann. Rept., vol. 37, pt. 6, pp. 70-78, 2 pls., 1929.
849. The cephalopods of the Red River formation of southern Manitoba: *Denison Univ. Bull.*, vol. 29, no. 7, *Sci. Lab., Jour.*, vol. 24, pp. 129-235, 29 pls., August, 1929.
850. Three studies of cephalopods: *Denison Univ. Bull.*, vol. 29, no. 10, *Sci. Lab., Jour.*, vol. 24, pp. 265-381, 23 pls., January 22, 1930.
851. The color patterns of fossil cephalopods and brachiopods, with notes on gastropods and pelecypods: *Michigan, Univ., Mus. Paleontology, Contr.*, vol. 3, no. 6, pp. 109-150, 5 pls., February 20, 1930.
852. Additional notes on *Nephriticercina*: *Michigan, Univ., Mus. Paleontology, Contr.*, vol. 3, no. 7, pp. 151-154, 1 fig., 1 pl., February 20, 1930.
853. Port Byron and other Silurian cephalopods: *Denison Univ. Bull.*, vol. 30, no. 3, *Sci. Lab., Jour.*, vol. 25, pp. 1-124, 25 pls., April, 1930.
854. More exact methods of correlation of strata (abstract): *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, p. 405, 1930.
855. (and Teichert, Curt). The actinoceroids of east-central North America: *Denison Univ., Sci. Lab., Jour.*, vol. 25, pp. 201-296, 1 fig. 23 pls., December, 1930.

Foley, Lyndon L.

856. Studies in differential compaction: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 8, pp. 1074-1077, 2 figs., August, 1929.
857. Some applications of the strain ellipsoid (discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 2, pp. 231-233, 1 fig., February, 1930.

Foreman, Fred.

858. Hydrothermal experiments on solubility, hydrolysis, and oxidation of iron and copper sulphides: *Econ. Geology*, vol. 24, no. 8, pp. 811-837, 3 figs., December, 1929.

Fortier, Samuel.

859. (and Blaney, Harry F.). Silt in the Colorado River and its relation to irrigation: *U. S. Dept. Agr., Tech. Bull.* no. 67, 95 pp., 12 figs., February, 1928.

Foshag, William Frederick.

860. Gems and gem minerals: *Minerals from earth and sky*, vol. 3 of the Smithsonian Scientific Series, pp. 165-322, 12 figs., 32 pls., 1929.
861. Mineralogy and geology of Cerro Mercado, Durango, Mexico: *U. S. Nat. Mus., Proc.*, vol. 74, art. 23, 27 pp., 3 figs., 4 pls., February 20, 1929.

Foshag, William Frederick—Continued.

862. Collecting boron minerals in Death Valley: Smithsonian Inst., Explorations and field work in 1929, pp. 39-46, 8 figs., 1930.

863. (and Berman, Harry, and Doggett, Ruth Allen). Scorodite from Gold Hill, Tooele County, Utah: *Am. Mineralogist*, vol. 15, no. 8, pp. 390-391, August, 1930.

Foster, W. H.

864. Coffeyville oil field, Montgomery County, Kans.: Structure of typical American oil fields, vol. 1, pp. 49-51, 1 fig., *Am. Assoc. Petroleum Geologists*, 1929.

Foster, Margaret D. See Collins, 527.

Fowler, Katharine Stevens.

865. The anorthosite area of the Laramie Mountains, Wyo.: *Am. Jour. Sci.*, 5th ser., vol. 19, pp. 305-315, 373-403, 16 figs., 3 pls., April and May, 1930.

Fox, Leo S.

866. Structural features of the east side of the San Joaquin Valley, Calif.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 2, pp. 101-108, 1 fig., February, 1929.

867. Some methods employed in obtaining submarine geological data: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 1, pp. 98-101, January, 1930.

Foye, Wilbur Garland.

868. Manganotantalite from Portland, Conn.: *Am. Mineralogist*, vol. 14, no. 2, p. 75, February, 1929.

869. The New England intercollegiate geological excursion: *Science*, new ser., vol. 70, pp. 454-455, November 8, 1929.

870. A basaltic vent of Triassic age at Durham, Conn.: *Am. Jour. Sci.*, 5th ser., vol. 19, pp. 151-157, 6 figs., February, 1930.

871. The twenty-sixth annual New England intercollegiate geologic excursion: *Science*, new ser., vol. 72, pp. 504-505, November 14, 1930.

Foyles, Edward J.

872. The stratigraphy of Ferrisburg, Vt.: *Vermont, State Geologist*, 16th Rept., pp. 275-279, 1 fig. [1929].

873. Rock correlation studies in west-central Vermont: *Vermont, State Geologist*, 16th Rept., pp. 281-289, 2 figs., table [1929].

Francis, Wilfred. See Thiessen, 2621.

Fraser, F. J.

874. Additional notes on the petrography of the sediments [of southern Saskatchewan]: *Canada, Geol. Survey, Summ. Rept.* 1928, pt. B, p. 45, 1929.

875. Additional notes on the petrography of the sediments: *Canada, Geol. Survey, Summ. Rept.* 1929, pt. B, p. 64, 1930.

876. Some heavy detrital minerals in Canadian sediments: *Canadian Field-Naturalist*, vol. 43, no. 6, pp. 117-128, 8 figs., September, 1929.

Fraser, Horace John.

877. An experimental study of varve deposition: *Roy. Soc. Canada, Trans.*, ser. 3, vol. 23, sec. 4, pp. 49-60, 3 figs., May, 1929.

878. Paragenesis of the Newry pegmatite, Maine: *Am. Mineralogist*, vol. 15, no. 8, pp. 349-364, 3 figs., August, 1930.

Freeman, C. H.

879. Preliminary report on molding sands in eastern Canada: Canada, Mines Branch, Investigations of Mineral Resources, 1928, pp. 47-52, 1930.

Freeman, John Ripley.

880. Engineering data needed on earthquake motion for use in the design of earthquake-resisting structures: Seismol. Soc. America, Eastern section, Proc. 1930 Meeting, Washington, pp. 25-40 [1930].

Freeman, L.

881. (and Mayfield, S., and Sutton, A. H.). Reconnaissance map of the areal and structural geology (fault pattern) of Estill County, Ky.: Kentucky Geol. Survey, Ser. 6, 1929. Scale 1 inch=1 mile.

Freie, A. J.

882. Sedimentation in the Anadarko Basin: Oklahoma Geol. Survey, Bull. no. 48, 80 pp., 13 figs., 1 pl., January, 1930.

Frick, Childs.

883. Alaska's frozen fauna: Nat. History (Am. Mus. Nat. Hist., Jour.), vol. 30, no. 1, pp. 71-80, 11 figs., January-February, 1930.
884. The Hemicyoninae and an American Tertiary bear: Am. Mus. Nat. Hist., Bull., vol. 56, pp. 1-119, 63 figs., 1930.
885. Tooth sequence in certain trilophodont tetrabelodont mastodons and *Trilophodon (Serridentinus) pojoaquensis*, n. sp.: Am. Mus. Nat. Hist., Bull., vol. 56, pp. 123-178, 27 figs., 1930.

Fridley, Harry M.

886. Identification of erosion surfaces in south-central New York: Jour. Geology, vol. 37, no. 2, pp. 113-134, 9 figs., February-March, 1929.

Frizzell, Don L.

887. A new Pleistocene fossil from Port Blakely, Wash.: Nautilus, vol. 43, no. 4, pp. 120-121, April, 1930.

Fuller, Richard E.

888. (and Waters, Aaron Clement). The nature and origin of the horst and graben structure of southern Oregon: Jour. Geology, vol. 37, no. 3, pp. 204-238, 16 figs., April-May, 1929; abstract with discussion by Warren D. Smith, Geol. Soc. America, Bull., vol. 40, no. 1, pp. 187-188, March 30, 1929.
889. Aqueous chilling of basaltic lava on Columbia River Plateau (abstract): Pan-Am. Geologist, vol. 54, no. 1, pp. 76-77, August, 1930.

Fuqua, H. B.

890. (and Thompson, B. E.). Relation of production to structure in central Wilbarger County, Tex.: Structure of typical American oil fields, vol. 1, pp. 293-303, 4 figs., Am. Assoc. Petroleum Geologists, 1929.

Furlong, Eustace Leopold. See also Stock, 2514, 2515.

891. *Capromeryx minor* Taylor from the McKittrick Pleistocene, California: Carnegie Inst. Washington, Pub. no. 404, pp. 49-53, 2 figs., 1930

Furse, G. D.

892. Rapakivi granite from the vicinity of Great Slave Lake: Roy. Soc. Canada, Trans., ser. 3, vol. 24, sec. 4, pp. 141-144, May, 1930.

Gabriel, A.

893. (and Cox, E. P.). A staining method for the quantitative determination of certain rock minerals: Am. Mineralogist, vol. 14, no. 8, pp. 290-292, 2 figs., August, 1929.

Gale, Hoyt Rodney.

894. Summary of the west coast subgenus *Trophosycon* (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 257-258, March 30, 1929.

Galloway, Jesse James.

895. Wall structure of Paleozoic Foraminifera and its bearing on the phylogeny of Foraminifera (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 255-256, March 30, 1929.
896. (and Ryniker, Charles). Foraminifera from the Atoka formation of Oklahoma: Oklahoma Geol. Survey, Circular no. 21, 36 pp., 5 pls., January, 1930.
897. (and Harlton, Bruce H.). *Endothyranella*, a genus of Carboniferous Foraminifera: Jour. Paleontology, vol. 4, no. 1, pp. 24-28, March, 1930.

Galloway, John D.

898. Annual report of the minister of mines [of British Columbia] for the year ended 31st December, 1928 . . . 540 pp., figs., pls., maps, Victoria, B. C., 1929.
899. Annual report of the minister of mines [of British Columbia] for the year ended 31st December, 1929 . . . 532 pp., figs., pls., maps, Victoria, B. C., 1930.

Gannett, Roger W. See Ferguson, 810.

García Lozano, Germán.

900. (and Falomir, Jesús J.). Geología general de la región comprendida entre el pueblo de Asunción (Donato Guerra) y el mineral de Temascaltepec, en el Estado de México; estudio de un criadero de asbesto: Mexico, Inst. geol., Anales, t. 4, pp. 25-51, 4 pls., map, 1930.

Gardner, Julia A.

901. A new Eocene *Leda* from Black Bluff, Ala.: Washington Acad. Sci. Jour., vol. 19, no. 19, pp. 425-428, 1 fig., November 19, 1929.

Gauger, A. W.

902. (and Iverson, H. G.). Microstructure of Dakota lignite: Quart. Jour. (Univ. North Dakota), vol. 20, no. 4, pp. 267-293, 10 pls., 1930.

Gazin, C. Lewis. See also Buwalda, 402.

903. A Tertiary vertebrate fauna from the upper Cuyama drainage basin, California: Carnegie Inst. Washington, Pub. no. 404, pp. 55-76, 5 figs., 4 pls., 1930; abstract, Geol. Soc. America, Bull., vol. 41, no. 1, p. 214, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, pp. 158-159, September, 1929.
904. Geology of Mount Pinos quadrangle (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 159, September, 1930.
905. Miocene mammalian fauna from southeastern Oregon (abstract): Pan-Am. Geologist, vol. 54, no. 3, pp. 236-237, October, 1930.

Gealy, W. B. See also Wanenmacher, 2755.

906. Use of mercury for determination of volume of rock specimens in Russell porosity apparatus: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 6, pp. 677-682, 1 fig., June, 1929.

Gentry, Frank M.

907. The internal temperature of the earth's crust: Science, new ser., vol. 70, pp. 332-334, Oct. 4, 1929.

George, Harold Coulter.

908. Sampling and coring in prospecting for metalliferous deposits: Oklahoma, Acad. Sci., Proc., vol. 8 (Oklahoma Univ., Bull., n. s. no. 410), pp. 137-140 [1929].

George P. W.

909. Experiments with Eötvös torsion balance in the Tri-State zinc and lead district: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 561-571, 6 figs., 1929.

Gerber, W. D.

910. Some idiosyncrasies of ground waters: Illinois, State Water Survey Div., Circ. no. 6; reprinted from Am. Waterworks Assoc., J., vol. 22, no. 1, pp. 110-116, January, 1930.

Gester, G. C.

911. (and Hawley, H. J.). Yates field, Pecos County, Tex.: Structure of typical American oil fields, vol. 2, pp. 480-499, 7 figs., Am. Assoc. Petroleum Geologists, 1929.

Getzendaner, F. M.

912. Geologic section of Rio Grande embayment, Texas, and implied history: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 11, pp. 1425-1437, 1 fig., November, 1930.

Gidley, James Williams, 1866-1931.

913. Ancient man in Florida; further investigations: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 491-501, 2 pls., June 30, 1929; abstract, no. 1, p. 237, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, p. 236, April, 1929.

914. Further study of the problem of early man in Florida: Smithsonian Inst., Explorations . . . 1928, pp. 13-20, 5 figs., 1929.

915. Investigations of early man in Florida: Smithsonian Inst., Explorations and field work in 1929, pp. 37-38, 2 figs., 1930.

916. Hunting fossils on the old Oregon trail: Smithsonian Inst., Explorations and field work in 1929, pp. 31-36, 4 figs., 1930.

Giles, Albert William.

917. St. Peter and older Ordovician sandstones of northern Arkansas, with a section on their economic possibilities by E. E. Bonewits: Arkansas Geol. Survey, Bull. 4, 187 pp., 22 figs., 13 pls., 1930.

918. (and Brewster, Eugene B.). Hale Mountain section in northwest Arkansas: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 2, pp. 121-138, 2 figs., February, 1930.

919. Climatic cycles: Monthly Weather Rev., vol. 58, no. 8, pp. 321-323, 1 fig., August, 1930.

920. Peat as a climatic indicator: Geol. Soc. America, Bull., vol. 41, no. 3, pp. 405-429, September 30, 1930; abstract, no. 1, p. 164, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 4, pp. 302-303, May, 1930.

921. Controls of geological climates: Pan-Am. Geologist, vol. 54, no. 2, pp. 109-120, September, no. 3, pp. 187-210, October, 1930.

922. Pennsylvania climates and paleontology: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 10, pp. 1279-1299, 1 fig (paleogeographic map), October, 1930.

Gill, James E.

923. Pleistocene lakes and lake deposits in northwestern Quebec (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 195, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, pp. 71-72, February, 1929.

Gillan, S. L.

924. An algal limestone in southern California: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 11, pp. 1485-1486, 1 fig., November, 1929.

Gillespie, Ruth. See Cole, 515.

Gillson, Joseph L.

925. Petrography of the Pioche district, Lincoln County, Nev.: U. S. Geol. Survey, Prof. Paper 158, pp. 77-86, 3 figs., 1 pl., 1929.
926. Contact metamorphism of the rocks in the Pend Oreille district, northern Idaho: U. S. Geol. Survey, Prof. Paper 158, pp. 111-121, 2 figs., 1 pl., 1929.
927. On use of the term deuteric: Econ. Geology, vol. 24, no. 1, pp. 100-102, January, 1929.
928. Bathygenetic and orogenetic movements: Science, new ser., vol. 69, pp. 194-195, February 15, 1929.
929. (and Williams, R. M.). Contact metamorphism of the Ellsworth schist near Blue Hill, Maine: Econ. Geology, vol. 24, no. 2, pp. 182-194, 4 figs., March-April, 1929.
930. (and Kania, Joseph E. A.). Genesis of the emery deposits near Peekskill, N. Y.: Econ. Geology, vol. 25, no. 5, pp. 506-527, 7 figs., August, 1930.

Gilluly, James.

931. Geology and oil and gas prospects of part of the San Rafael Swell, Utah: U. S. Geol. Survey, Bull. 806, pp. 69-130, 1 fig., 6 pls. (incl. map), February 14, 1929.
932. A possible capture of one desert basin by another (abstract): Washington Acad. Sci., vol. 19, no. 11, p. 233, June 4, 1929.
933. Possible desert-basin integration in Utah: Jour. Geology, vol. 37, no. 7, pp. 672-682, 3 figs., October-November, 1929.

Gilmore, Charles Whitney.

934. Hunting dinosaurs in Montana: Smithsonian Inst., Explorations and field work in 1928, pp. 7-12, 4 figs., 1929.
935. Fossil hunting in New Mexico: Smithsonian Inst., Explorations and field work in 1929, pp. 17-22, 4 figs., 1930.
936. A nearly complete shell of the extinct turtle *Trachemys sculpta* [Pleistocene, Melbourne, Florida]: U. S. Nat. Mus., Proc., vol. 77, art. 10, 8 pp., 2 figs., 3 pls., 1930.
937. On dinosaurian reptiles from the Two Medicine formation of Montana: U. S. Nat. Mus., Proc., vol. 77, art. 16, 39 pp., 18 figs., 10 pls., 1930.

Gilmore, R. E.

938. Lignite coal from Blacksmith Rapids, Abitibi River: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 4, pp. 34-40, 1930.

Ginter, Roy L. See also Dott, 697.

939. Causative agents of sulphate reduction in oil-well waters: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 2, pp. 139-152, 1 fig., February, 1930.

Girty, George Herbert.

940. The fauna of the middle Boone near Batesville, Ark.: U. S. Geol. Survey, Prof. Paper 154, pp. 73-103, 4 pls., March 11, 1929.
941. New Carboniferous invertebrates—I: Washington Acad. Sci., Jour., vol. 19, no. 7, pp. 135-142, 1 pl., April 4, 1929.
942. New Carboniferous invertebrates—II: Washington Acad. Sci., Jour., vol. 19, no. 18, pp. 406-415, 1 pl., November 4, 1929.

Gish, Wesley G.

943. (and Carr, Raymond M.). Garber field, Garfield County, Okla.: Structure of typical American oil fields, vol. 1, pp. 176-191, 6 figs., Am. Assoc. Petroleum Geologists, 1929.

Gledhill, Thomas Lloyd.

944. Ben Nevis, Munro, Kamiskotia, and other base metal areas, districts of Cochrane and Timiskaming: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 3, pp. 1-52, illus., maps, 1929.

Glenn, Leonidas Chalmers.

945. The geology of dams and reservoirs: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 215, pp. 97-110, July, 1929.

Glock, Waldo Sumner.

946. Geology of the east central part of the Spring Mountain Range, Nev.: Am. Jour. Sci., 5th ser., vol. 17, pp. 326-341, 3 figs., April, 1929.
947. Dual nature of physiography: Science, new ser., vol. 72, pp. 3-5, July 4, 1930.
948. Some structural features in rocks induced by glacial movement (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 172, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 309, 1929.
949. An example of sediments deformed by ice thrust: Ohio Jour. Sci., vol. 29, no. 6, pp. 300-302, 1 fig., November, 1929.
950. Development of drainage systems (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 109, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 141, March, 1930.
951. An analysis of planational terms—an addition: Ohio Jour. Sci., vol. 30, no. 3, pp. 199-204, May, 1930; abstract, Ohio Acad. Sci., Proc., vol. 8, pt. 7, p. 406, 1930.

Goldman, Marcus Isaac.

952. Features of gypsum-anhydrite salt-dome cap rock (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 99-100, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 143, March, 1929.
953. Silicified bog-iron deposits and associated silicified rocks at the contact between the Cambrian and post-Cambrian of Ulrich in Virginia: Leopoldina (K. Leopold. deutsch. Akad. Naturf. Halle, Ber.), Bd. 6 (Walther-Festschrift), pp. 119-123, 5 pls., 1930.
954. Types of silicification in the Paleozoic of Virginia (abstract): Washington Acad. Sci., Jour., vol. 20, no. 14, p. 356, August 19, 1930.

Goldring, Winifred. See also Ruedemann, 2228.

955. The oldest known petrified forest [Gilboa, Schoharie County, N. Y.]: Sci. Monthly, vol. 24, no. 6, pp. 515-529, 14 figs., June, 1927; Smithsonian Inst., Ann. Rept. 1928, pp. 315-324, 9 pls., 1929.
956. Handbook of paleontology for beginners and amateurs; Part I, The fossils: New York State Mus. Handbook 9, 356 pp., 97 figs., 1929.
957. An outdoor exhibit of the Gilboa fossil trees: New York State Mus. Bull. no. 284, pp. 33-35, 3 pls., December, 1929.

Gonyer, F. A. See Berman, 193; Palache, 1974.

González Cordero, Santiago.

958. (and Zavado, Manuel J.). Extracto de la obra en preparación titulada "Glosario de la industria petrolera y vocabulario español-ingles é ingles-español de los términos técnicos usados en esta industria," 363 pp., 5 pls., México, Depto. petróleo, 1930.

Goodman, A. J.

959. The structure of Turner Valley gas field, Alberta: Canadian Min. and Met. Bull., no. 224, pp. 1505-1521, 5 figs., 2 pls., December, 1930.

Goodspeed, G. E.

960. The mode of origin of a reaction porphyry dike at Cornucopia, Oreg.: Jour. Geology, vol. 37, no. 2, pp. 158-176, 14 figs., February-March, 1929.
961. Some effects of the recrystallization of xenoliths at Cornucopia, Oreg.: Am. Jour. Sci., 5th ser., vol. 20, pp. 145-150, 3 figs., August, 1930; abstract, Pan-Am. Geologist, vol. 54, no. 2, pp. 155-156, September, 1930.

Goodwin, S. See McFarlan, 1657.

Goodwin, W. M.

962. The Grenville series as a source of metal mines: Canadian Min. Jour., vol. 50, no. 20, pp. 450-453, 2 figs., May 17, 1929.

Goodwin, William Lawton.

963. Geology and minerals of Ontario; prepared for the instruction and guidance of those prospecting in Ontario. 505 pp., Gardenvale, Quebec, Industrial & Educational Publishing Co., 1929.

Goranson, E. A. See Palache, 1973.

Goranson, R. W.

964. Some problems in isostasy: Washington Acad. Sci., Jour., vol. 20, no. 18, pp. 447-450, November 4, 1930.

Gordon, Dugald.

965. Glen Rose gas production in northeast Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 11, p. 1477, November, 1930.

Goudge, Monson Fraser.

966. Preliminary report on the limestones of northern and western Ontario and of the prairie provinces: Canada, Mines Branch, Investigations of Mineral Resources, 1928, pp. 1-18, 1930.

Gould, Charles Newton. See also Lloyd, 1576.

967. Field conferences: Oklahoma Acad. Sci., Proc., vol. 8 (Oklahoma, Univ., Bull., n. s. no. 410), pp. 117-120 [1929].
968. The Benton Cretaceous in Oklahoma: Oklahoma Acad. Sci., Proc., vol. 8 (Oklahoma, Univ., Bull., n. s. no. 410), pp. 141-143 [1929].
969. Johns Valley boulders: Oklahoma Acad. Sci., Proc., vol. 8 (Oklahoma, Univ., Bull., n. s. no. 410), pp. 144-146 [1929].
970. The fossil *Glyptodon* in the Frederick gravel beds: Oklahoma Acad. Sci., Proc., vol. 8 (Oklahoma, Univ., Bull., n. s. no. 410), pp. 148-150 [1929].
971. On the recent finding of another flint arrowhead in the Pleistocene deposit at Frederick, Okla.: Washington Acad. Sci., Jour., vol. 19, no. 3, pp. 66-68, February 4, 1929.
972. Humanizing geology [Oklahoma]: Eng. and Min. Jour., vol. 127, no. 9 pp. 357-358, 1 fig., March 2, 1929.
973. Comanchean reptiles from Kansas, Oklahoma and Texas: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 457-462, June 30, 1929; abstract no. 1 pp. 113, 250, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 149, no. 3, p. 240, March, April, 1929.

Gould, Charles Newton—Continued.

- 974. The usefulness of the useless: *Sci. Monthly*, vol. 29, no. 5, pp. 440-446, 4 figs., November, 1929.
- 975. Fossil bones and artifacts at Frederick: *Oklahoma Acad. Sci., Proc.*, vol. 9 (Okla., Univ., Bull. new ser., no. 456), pp. 90-92, November, 1929.
- 976. Part of science in oil finding (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 165, March 31, 1930; *Pan-Am. Geologist*, vol. 52, no. 5, p. 369, December, 1929.

Gould, Don B.

- 977. The construction of a geologic medal: *Oklahoma Acad. Sci., Proc.*, vol. 9 (Okla., Univ., Bull. new ser., no. 456), pp. 100-103, November 15, 1929.
- 978. Stratigraphy and paleontology of the Fort Riley limestone of northern Oklahoma (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 178, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 4, May, 1930.
- 979. Faunal facies of Riley limestone (abstract): *Pan-Am. Geologist*, vol. 54, no. 2, pp. 148-149, September, 1930.

Graham, A. R.

- 980. The Obonga Lake area [Ontario]: *Canadian Min. Jour.*, vol. 50, no. 44, p. 1038, November 1, 1929.
- 981. Preliminary report on the Groundhog River area [Ontario]: *Canadian Min. Jour.*, vol. 51, no. 49, pp. 1175-1176, December 5, 1930.

Graham, Richard Percival Devereux.

- 982. (and Ellsworth, H. V.). Cenosite from North Burgess Township, Lanark County, Ontario: *Am. Mineralogist*, vol. 15, no. 6, pp. 205-219, 2 figs., June, 1930.

Graham, William A. P.

- 983. Heavy minerals of the upper Cambrian formations of Minnesota (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 183, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 67, February, 1929.
- 984. Some methods of correlation based on heavy mineral concentrates (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 173, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 310, 1929.
- 985. Observations as to the origin of the Cambrian sandstones from the Keweenawan sandstones in Minnesota (abstract): *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, p. 399, 1930.
- 986. A textural and petrographic study of the Cambrian sandstones of Minnesota: *Jour. Geology*, vol. 38, no. 8, pp. 696-716, 6 figs., November-December, 1930.

Granger, Walter.

- 987. (and Simpson, George Gaylord). A revision of the Tertiary Multituberculata: *Am. Mus. Nat. Hist., Bull.*, vol. 56, pp. 601-676, 43 figs., 1930.

Grant, Ulysses S., IV.

- 988. Importance of genotype in taxonomy (abstract): *Pan-Am. Geologist*, vol. 54, no. 3, pp. 235-236, October, 1930.
- 989. *Mytilus loeli*, a new name for *Mytilus kewi* Wiedey (not *Mytilus kewi* Nomland): *Jour. Paleontology*, vol. 4, no. 4, pp. 419-420, December, 1930.

Grant, William M. See Hanna, 1042.

Graton, L. C. See also Butler, 391.

990. Geological justification for "exploration permits": Min. and Met. Soc. America, Bull. no. 214, pp. 136-144, November, 1930.

Grawe, Oliver R.

991. Study of the black shale overlying the cap rock of Cromwell sand in relation to the origin of the Cromwell oil dome, Oklahoma: Econ. Geology, vol. 25, no. 4, pp. 326-347, 5 figs., June-July, 1930.

Greer, Frank E. See Bastin, 148.

Gregory, John Walter.

992. Water diving: Smithsonian Inst., Ann. Rept. 1928, pp. 325-348, 16 figs., 1929.

993. *Dendroseris* new gen. and other corals from Trinidad: Geol. Mag., vol. 66, pp. 65-68, 1 pl., February, 1929.

Gregory, William King.

994. Our face from fish to man; a portrait gallery of our ancient ancestors and kinsfolk together with a concise history of our best features. 295 pp., 119 figs., New York, G. P. Putnam's Sons, 1929.

995. Restudy of the skull of *Portheus molossus* Cope (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 220, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, p. 234, April, 1929.

996. Fossil snapper (family Lutianidae) from the Marianna limestone of Florida (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 220, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 233-234, April, 1929.

997. Memorial of Bashford Dean: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 16-25, portr., March 31, 1930.

998. The origin of man from a brachiating anthropoid stock: Science, new ser., vol. 71, pp. 645-650, June 27, 1930.

999. A fossil teleost fish of the snapper family (Lutianidae) from the lower Oligocene of Florida: Florida State Geol. Survey, Bull. no. 5, pp. 7-17, 2 figs., 4 pls., December, 1930.

1000. William Diller Matthew, paleontologist (1871-1930): Science, new ser., vol. 72, pp. 642-645, December 26, 1930.

Greig, J. W.

1001. (and Shepherd, E. S., and Merwin, H. E.). Melting granite and basalt in the laboratory (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 94-95, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 141-142, March, 1929.

Grim, Ralph E.

1002. Eocene sedimentation in eastern Mississippi embayment (abstract): Pan-Am. Geologist, vol. 53, no. 3, p. 214, April, 1930.

Grout, Frank Fitch.

1003. Recent work of the State geological surveys in Huronian and Keweenaw areas; (D) Minnesota Geological Survey: Lake Superior Min. Inst., Proc., vol. 27, pp. 188-189, 1929.

1004. The Saganaga granite of Minnesota-Ontario: Jour. Geology, vol. 37, no. 6, pp. 562-591, 15 figs., August-September, 1929.

Grout, Frank Fitch—Continued.

1005. Ages and differentiation series of the batholiths near the Minnesota-Ontario boundary: *Geol. Soc. America, Bull.*, vol. 40, no. 4, pp. 791-809, 4 figs., December 31, 1929; abstract, no. 1, p. 95, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 142, March, 1929.
1006. Probable extent of abyssal assimilation (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, pp. 132-133, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 90, March 31, 1930.

Gruner, John Walter.

1007. Recent work of the State geological surveys in Huronian and Keweenaw areas; (C) A newly discovered major unconformity in the Huronian rocks of northern Minnesota: *Lake Superior Min. Inst., Proc.*, vol. 27, pp. 179-187, 3 figs., 1929.
1008. Structural mapping of the Knife Lake slates of Minnesota (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 89-90, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 80, February, 1929.
1009. The structure of boracite: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 452-460, 2 figs., May, 1929.
1010. Crystal structure types: *Am. Mineralogist*, vol. 14, no. 5, pp. 173-187, 17 figs., May, 1929.
1011. Structural reasons for oriented intergrowths in some minerals: *Am. Mineralogist*, vol. 14, no. 6, pp. 227-237, 5 figs., June, 1929.
1012. The identity and genesis of lodestone magnetite: *Econ. Geology*, vol. 24, no. 7, pp. 771-775, November, 1929.
1013. Structures of sulphides and sulphosalts: *Am. Mineralogist*, vol. 14, no. 12, pp. 470-481, 7 figs., December, 1929.
1014. Hydrothermal oxidation and leaching experiments; their bearing on the origin of Lake Superior hematite-limonite ores: *Econ. Geology*, vol. 25, no. 7, pp. 697-719, no. 8, pp. 837-867, 12 figs., November and December, 1930.

Guild, Frank Nelson.

1015. Copper pitch ore: *Am. Mineralogist*, vol. 14, no. 9, pp. 313-318, September, 1929.
1016. The relation of pyrite to wolframite: *Am. Mineralogist*, vol. 15, no. 9, pp. 451-452, 1 fig., September, 1930.

Guilford, E. H.

1017. The Radiore process [of geophysical prospecting] (with discussion): *Canadian Inst. Min. and Met., Trans.*, vol. 31, pp. 160-208, 19 figs. [1929].

Gunning, H. C. See also Cairnes, 412.

1018. Lardeau map area, British Columbia; mineral deposits: *Canada, Geol. Survey, Mem.* 161, pp. 17-137, 7 pp., 1929.
1019. Geology and mineral deposits of Big Bend map area, British Columbia: *Canada, Geol. Survey, Summ. Rept.* 1928, pt. A, pp. 136-193, map, 4 figs., 1 pl., 1929.
1020. Geology and mineral deposits of Quatsino-Nimkish area, Vancouver Island, British Columbia: *Canada, Geol. Survey, Summ. Rept.* 1929, pt. A, pp. 94-143, 5 figs., 2 pls., map, 1930.
1021. The Nimkish Lake copper deposits [northern Vancouver Island, British Columbia]: *Canadian Min. and Met. Bull.*, no. 222, pp. 1270-1281, map, October, 1930.
1022. Mineral possibilities of northern Vancouver Island: *Canadian Min. and Met. Bull.*, no. 222, pp. 1282-1305, 6 figs., map, October, 1930.

Gunter, Herman.

1023. Administrative report: Florida State Geol. Survey, 20th Ann. Rept., 1927-28, pp. 7-18, 1929.

1024. Statistics of mineral production in Florida during 1927: Florida State Geol. Survey, 20th Ann. Rept., 1927-28, pp. 19-27, 1929.

Gutenberg, B.

1025. Hypotheses on the development of the earth: Washington Acad. Sci., Jour., vol. 20, no. 2, pp. 17-25, 2 figs., January 18, 1930.

1026. The process of formation of seismic surface waves: Seismol. Soc. America, Bull., vol. 20, no. 1, pp. 11-14, March, 1930.

Gwillam, Oakley B.

1027. Leached outcrops of northern Manitoba: Canadian Min. and Met. Bull., no. 220, pp. 1039-1049, August, 1930.

Haas, W. H.

1028. The problem of the Mississippi: Illinois State Acad. Sci., Trans., vol. 21, pp. 257-261, February, 1929.

Haferkorn, H. E.

1029. Sand movements, beaches, and kindred subjects, a bibliography. 121 pp., [U. S.] Engineer School, Fort Humphreys, Va., 1930.

Hahn, A. W.

1030. Silver-bearing minerals of some ores from the Tintic mining district [Utah]: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 202, 7 pp., March, 1929; Trans., 1929, Year Book, pp. 325-329, 1929.

Halferdahl, A. C.

1031. Origin of the Frood deposit of International Nickel [Ontario]: Eng. and Min. Jour., vol. 128, no. 16, pp. 624-625, October 19, 1929.

Hall, E. Raymond.

1032. A second new genus of hedgehog from the Pliocene of Nevada: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 8, pp. 227-231, 1 fig., March 19, 1929.

1033. Rodents and lagomorphs from the later Tertiary of Fish Lake Valley, Nev.: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 12, pp. 295-312, 29 figs., 1 pl., November 25, 1930.

1034. Rodents and lagomorphs from the Barstow beds of southern California: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 13, pp. 313-318, 7 figs., November 25, 1930.

1035. A new genus of bat [*Mystipterus*] from the later Tertiary of Nevada: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 14, pp. 319-320, 1 pl., November 25, 1930.

Hall, George Martin.

1036. (and Howard, C. S.). Ground water in Yellowstone and Treasure Counties, Mont.: U. S. Geol. Survey, W.-S. Paper 599, 118 pp., 5 figs., 7 pls., 1929.

Hall, Roy H. See also Wills, 2889.

1037. (and Price, A.). Valley Center oil field of Kansas (abstract): Pan-Am. Geologist, vol. 53, no. 3, pp. 225-226, April, 1930.

Halspeth, Odd. S.

1038. Pre-historic irrigation in Salt River Valley (abstract): Pan-Am. Geologist, vol. 53, no. 4, p. 317, May, 1930.

Haltom, William L.

1039. Magnet Cove, Ark., and vicinity: *Am. Mineralogist*, vol. 14, no. 12, pp. 484-487, 2 figs., December, 1929.

Hamaker, J. I.

1040. The composition of beach sand with special reference to its organic component: Randolph-Macon Woman's College, Lynchburg, Va., *Bull.*, vol. 16, no. 4, 15 pp., July-September, 1930.

Hancock, Eugene Thomas. See also Dobbin, 683.

1041. (and Eby, J. B.). Geology and coal resources of the Meeker quadrangle, Moffat and Rio Blanco Counties, Colo.: U. S. Geol. Survey, *Bull.* 812, pp. 191-242, 2 figs., 12 pls. (incl. map), 1930.

Hanford, Zaida M. See Papish, 1983.

Hanna, G. Dallas.

1042. (and Grant, William M.). Brackish-water Pliocene diatoms from the Etchegoin formation of central California: *Jour. Paleontology*, vol. 3, no. 1, pp. 87-101, 4 pls., March, 1929.
1043. Fossil diatoms dredged from Bering Sea: *San Diego Soc. Nat. Hist. Trans.*, vol. 5, no. 20, pp. 287-296, 1 pl., December 31, 1929; *Pan-Am. Geologist*, vol. 52, no. 2, p. 160, September, 1929.
1044. A review of genus *Rousia*: *Jour. Paleontology*, vol. 4, no. 2, pp. 179-188, 1 pl., June, 1930.
1045. Observations on *Lithodesmium cornigerum* Brun: *Jour. Paleontology*, vol. 4, no. 2, pp. 189-191, 1 pl., June, 1930.
1046. The growth of *Omphalotheca*: *Jour. Paleontology*, vol. 4, no. 2, p. 192, June, 1930.
1047. Abstracts and reviews of recent paleontologic literature: *Jour. Paleontology*, vol. 4, no. 2, pp. 197-203, June, 1930.
1048. Porosity of diatomite: *Eng. and Min. Jour.*, vol. 130, no. 1, pp. 7-8, 7 figs., July 10, 1930.
1049. Geology of Sharktooth Hill, Kern County, Calif.: *California Acad. Sci. Proc.*, 4th ser., vol. 19, no. 7, pp. 65-83, 3 figs., July 15, 1930.
1050. Silicoflagellates from the Cantua shale (abstract): *Pan-Am. Geologist*, vol. 54, no. 1, pp. 79-80, August, 1930.
1051. Diatoms from Cantua shale (abstract): *Pan-Am. Geologist*, vol. 54, no. 1, p. 80, August, 1930.
1052. Remains of Holothuroidea from the Carboniferous of Kansas: *Jour. Paleontology*, vol. 4, no. 4, pp. 413-414, December, 1930.
1053. A new genus of Silicoflagellata from the Miocene of Lower California: *Jour. Paleontology*, vol. 4, no. 4, pp. 415-416, 1 pl., December, 1930.

Hanna, Marcus Albert.

1054. A second record of hauerite associated with Gulf coast salt domes: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 2, p. 177, February, 1929.
1055. Galena and sphalerite in the Fayette at Orchard salt dome, Fort Bend County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 4, pp. 384-385, April, 1929.
1056. Secondary salt-dome materials of Coastal Plain of Texas and Louisiana: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 11, pp. 1469-1475, 1 pl., November, 1930.

Hansen, George H.

1057. Vertical range of the more common species of the Upper Cretaceous in the Western Interior: *Jour. Paleontology*, vol. 3, no. 1, p. 86, March, 1929.

Hansen, Mayer G.

1058. Nonmetallics in Yavapai County, Ariz.: *Min. Jour.*, Phoenix, Ariz., vol. 13, no. 14, pp. 5-6, December 15, 1929.
1059. Geology and ore deposits of the United Verde mine [Jerome, Arizona]: *Min. Congress Jour.*, vol. 16, no. 4, pp. 306-311, 312, 4 figs., April, 1930.

Hanson, George.

1060. Bear River and Stewart map areas, Cassiar district, British Columbia: Canada, *Geol. Survey, Mem.* 159, 84 pp., 14 figs., 5 pls., 2 maps, 1929.
1061. Mineral deposits of Alice Arm district, British Columbia: Canada, *Geol. Survey, Summ. Rept.*, 1928, pt. A, pp. 27-49, 2 figs., 1929.
1062. (and Phemister, T. C.). Topley map area, British Columbia: Canada, *Geol. Survey, Summ. Rept.* 1928, pt. A, pp. 50-77, 1 fig. (map), 1929.
1063. Renewed activity in Alice Arm district, British Columbia: *Canadian Min. Jour.*, vol. 51, no. 19, pp. 434-436, May 9, 1930.

Hard, Herbert A.

1064. Geology and water resources of the Edgeley and La Moure quadrangles, North Dakota: *U. S. Geol. Survey, Bull.* 801, 90 pp., 7 figs., 5 pls. (incl. maps), 1929.

Harkness, R. B.

1065. The oil and gas fields of Ontario: *Ontario Dept. Mines*, 37th Ann. Rept., vol. 37, pt. 5, pp. 51-77, 1929.
1066. Natural gas in 1928; Petroleum in 1928: *Ontario Dept. Mines*, 38th Ann. Rept., vol. 38, pt. 5, pp. 1-34, 35-39, 1930.
1067. Natural gas in 1929; Petroleum in 1929: *Ontario Dept. Mines*, 39th Ann. Rept., vol. 39, pt. 5, pp. 1-36, 37-41, 1930.

Harlton, Bruce H. See also Galloway, 899.

1068. Pennsylvanian Ostracoda from Menard County, Tex.: *Texas, Univ., Bull.* no. 2901, pp. 139-161, 2 figs., 4 pls., August, 1929.
1069. Some Pennsylvanian Ostracoda and Foraminifera from southern Oklahoma—a correction: *Jour. Paleontology*, vol. 3, no. 3, p. 308, September, 1929.
1070. Some upper Mississippian (Fayetteville) and lower Pennsylvanian (Wapanucka-Morrow) Ostracoda of Oklahoma and Arkansas: *Am. Jour. Sci.*, 5th ser., vol. 18, pp. 254-270, 2 pls., September, 1929.
1071. Ordovician age of the producing horizon, Big Lake oil field, Reagan County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 5, pp. 616-618, May, 1930.

Harper, Roland McMillan.

1072. The natural resources of Georgia. 105 pp., 12 figs., Bureau of Business Research, School of Commerce, Univ. Georgia, 1930.

Harrar, Norman J.

1073. Solvent effects of certain acids upon oxides of iron: *Econ. Geology*, vol. 24, no. 1, pp. 50-61, January, 1929.

Harrington, M. R.

1074. How old is the Pleistocene?: *Science*, new ser., vol. 71, p. 585, June 6, 1930.

Harrison, Thomas S.

1075. Grass Creek dome, Hot Springs County, Wyo.: Structure of typical American oil fields, vol. 2, pp. 623-635, 7 figs., 1 pl., *Am. Assoc. Petroleum Geologists*, 1929.

Hartnagel, Chris Andrew.

1076. (and Russell, W. L.). New York oil fields: Structure of typical American oil fields, vol. 2, pp. 269-289, 4 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Harvey, Roger D.

1077. Ore goes where it can: *Econ. Geology*, vol. 24, no. 5, pp. 554-556, August, 1929.

Haseman, J. D.

1078. Origin and environment of source sediments of petroleum deposits: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 11, pp. 1465-1468, November, 1930.

Hastings, W. H.

1079. Coal reserves of Saskatchewan: *Canadian Min. and Met. Bull.*, no. 212, pp. 1379-1384, 1 fig., December, 1929; *Canadian Inst. Min. and Met., Trans.*, vol. 32, pp. 389-394, 1 fig. [1930].

Hawkins, Alfred C.

1080. New and interesting minerals from central New Jersey: *Am. Mineralogist*, vol. 14, no. 8, pp. 309-311, 3 figs., August, 1929.

1081. Intrusive dikes in basalt from New Jersey (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 120, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 148, March, 1930.

Hawksworth, Hallam.

1082. The strange adventures of a pebble. 296 pp., illus., New York, Charles Scribner's Sons, c. 1921.

Hawley, H. J. See Gester, 911.

Hawley, J. E.

1083. Generation of oil in rocks by shearing pressures, I; The problems—methods of determining the soluble organic content of oil shales: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 4, pp. 303-323, 1 fig., April, 1929.

1084. Generation of oil in rocks by shearing pressures, II; Effect of shearing pressures on oil shales and oil-bearing rocks: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 4, pp. 329-365, 8 figs., April, 1929.

1085. Generation of oil in rocks by shearing pressures, III; Further effects of high shearing pressures on oil shales: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 4, pp. 451-481, 3 figs., April, 1930.

1086. Geology of the Sapawe Lake area, with notes on some iron and gold deposits of Rainy River district: *Ontario Dept. Mines, 38th Ann. Rept.*, vol. 38, pt. 6, pp. 1-58, illus., map, 1930.

1087. Lead and zinc deposits, Dorion and McTavish townships, Thunder Bay district: *Ontario Dept. Mines, 38th Ann. Rept.*, vol. 38, pt. 6, pp. 59-85, illus., maps, 1930.

Hawley, J. E.—Continued.

1088. "Seine" or "Coutchiching"? : Jour. Geology, vol. 38, no. 6, pp. 521-547, 10 figs., August-September, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 2, p. 147, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 118-119, March 31, 1930.

Hawtof, E. M.

1089. Results of deep-well temperature measurements in Texas: Am. Petroleum Inst., Production Bull. no. 205, pp. 62-108, 24 figs., October, 1930.

Hay, Oliver Perry, 1846-1930.

1090. On the recent discovery of a flint arrowhead in early Pleistocene deposits at Frederick, Okla.: Washington Acad. Sci., Jour., vol. 19, no. 5, pp. 93-98, March 4, 1929.
1091. On some recent excursions into Pleistocene geology and paleontology: Washington Acad. Sci., Jour., vol. 19, no. 21, pp. 463-469, Dec. 19, 1929.
1092. Remarks on Dr. George G. Simpson's work on the Pleistocene paleontology of Florida: Washington Acad. Sci., Jour., vol. 20, no. 14, pp. 331-340, August 19, 1930.
1093. (and Cook, Harold J.). Fossil vertebrates collected near, or in association with, human artifacts at localities near Colorado, Texas, Frederick, Okla., and Folsom, N. Mex.: Colorado Mus. Nat. Hist., Proc., vol. 9, no. 2, pp. 4-40, 14 pls., October 20, 1930.
1094. On the fossil Mammalia of the first interglacial stage of the Pleistocene of the United States: Washington Acad. Sci., Jour., vol. 20, no. 21, pp. 501-509, December 19, 1930.

Hayes, Albert Orion.

1095. Further studies of the origin of the Wabana iron ore of Newfoundland: Econ. Geology, vol. 24, no. 7, pp. 687-690, November, 1929.

Head, R. E.

1096. The technique of preparing thin sections of rock: Utah Eng. Exper. Sta., Tech. Paper no. 8, 29 pp., 2 figs., 1929.
1097. (and Crawford, A. L.). Utilizing staining methods in the identification of minerals: Eng. and Min. Jour., vol. 127, no. 22, p. 877, June 1, 1929.

Heald, Kenneth Conrad.

1098. Edwin Binney, jr.: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 3, pp. 295-296, March, 1929.
1099. The study of earth temperatures in oil fields on anticlinal structure: Am. Petroleum Inst., Production Bull. no. 205, pp. 1-8, 4 figs., October, 1930.

Heath, Francis E.

1100. (and Waters, J. A., and Ferguson, W. B.). Clay Creek salt dome of Texas (abstract): Pan-Am. Geologist, vol. 53, no. 3, p. 226, April, 1930.

Heaton, Ross L.

1101. Relation of accumulation to structure in northwestern Colorado: Structure of typical American oil fields, vol. 2, pp. 93-114, 10 figs., Am. Assoc. Petroleum Geologists, 1929.

Heck, Nicholas Hunter.

- 1102. Earthquake investigation in the United States: U. S. Coast and Geodetic Survey, Serial no. 456, 21 pp., 3 figs., 1929.
- 1103. (and Bodle, R. R.). United States earthquakes, 1928: U. S. Coast and Geodetic Survey, Serial no. 483, 29 pp., 1930.
- 1104. Progress of seismological investigations in the United States, July 1, 1927, to January 1, 1930: U. S. Coast and Geodetic Survey, Spec. Pub. no. 167, 14 pp., 2 figs., Washington, 1930.
- 1105. The earthquake, a joint problem of the seismologist and engineer: Seismol. Soc. America, Eastern section, Proc. 1930 Meeting, Washington, pp. 42-46 [1930].
- 1106. Earthquakes, a challenge to science: Sci. Monthly, vol. 31, no. 2, pp. 113-125, 12 figs., August, 1930.

Hedberg, Hollis D. See Cushman, 606.

Hedstrom, Helmer.

- 1107. Electrical survey of structural conditions in Salt Flat field, Caldwell County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 9, pp. 1117-1185, 3 figs., September, 1930.

Heiland, Carl August.

- 1108. A new graphical method for torsion balance topographic corrections and interpretations: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 1, pp. 39-74, 12 figs., January, 1929; correction, no. 3, p. 245, March, 1929.
- 1109. Geophysical methods of prospecting; principles and recent successes: Colorado School of Mines Quart., vol. 24, no. 1, 166 pp., 66 figs., March, 1929.
- 1110. Theory of Adolf Schmidt's horizontal field balance: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 261-314, 16 figs., 1929.
- 1111. (and Courtier, William H.). Magnetometer investigation of gold placer deposits near Golden, Colo.: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 364-384, 16 figs., 1929.
- 1112. A cartographic correction for the Eötvös torsion balance: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 544-560, 1929.
- 1113. Modern instruments and methods of seismic prospecting (with discussion by F. Rieber): Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 625-653, 15 figs., 1929.
- 1114. (and Henderson, Charles W., and Malkovsky, J. A.). Geophysical investigations at Caribou, Colo.: U. S. Bur. Mines, Tech. Paper 439, 45 pp., 13 figs., 1929. Extracts, Colorado School of Mines Mag., vol. 20, no. 2, pp. 13-16, 40, 4 figs., February, 1930.
- 1115. Teaching of geophysical prospecting (abstract): Pan-Am. Geologist, vol. 53, no. 3, pp. 219-220, April, 1930.

Heineman, Robert E. S.

- 1116. (and Brady, L. F.). The Winona meteorite [Arizona]: Am. Jour. Sci., 5th ser., vol. 18, pp. 477-486, 6 figs., December, 1929.
- 1117. A note on the occurrence of monazite in western Arizona: Am. Mineralogist, vol. 15, no. 11, pp. 536-537, November, 1930.

Heintz, Anatol.

- 1118. Oberdevonische Fischreste aus Ost-Grönland: Skrifter om Svalbard og Ishavet, no. 30, pp. 31-46, 4 figs., 4 pls., Oslo, 1930.

Heller, A. H. See Beal, 158.

Henbest, Lloyd G. See also Dunbar, 708.

1119. Coal-stripping possibilities in Saline and Gallatin Counties near Equality: Illinois State Geol. Survey, Coop. Min. Ser., Bull. 32, 26 pp., 1929.

1120. Use of selective stains in paleontology (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 156, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 201, March 31, 1930.

Henderson, Charles William. See also Helland, 1114.

1121. Geology of the northern magnetic deposit, Caribou, Boulder County, Colo.: U. S. Bur. Mines, Tech. Paper 439, pp. 4-7, 2 figs., 1929.

Henderson, Edward P. See also Schaller, 2293; Wells, 2810.

1122. Gearskutite from Virginia: Am. Mineralogist, vol. 14, no. 8, pp. 281-285, August, 1929.

Henderson, Junius.

1123. Some fossil fresh-water Mollusca from Washington and Oregon: Nautilus, vol. 42, no. 4, pp. 119-123, April, 1929.

1124. The sorting power of wind and wave: Science, new ser., vol. 72, pp. 559-560, November 28, 1930.

Henderson, L. H.

1125. (and Pentegoff, V. P.). Results of some recent geophysical tests: Min. Jour., Phoenix, Ariz., vol. 14, no. 14, pp. 9-10, 30-31, 5 figs., December 15, 1930.

Hendrickson, A. B.

1126. (and Weaver, D. K.). Santa Fe Springs oil field: California, Div. Mines and Mining, California Oil Fields, Summ. of Operations, vol. 14, no. 7, pp. 5-21, 5 pls., January, 1929.

Hendry, John.

1127. Some physiographical features of northwest Greenland: Min. and Geol. Inst. India, Trans., vol. 25, pt. 3, pp. 185-242, 10 pls., December, 1930.

Hennen, Ray Vernon.

1128. Big Lake oil pool, Reagan County, Texas: Structure of typical American oil fields, vol. 2, pp. 500-541, 8 figs., Am. Assoc. Petroleum Geologists, 1929.

1129. (and Metcalf, R. J.). Yates oil pool, Pecos County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 12, pp. 1509-1556, 10 figs., December, 1929.

Henny, Gerard.

1130. McLure shale of the Coalinga region, Fresno and Kings Counties, Calif.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 4, pp. 403-410, 3 figs., April, 1930.

Hernon, Robert.

1131. A skeleton of *Leptomeryx*: Black Hills Engineer, vol. 18, no. 3, pp. 256-258, illus., May, 1930.

1132. Unborn twins of ten million years ago [*Oreodon culbertsoni*, Black Hills, South Dakota]: Black Hills Engineer, vol. 18, no. 3, pp. 259-264, illus., May, 1930.

Hertel, F. W.

1133. Ventura Avenue oil field, Ventura County, Calif.: Structure of typical American oil fields, vol. 2, pp. 23-24, 6 figs., 1 pl., Am. Assoc. Petroleum Geologists, 1929.

Hertlein, Leo George.

1134. A new pecten from the San Diego Pliocene: California Acad. Sci., Proc., 4th ser., vol. 18, no. 5, p. 215, 2 figs., April 5, 1929.
1135. Three new specific names for west American fossil Mollusca: Jour. Paleontology, vol. 3, no. 3, pp. 295-297, September, 1929.

Hess, Frank L.

1136. Oolites or cave pearls in the Carlsbad caverns [New Mexico]: U. S. Nat. Mus., Proc., vol. 76, art. 16, 5 pp., 8 pls., 1929.
1137. (and Wells, Roger C.). Samarskite from Petaca, N. Mex.: Am. Jour. Sci., 5th ser., vol. 19, pp. 17-26, 2 figs., January, 1930.

Hevesy, Georg von.

1138. The age of the earth: Science, new ser., vol. 72, pp. 509-515, November 21, 1930.

Hewett, Donnel Foster.

1139. Cycles in metal production: Am. Inst. Min. and Met. Eng., Tech. Pub. 183, 31 pp., March, 1929; Trans., 1929, Year Book, pp. 65-93, 1929.
1140. (and Rove, Olaf N.). Occurrence and relations of alabandite: Econ. Geology, vol. 25, no. 1, pp. 36-56, 8 figs., January-February, 1930.
1141. Genesis of iron-manganese carbonate concretions in central South Dakota (abstract): Washington Acad. Sci., Jour., vol. 20, no. 12, p. 243, June 19, 1930.

Hewitt, Lawrence W.

1142. Phases of the stratigraphy of the Cretaceous formations of Nebraska (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 177, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 4, p. 300, May, 1930.

Higgins, Daniel Franklin.

1143. Evidences of isostatic adjustment in the Front Range (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 111, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 148, March, 1929.

Higham, Frank. See Matley, 1726.

Hill, Harry H.

1144. Shale and the production of oil from shale: Fuel Conference (World Power Conference, London, 1928), Trans., vol. 1, pp. 753-762 [1929].

Hill, Louis C.

1145. (and others). Essential facts concerning the failure of the St. Francis dam [California]; report of committee . . . : Am. Soc. Civil Eng., Proc., vol. 55, no. 8, pp. 2147-2163, 5 figs., October, 1929.

Hill, Mason L.

1146. Structure of the San Gabriel Mountains north of Los Angeles, Calif.: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 6, pp. 137-170, 6 figs., 6 pls., August 26, 1930; abstract, Geol. Soc. America, Bull., vol. 41, no. 1, p. 149, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 368, June, 1929.

Hill, Robert Thomas.

- 1147. Classification of the Pleistocene of California: Science, new ser., vol. 69, pp. 379-380, April 5, 1929.
- 1148. Trinity of Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 5, pp. 519-523, May, 1929.
- 1149. Some new data on the major fault blocks of southern California (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 53-54, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 1, pp. 77-78, February, 1930.

Hillis, Donuil.

- 1150. Long shots with an alidade: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 12, pp. 1561-1567, December, 1929.

Hills, Victor Gardiner.

- 1151. An unique formation of satin spar: Am. Mineralogist, vol. 14, no. 5, pp. 200-201, 2 figs., May, 1929.

Hinds, Norman Ethan Allen. See also Russell, 2246.

- 1152. (and Russell, R. Dana). The landscape; an outline of physiography for Geology 2 at the University of California. 114 pp. [San Francisco], 1929.
- 1153. Intrusive rocks in the Klamath Mountains, northern California (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 170, March 30, 1929.
- 1154. Maui volcano, Hawaii (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 173-174, March 30, 1929.
- 1155. The geology of Kauai and Niihau, Hawaiian Islands: Zeitschr. Vulkanologie, Bd. 12, H. 1, pp. 15-32, 5 pls., April, 1929.
- 1156. The weathering of the Hawaiian lavas, I; The compositions of lavas and soils from Kauai; Am. Jour. Sci., 5th ser., vol. 17, pp. 297-320, 3 figs., April, 1929.
- 1157. Wave-cut platforms in Hawaii: Jour. Geology, vol. 37, no. 6, pp. 603-610, 4 figs., August-September, 1929.
- 1158. The geology of Kauai and Niihau: Bernice P. Bishop Mus., Bull. 71, 103 pp., 16 figs., 13 pls. (incl. map), 1930.
- 1159. Igneous geology of the southern Klamath Mountains, Calif. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 157-158, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 376, June, 1929.
- 1160. Most ancient formations in Klamath Mountains (abstract): Pan-Am. Geologist, vol. 54, no. 1, pp. 69-70, August, 1930.

Hirschi, H.

- 1161. Radioaktivität einiger Tiefengesteine vom nördlichen Baja California, Mexico: Schweizerische mineral. und petrog. Mitt., Bd. 9, H. 1, pp. 188-189, 1929.

Hisazumi, Hisakichi.

- 1162. Informe preliminar acerca de la geología petrolera de la zona comprendida entre los ríos de Tuxpan y Misantla, en los Estados de Puebla y Veracruz: Mexico, Inst. geol., Anales, t. 3, pp. 1-52, 7 pls., 1929.
- 1163. Informe geológico preliminar de la parte norte del Estado de Sinaloa: Mexico, Inst. geol., Anales, t. 3, pp. 95-109, 1929.

Hixon, Hiram W.

1164. Status and importance of isostasy (discussion) : *Mining and Metallurgy*, vol. 11, no. 280, p. 226, April, 1930.

Hobbs, William Herbert.

1165. Climatic zones and periods of glaciation : *Geol. Soc. America, Bull.*, vol. 40, no. 4, pp. 735-744, December 31, 1929; abstract, no. 1, p. 202, March 30, 1929.
1166. Stress conditions within the lithosphere as revealed by earthquakes (abstract) : *Pan-Am. Geologist*, vol. 53, no. 2, p. 128, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 83, March 31, 1930.
1167. Steppe district of southwestern Greenland (abstract) : *Pan-Am. Geologist*, vol. 53, no. 1, p. 79, February, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 89, March 31, 1930.

Hodge, Edwin Thomas.

1168. Structural features displayed in the John Day and Deschutes River Canyons (abstract) : *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 167, March 30, 1929.
1169. Late Tertiary climatic changes in Oregon : *Monthly Weather Rev.*, vol. 58, no. 10, pp. 405-411, October, 1930.

Hodgson, Ernest A. (editor).

1170. Bibliography of seismology of the eastern section of the Seismological Society of America, vol. 4, no. 1, 18 pp. [mimeographed], January-March, 1929.
1171. Bibliography of seismology, No. 1, January, February, March, 1929: Canada, Dominion Observatory, Ottawa, Pub., vol. 10, pp. 1-17, 1929; no. 2, April, May, June, 1929, pp. 21-34; no. 3, July, August, September, 1929, pp. 37-47, 1929; no. 4, October, November, December, 1929, pp. 51-65; no. 5, January, February, March, 1930, pp. 69-86; no. 6, April, May, June, 1930, pp. 89-100, 1930.
1172. (and Doxsee, W. W.). The Grand Banks earthquakes, November 18, 1929: *Seismol. Soc. America, Eastern section, Proc. 1930 meeting*, Washington, pp. 72-79, 3 figs. [1930].

Hörner, Nils G.

1173. Late glacial marine limit in Massachusetts: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 123-145, 1 fig., February, 1929.

Hoffman, Malvin G.

1174. Geology and petrology of the Wichita Mountains: *Oklahoma Geol. Survey, Bull.* no. 52, 82 pp., 4 figs., 22 pls., October, 1930.

Hoffman, R. D.

1175. Zoning in Michigan copper deposits (discussion) : *Econ. Geology*, vol. 25, no. 3, pp. 285-286, May, 1930.

Hoffmeister, John Edward.

1176. A new fossil coral from the Cretaceous of Texas: *U. S. Nat. Mus., Proc.*, vol. 76, art. 23, 3 pp., 2 pls., 1929.
1177. Erosion of elevated fringing coral reefs (abstract) : *Pan-Am. Geologist*, vol. 53, no. 2, p. 143, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 112, March 31, 1930.

Hohl, C. D. See Broderick, 318; Butler, 391.

Hole, Allen David.

1178. The history of the "hoodoos" near Mammoth Hot Springs, Wyo.: Indiana Acad. Sci., Proc., vol. 38, pp. 207-216, 5 figs., 1929.

Hollick, Arthur.

1179. New species of fossil plants from the Tertiary shales near De Beque, Colo.: Torrey Bot. Club, Bull., vol. 56, no. 2, pp. 93-96, 1 pl., February, 1929.
1180. The Upper Cretaceous floras of Alaska: U. S. Geol. Survey, Prof. Paper 159, 123 pp., 5 figs., 87 pls. (incl. map), 1930.

Hollister, D. E. See Twenhofel, 2687.

Honess, Arthur Pharaoh. See Bonine, 252.

Hoots, Harold William. See also Dobbin, 682, 683.

1181. Oil shale in a producing oil field in California: U. S. Geol. Survey, Prof. Paper 154, pp. 171-173, 1 pl., March 20, 1929.
1182. Geology and oil resources along the southern border of San Joaquin Valley, Calif.: U. S. Geol. Survey, Bull. 812, pp. 243-332, 3 figs., 18 pls. (incl. map), 1930.

Hoskins, J. Hobart.

1183. New coal-measure plants from Illinois (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, p. 392, 1930.
1184. The genus *Calliaylon* in Ohio (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, pp. 410-411, 1930.

Hotchkiss, William Otis.

1185. (and Bean, E. F.; assisted by H. R. Aldrich). Mineral lands of part of northern Wisconsin: Wisconsin Geol. and Nat. Hist. Survey, Bull. no. 46, 212 pp., 51 figs., 1 pl. (map), township maps, 1929.
1186. (and Rooney, W. J., and Fisher, James). Earth-resistivity measurements in the Lake Superior copper country: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 51-67, 5 figs., 1929.

Howard, Charles S. See Hall, 1036.

Howard, Waldorf Vivian.

1187. (and Love, W. W.). Some properties of limestone as a reservoir rock: Econ. Geology, vol. 25, no. 7, pp. 720-736, 2 figs., November, 1930.

Howe, Henry Van Wagenen.

1188. Distinctive new species of Foraminifera from the Oligocene of Mississippi: Jour. Paleontology, vol. 4, no. 4, pp. 327-331, 1 pl., December, 1930.

Howell, Benjamin Franklin.

1189. The Cambrian *Paradoxides* beds of northwestern Vermont: Vermont, State Geologist, 16th Rept., pp. 249-273, 1 fig., [1929].
1190. Third report of special committee on marking of type specimens: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 215-220, 1 pl., March 30, 1929.
1191. Tophomeotype; a new term (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 154, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 199, March 31, 1930.

Howell, Jesse V.

1192. How old is petroleum geology?: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 5, pp. 607-616, May, 1930.

Howell, W. F.

1193. Kevin-Sunburst field, Toole County, Mont.: Structure of typical American oil fields, vol. 2, pp. 254-268, 4 figs., Am. Assoc. Petroleum Geologists, 1929.

Hrdlička, Aleš.

1194. The skeletal remains of early man: Smithsonian Misc. Coll. vol. 83, 379 pp., 39 figs., 93 pls., July 24, 1930.

Hubbard, George David.

1195. Geologic criteria suggesting ancient climatic conditions and their evaluation (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 130, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 153, March, 1929.

1196. More exact geology (abstract): Ohio Jour. Sci., vol. 29, no. 4, pp. 171-172, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, pp. 308-309, 1929.

1197. (and Wilder, Charles G.). Validity of the indicators of ancient climates: Geol. Soc. America, Bull., vol. 41, no. 2, pp. 275-292, June 30, 1930.

1198. (and Matthews, A. A. L.). Fossil faunas of the Narrows section, Virginia (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, pp. 401-402, 1930.

Hubbard, W. E. See Thompson, 2642.

Hubbell, Marion. See Meyerhoff, 1790.

Hubbert, M. King. See also Melton, 1767.

1199. (and Melton F. A.). Isostasy; a critical review: Jour. Geology, vol. 38, no. 8, pp. 673-695, 5 figs., November-December, 1930.

Hudson, Frank Samuel.

1200. (and Craig, E. K.). Geologic age of the Modelo formation, California: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 5, pp. 509-518, May, 1929.

Hughes, H. H. See Stone, 2534.

Hulin, Carlton D.

1201. Structural control of ore deposition: Econ. Geology, vol. 24, no. 1, pp. 15-49, 15 figs., January, 1929.

1202. Ore genesis and ore shoots: Eng. and Min. Jour., vol. 127, no. 6, pp. 228-230, no. 8, pp. 317-320, 12 figs., February 9 and 23, 1929.

1203. Metallization from basic magmas; a theory of genesis for hydrothermal and emanation types of ore deposits: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 9, pp. 233-274, 7 figs., March 19, 1929.

1204. Geology and mineralization at Pachuca, Mexico (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 171, March 30, 1929.

1205. A Mother Lode gold ore: Econ. Geology, vol. 25, no. 4, pp. 348-355, 6 figs., June-July, 1930.

1206. Subsequent faulting in the Great Basin (abstract): Pan-Am. Geologist, vol. 54, no. 2, pp. 151-152, September, 1930.

Hume, George Sherwood.

1207. The Highwood-Jumpingpound anticline, with notes on Turner Valley, New Black Diamond, and Priddis Valley structures, Alberta: Canada, Geol. Survey, Summ. Rept. 1929, pt. B, pp. 1-24, 1930.

Hume, George Sherwood—Continued.

1208. The Ribstone-Blackfoot anticline, Alberta; new productive oil field assured: Canadian Min. Jour., vol. 51, no. 30, pp. 710-711, July 25, 1930.
1209. Natural gas in Saskatchewan: Canadian Min. Jour., vol. 51, no. 42, pp. 991-994, 1 fig., October 17, 1930.

Hunt, Walter Fred. See Kraus, 1475.

Hupp, J. E. See Bartram, 141.

Hurst, Macleod Ewart.

1210. Ranger Lake and Garden River area, District of Algoma: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 3, pp. 53-67, illus., map, 1929.
1211. Certain lead-zinc deposits in the District of Algoma: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 3, pp. 68-78, illus., 1929.
1212. The Pickle Lake-Crow River area [Ontario]: Canadian Min. Jour., vol. 50, no. 46, pp. 1080-1082, 1 fig., November 15, 1929.
1213. Pickle Lake-Crow River area, District of Kenora (Patricia portion), Ontario: Canadian Min. and Met. Bull., no. 214, pp. 227-236, 2 figs., February, 1930.
1214. Geology of the area between Favourable Lake and Sandy Lake, District of Kenora (Patricia portion): Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 2, pp. 49-84, illus., map, 1930.

Hussakof, Louis.

1215. A new teleostean fish from the Niobrara of Kansas: Am. Mus. Novitates no. 357, 4 pp., 2 figs., July 6, 1929.
1216. Dental elements in the arthrodire *Titanichthys* (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 151-152, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 196, March 31, 1930.

Hutchinson, George Evelyn.

1217. Restudy of some Burgess shale fossils: U. S. Nat. Mus., Proc., vol. 78, art. 11, 24 pp., 5 figs., 1 pl., 1930.

Hutson, E. B. See Shearer, 2361.

Hutt, G. M.

1218. Geology of the fire clays of southern Saskatchewan: Am. Ceramic Soc., Jour., vol. 13, no. 3, pp. 174-181, 1 fig., March, 1930.
1219. The fire clays of southern Saskatchewan: Canadian Min. Jour., vol. 51, no. 21, pp. 493-494, 1 fig., no. 22, pp. 525-526, May 23 and 30, 1930.

Illinois, State Geological Survey.

1220. List of publications on the geology of Illinois, with appended index: Illinois State Geol. Survey, 71 pp., Urbana, Illinois, 1929.

Ireland, H. Andrew.

1221. Experimental results on the structural relations of beds that are separated by converging strata: Oklahoma Acad. Sci., Proc., vol. 8 (Oklahoma, Univ., Bull., n. s. no. 410), p. 147 [1929].
1222. Mayes, Delaware, and Ottawa Counties: Oklahoma Geol. Survey, Bull. no. 40, vol. 3, pp. 471-503, 2 figs., map, July, 1930 (Bull. 40-NN, January, 1930).

Iverson, H. G. See Gauger, 902.

Irwin, J. S.

1223. Oil and gas fields of Lost Soldier district, Wyoming: Structure of typical American oil fields, vol. 2, pp. 636-666, 9 figs., Am. Assoc. Petroleum Geologists, 1929.

Israelsky, Merle Cathcart.

1224. Correlation of the Brownstown (restricted) formation of Arkansas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 6, pp. 683-684, June, 1929.
1225. Upper Cretaceous Ostracoda of Arkansas: Arkansas Geol. Survey, Bull. 2 [extract], 20 pp., 4 pls., 1929.

Jackson, Robert Tracy.

1226. Shaler on the fossil brachiopods of the Ohio Valley: Science, new ser., vol. 70, pp. 214-216, August 30, 1929.
1227. Report on fossil echinoderms: Harvard Coll., Mus. Comp. Zoology, Ann. Rept., 1928-29, pp. 35-36, 1929.
1228. Report on the fossil echinoderms: Harvard Coll., Mus. Comp. Zoology, Ann. Rept. 1929-30, p. 41, 1930.

Jacobs, Elbridge Churchill.

1229. Cases of flood erosion in Vermont (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 109-110, March 30, 1929.

Jaggard, Thomas Augustus, jr.

1230. Earthquakes and volcanoes: New Human Interest Library, vol. 2, pp. 30-40, 12 figs., Chicago, Midland Press, c. 1928.
1231. [Observations on Hawaiian volcanoes, chiefly on Halemaumau]: Hawaiian Volcano Observatory, Monthly Bull., vol. 17, nos. 1-7, January-July, 1929.
1232. Graded swelling and shrinking of volcanoes (abstract): Bernice P. Bishop Mus., Spec. Pub. 15, pp. 10-11, 1929.
1233. (and Finch, R. H.). Tilt records for thirteen years at the Hawaiian Volcano Observatory: Seismol. Soc. America, Bull., vol. 19, no. 1, pp. 38-51, 1 figs., 2 pls., March, 1929.
1234. The Hualalai earthquake crisis of 1929 (abstract): Hawaiian Acad. Sci., Fifth Ann. Meeting, 1930, Proc., Bernice P. Bishop Mus., Spec. Pub. 16, pp. 8-9, 1930.

Jakosky, J. J.

1235. Operating principles of inductive geophysical processes: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 138-179, 28 figs., 1929.

James, H. T.

1236. Britannia Beach map area, British Columbia: Canada, Geol. Survey, Mem. 158, 139 pp., 12 figs., 4 pls., map, 1929.

Jarvis, P. W. See also Cushman, 606, 616.

1237. Some notes on Cretaceous occurrences at Lizard Springs, Trinidad: Inst. Petroleum Technologists, Jour., vol. 15, no. 75, pp. 440-442, August, 1929.

Jaworski, E.

1238. Eine Liasfauna aus Nordwest-Mexico: Schweizer. palaeont. Gesell. Abh., vol. 48, 12 pp., 1 fig., 1 pl., 1929.

Jeannet, A.

- 1239 Contribution à l'étude des échinides tertiaires de la Trinité et du Vénézuéla: Schweizer. palaeont. Gesell., Abh., vol. 48, 49 pp., 12 figs., 6 pls., 1928.

Jeffreys, Harold.

1240. The planetesimal hypothesis [with reply by F. R. Moulton]: Science, new ser., vol. 69, pp. 245-246, March 1, 1929.

Jelliff, Fred R.

1241. The building of a dam: Illinois State Acad. Sci., Trans., vol. 22, pp. 455-463, April, 1930.

Jenkins, Olaf Pitt. See also Bradley, 276.

1242. A geological survey of California: Science, new ser., vol. 70, p. 554, December 6, 1929.
1243. Sandstone dikes as conduits for oil migration through shales: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 4, pp. 411-421, 4 figs., April, 1930.
1244. Stratigraphic problem of Kreyenhagen shales (abstract): Pan-Am. Geologist, vol. 54, no. 1, pp. 77-78, August, 1930.
1245. Development of geological survey by California State Division of Mines: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 10, pp. 1352-1355, October, 1930.
1246. Progress of the geological survey of California: Science, new ser., vol. 72, pp. 528-529, November 21, 1930.
1247. Geological survey of California under way: Oil Bull., vol. 16, no. 11, pp. 1158-1159, 1236, November, 1930.

Jenny, W. P.

1248. Electric and electromagnetic prospecting for oil: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 9, pp. 1199-1213, 7 figs., September, 1930.

Jepsen, Glenn L. See also Sinclair, 2399.

1249. Complete Paleocene section in Wyoming (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 155-156, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 200, March 31, 1930.
1250. New vertebrate fossils from the lower Eocene of the Bighorn Basin, Wyo.: Am. Philos. Soc., Proc., vol. 69, no. 4, pp. 117-131, 4 pls., 1930.
1251. Stratigraphy and paleontology of the Paleocene of northeastern Park County, Wyo.: Am. Philos. Soc., Proc., vol. 69, no. 7, pp. 463-528, 4 figs., 10 pls., 1930.

Jillson, Willard Rouse.

1252. Geology of the oil shales of the eastern United States: Internat. Geol. Congress, 14th session, Spain, 1926, Compt. Rend., fasc. 4, pp. 2045-2052, 1928 [1929].
1253. The geology and mineral resources of Kentucky; a brief description of the physiography, stratigraphy, . . . : Kentucky Geol. Survey, ser. 6, vol. 17, xv, 409 pp., 251 illus., 1928 [c. 1929].
1254. Geologic map of Kentucky: Kentucky Geol. Survey, ser. 6, 1929. Scale 1:500,000.
1255. Administrative report for the years 1926 and 1927: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 9-98, 30 figs. and pls., 1930.

Jillson, Willard Rouse—Continued.

- 1256. In memoriam, Prof. Arthur McQuiston Miller: Kentucky Geol. Survey, ser. 6, Pam. 22, pp. 74-76, portr., 1929.
- 1257. Administrative report for the (Sixth) Kentucky Geological Survey, years 1928 and 1929: Kentucky Geol. Survey, ser. 6, Pam. 22, 108 pp., illus., 1929; vol. 35, pp. 101-208, 42 figs., and pls., 1930.
- 1258. Kentucky's mineral resources: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 222-262, 37 figs. and pls., 1930.
- 1259. A correlation of the coals of western Kentucky, southeastern Illinois, and southwestern Indiana: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 263-269, 2 figs., 1930.
- 1260. Early Carbonic deformation in western Kentucky: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 271-275, 3 figs., 1930.
- 1261. Geology of the Island Creek oil pool [Owsley County]: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 277-328, 20 figs. and pls., 1930; abstract Kentucky Acad. Sci., Trans., vol. 3, pp. 32-34, 1930.
- 1262. Peneplains in Kentucky: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 329-336, 2 figs., 1930.
- 1263. Early sketches on Kentucky geology: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 337-341, 1930.
- 1264. Kentucky fluorites: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 343-346, 1 fig., 1930; Kentucky Acad. Sci., Trans., vol. 3, pp. 91-93, 1930; Pan-Am. Geologist, vol. 54, no. 1, pp. 29-30, August, 1930.
- 1265. Bibliography of Willard Rouse Jillson: Kentucky Geol. Survey, ser. 6, vol. 35, pp. 347-371, 1930.
- 1266. Natural gas sands of eastern Kentucky; a correlation chart based upon actual records for every important gas field: [Broadside], Kentucky Geol. Survey, ser. 6, 1930.

Johannsen, Albert.

- 1267. Petrological abstracts and reviews: Jour. Geology, vol. 37, no. 6, pp. 611-614, August-September, 1929; vol. 38, no. 3, pp. 280-283, April-May, 1930.

Johnson, Douglas Wilson.

- 1268. Appalachian studies I [New England Upland] (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 131-132, March 30, 1929.
- 1269. (and Ver Steeg, Karl). Appalachian studies II (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 132-133, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 154-155, March, 1929.
- 1270. Mean sea level studies in New York waters (abstract): Am. Philos. Soc., Proc., vol. 68, no. 2, pp. 93-94, 1929.
- 1271. Studies of mean sea level: Science, new ser., vol. 70, pp. 220-222, August 30, 1929.
- 1272. Base-level: Jour. Geology, vol. 37, no. 8, pp. 775-782, November-December, 1929.
- 1273. Sea-level change near New York: Science, new ser., vol. 72, pp. 35-37, July 11, 1930.

Johnson, Jesse Harlan.

- 1274. Contribution to the geology of the Sangre de Cristo Mountains of Colorado: Colorado Sci. Soc., Proc., vol. 12, pp. 3-21, 1 fig. (paleogeographic map), 1 pl., 1929.

Johnson, Jesse Harlan—Continued.

1275. Origin of the Sangre de Cristo conglomerates, Colorado: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 2, pp. 177-178, February, 1929.
1276. Report on the fourteenth annual meeting of the American Association of Petroleum Geologists: Colorado School of Mines Mag., vol. 19, no. 5, pp. 19-20, 56, May 1929.
1277. (and Aurand, Harry A.). A preliminary contribution to the Benton paleogeography of eastern Colorado: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 7, pp. 850-853, July, 1929.
1278. Unconformity in Colorado group in eastern Colorado: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 6, pp. 789-794, June, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, p. 226, April, 1930.
1279. The Benton fauna of eastern Colorado and Kansas and its recorded geologic range: Jour. Paleontology, vol. 4, no. 2, pp. 193-196, June, 1930.
1280. The geology of the Golden area, Colorado (second edition, revised): Colorado School of Mines, Quart., vol. 25, no. 3, 33 pp., 13 figs., July, 1930.

Johnson, M. Melville. See Kirkham, 1443.

Johnson, Meredith E.

1281. Topographic and geologic atlas of Pennsylvania, no. 27, Pittsburgh quadrangle; geology and mineral resources: Pennsylvania Geol. Survey, Fourth ser., 236 pp., 28 figs., 33 pls. (incl. maps), 1929.
1282. The mineral industry of New Jersey for 1927: New Jersey, Dept. Conserv. and Devel., Bull. 32, 21 pp., 1929.
1283. The mineral industry of New Jersey for 1928: New Jersey, Dept. Conserv. and Devel., Geol. ser., Bull. 34, 29 pp., 1930.

Johnson, Roswell Hill.

1284. (and Parris, F. G.). Relative reliability in structure contour maps made from comparative elevations and from dip readings (abstract): Pan-Am. Geologist, vol. 53, no. 3, p. 222, April, 1930.

Johnston, William Alfred.

1285. Frozen ground in the glaciated parts of northern Canada: Roy. Soc. Canada, Trans., ser. 3, vol. 24, sec. 4, pp. 31-40, May, 1930.
1286. (and Wickenden, R. T. D.) Glacial Lake, Regina, Saskatchewan Canada: Roy. Soc. Canada, Trans., ser. 3, vol. 24, sec. 4, pp. 41-49, 1 fig., May, 1930.

Johnston, William Drumm, jr.

1287. Physical divisions of northern Alabama: Alabama, Geol. Survey, Bull. no. 38, 48 pp., 8 pls., 1930.
1288. The rate of growth of stalactites: Science, new ser., vol. 72, pp. 298-299, September 19, 1930.

Johnstone, J. H. L.

1289. The Acadian-Newfoundland earthquake of November 18, 1929: Nova Scotian Inst. Sci., Trans., vol. 17, pt. 4, pp. 223-237, 3 figs., December 8, 1930.

Joliat, J. S.

1290. A table of travel times for near earthquakes: Seismol. Soc. America, Eastern section, Proc. 1930 Meeting, Washington, pp. 56-59 [1930].

Jonas, Anna Isabel. See also Knopf, 1462.

1291. Structure of the metamorphic belt of the central Appalachians: *Geol. Soc. America, Bull.*, vol. 40, no. 2, pp. 503-513, June 30, 1929; abstract, no. 1, pp. 90-91, March 30, 1929; *Washington Acad. Sci., Jour.*, vol. 19, no. 11, pp. 231-232, June 4, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, pp. 139-140, March, 1929.

1292. (and Stose, George W.). Geology and mineral resources of the Lancaster quadrangle, Pennsylvania: *Pennsylvania Geol. Survey, Fourth series, Topog. and Geol. Atlas of Pennsylvania no. 168, Lancaster quadrangle*, 106 pp., 10 figs., 23 pls., 2 maps, 1930.

Jones, Edward Leroy, jr.

1293. (and Conkling, Russell C.). Basement rocks in Shell-Humphreys well, Pecos County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 3, pp. 314-316, March, 1930.

Jones, I. W.

1294. The Berry Mountain map area, Gaspé: *Quebec Bur. Mines, Ann. Rept.* 1929, pt. D, pp. 1-42, 2 figs., 4 pls., map, 1930.

Jones, J. Claude.

1295. Age of Lake Lahontan: *Geol. Soc. America, Bull.*, vol. 40, no. 3, pp. 533-540, 2 figs., September 30, 1929; abstract, no. 1, pp. 129, 168, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 153, March, 1929.

1296. Salt deposits formed in inland basins (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 149, March 31, 1930; *Pan-Am. Geologist*, vol. 51, no. 5, p. 368, June, 1929.

Jones, Owen Thomas.

1297. The history of the Yellowstone Canyon, Yellowstone National Park, U. S. A.: *Geol. Soc. London, Abstracts of Proc.*, No. 1191, pp. 32-34, January 17, 1929.

1298. (and Field, R. M.). The resurrection of the Grand Canyon of the Yellowstone: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 260-278, 2 figs., March, 1929.

1299. History of the Grand Canyon, Yellowstone National Park: *Roy. Inst. Great Britain, Proc.*, vol. 26, pt. 1, no. 123, pp. 90-98, 5 figs., 1929.

Jones, Richard A.

1300. Pratt well in Webb County: *Texas, Univ., Bull.* no. 2901, pp. 131-138, 1 fig., August, 1929.

Jones, Victor H.

1301. Contributions to the Mississippi Delta by sediments from Red River (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 165, March 31, 1930; *Pan-Am. Geologist*, vol. 52, no. 5, p. 369, December, 1929.

Jones, W. A.

1302. The petrography of the rocks in the vicinity of Killarney, Ontario: *Toronto, Univ., Studies, Geol. ser. no. 29*, pp. 39-60, 6 figs., 1930.

1303. A study of certain xenoliths occurring in gabbro at Sudbury, Ontario: *Toronto, Univ., Studies, Geol. ser. no. 29*, pp. 61-73, 4 figs., 1930.

Jones, Walter Bryan. See also Aldrich, 27.

1304. Summary report on the building limestones of the Russellville district: *Alabama, Geol. Survey, Circular 8*, 36 pp., 7 pls., November, 1928.

Jones, Walter Bryan—Continued.

- 1305. Summary report on the Wattsville Basin of the Coosa coal field: Alabama, Geol. Survey, Circular 6, 48 pp., 7 pls. (incl. map), 1929.
- 1306. Summary report on the bauxite deposits of Alabama: Alabama, Geol. Survey, Circ. 7, 36 pp., 2 figs., 3 pls., July, 1929.
- 1307. Summary report on graphite in Alabama: Alabama, Geol. Survey, Circular 9, 27 pp., 2 figs., 6 pls., 1929.

Jones, Wellington Downing.

- 1308. Glacial land forms in the Sierra Nevada south of Lake Tahoe: California, Univ., Pub. in Geography, vol. 3, no. 2, pp. 135-137, 17 figs., June 8, 1929.

Joralemon, Ira B.

- 1309. The unexpected in the discovery of ore bodies (with discussion by A. Locke and others): Am. Inst. Min. and Met. Eng., Tech. Pub. no. 340, 15 pp., July, 1930.

Jordan, David Starr, 1851-1931.

- 1310. *Amia* from the Cretaceous: Science, new ser., vol. 69, pp. 271-272, March 8, 1929.

Judson, Sidney A. See also Murphy, 1877.

- 1311. Résumé of discoveries and developments in northeastern Texas in 1928: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 6, pp. 611-616, 1 fig., June, 1929.

Kaiser, W.

- 1312. Notiz über einen Besuch des Santa Maria, Guatemala, in März 1929: Zeitschr. Vulkanologie, Bd. 12, H. 2-3, p. 236, 1 fig., August, 1929.

Kania, Joseph E. A. See also Gillson, 930.

- 1313. Precipitation of limestone by submarine vents, fumaroles, and lava flows: Am. Jour. Sci., 5th ser., vol. 18, pp. 347-359, 1 fig., October, 1929.
- 1314. Submarine volcanic activity in relation to chert deposits and climate: Pan-Am. Geologist, vol. 53, no. 4, pp. 259-266, May, 1930.

Kay, George Frederick.

- 1315. Widespread mapping of the Aftonian and Yarmouth interglacial horizons in Iowa (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 86-87, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 79, February, 1929.
- 1316. Significance of post-Illinoian, pre-Iowan loess: Science, new ser., vol. 70, pp. 259-260, September 13, 1929.
- 1317. (and Apfel, Earl T.). The pre-Illinoian Pleistocene geology of Iowa: Iowa Geol. Survey, vol. 34, pp. 1-304, 63 figs., 3 pls. (incl. map), 1929; abstract, Pan-Am. Geologist, vol. 53, no. 4, pp. 306-307, May, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 170-171, March 31, 1930.
- 1318. Pleistocene geology of Iowa region: Pan-Am. Geologist, vol. 53, no. 2, pp. 81-87, March; abstract, no. 4, pp. 308-309, May, 1930.
- 1319. Contributions to the Pleistocene geology of Iowa: Iowa Acad. Sci., Proc., vol. 39, pp. 35-44 [1930].
- 1320. Additional significant Pleistocene sections in Iowa (abstract): Iowa Acad. Sci., Proc., vol. 39, pp. 275-276 [1930].

Kay, George Marshall.

1321. *Rafinesquina incurvata* Shepard, a Cincinnati brachiopod (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 211, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, p. 229, April, 1929.
1322. Correlatives of Mohawkian sediments in Kansas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 9, pp. 1213-1214, 1 fig., September, 1929.
1323. Stratigraphy of the Decorah formation: Jour. Geology, vol. 37, no. 7, pp. 639-671, 12 figs., October-November, 1929.
1324. Formations subjacent to the Black River-Trenton line (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 201-202, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, pp. 156-157, March, 1930.
1325. Ostracoda of the lower Mohawkian (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 157, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 202, March 31, 1930.
1326. Age of the Hounsfield bentonite: Science, new ser., vol. 72, p. 365, October 10, 1930.

Keep, F. E.

1327. Origin of chromite (discussion): Econ. Geology, vol. 25, no. 2, pp. 219-221, March-April, 1930.

Keith, Arthur.

1328. The Grand Banks earthquake: Seismol. Soc. America, Eastern section, Supplement to the Proceedings of the 1930 meeting, Washington, D. C., 5 pp., 3 figs., (photolithographed) [1930].

Keller, W. D.

1329. Experimental work on red-bed bleaching: Am. Jour. Sci., 5th ser., vol. 18, pp. 65-70, July, 1929.

Keller, W. T.

1330. Stratigraphische Beobachtungen in Sonora, Nordwest-Mexico (abstract): Soc. helvétique sci. nat., Actes, 109^e session, pp. 170-172, 1928.

Kellett, Betty.

1331. The ostracode genus *Hollinella*, expansion of the genus and description of some Carboniferous species: Jour. Paleontology, vol. 3, no. 2, pp. 196-217, 2 pls., June, 1929.

Kelley, Louis. See Berry, 218.

Kellogg, A. E.

1332. Platinum in southwestern Oregon: Min. Jour., Phoenix, Ariz., vol. 12, no. 23, pp. 5-6, April 30, 1929.

Kellogg, Charles E.

1333. Preliminary study of the profiles of the principal soil types of Wisconsin: Wisconsin Geol. and Nat. Hist. Survey, Bull. no. 77A (Soil ser. no. 54), 112 pp., 11 figs., 6 pls., 1930.

Kellogg, Remington.

1334. Extinct ocean-living mammals from Maryland: Smithsonian Inst., Explorations . . . 1928, pp. 27-32, 4 figs., 1929.
1335. A new fossil toothed whale from Florida: Am. Mus. Novitates no. 389, 10 pp., 3 figs., December 5, 1929.

Kellogg, Remington—Continued.

1336. A new cetothere from southern California: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 15, pp. 449-457, 2 figs., December 19, 1929.

Kellum, Lewis Burnett.

1337. Similarity of surface geology in front range of Sierra Madre Oriental to subsurface in Mexican south fields: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 1, pp. 73-91, 3 figs., January, 1930.

Kelly, Sherwin F. See Leonardon, 1549.

Kelly, William A.

1338. Lower Pennsylvanian faunas from Michigan: Jour. Paleontology, vol. 4, no. 2, pp. 129-151, 1 pl., June, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 2, p. 160, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 205-206, March 31, 1930.

Kendrick, Frank E.

1339. (and McLaughlin, H. C.). Relation of petroleum accumulation to structure, Petrolia field, Clay County, Tex.: Structure of typical American oil fields, vol. 2, pp. 542-555, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Kentucky Geological Survey. See also Briggs, 313; Crabb, 572; Dunn, 710, 711; McFarlan, 1656; Mayfield, 1747; Miller, 1797-1803; Roberts, 2168, 2169; Robinson, 2173; Shideler, 2369-2372; Sutton, 2560; Weller, 2797; Weller, 2805.

1340. Map of Harrison County, Ky., by G. Briggs and S. Withers: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
 1341. Map of Mercer County, Ky., by W. E. Bach and G. R. Wesley: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
 1342. Map of Pendleton County, Ky., by G. Briggs, W. E. Bach, and G. R. Wesley: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
 1343. Oil and gas map of Barren County, Ky. . . . by W. C. Eyl and G. Briggs. (second edition, revised): Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
 1344. Oil and gas map of Johnson County, Ky., by Willard Rouse Jillson; areal geology of Pottsville conglomerate by Raymond Miller and Spencer Withers: Kentucky Geol. Survey, ser. 6, 1929. Scale 1: 62,500.

Kerr, Forrest A.

1345. Second preliminary report on Stikine River area, British Columbia: Canada, Geol. Survey, Summ. Rept. 1928, pt. A, pp. 11-26, 1 fig., 1929.
 1346. The development and mineral resources of northern British Columbia: Canadian Min. and Met. Bull., no. 207, pp. 852-865, 6 figs., July, 1929; Canadian Inst. Min. and Met., Trans., vol. 32, pp. 51-64, 6 figs. [1930].
 1347. Taku River district, British Columbia: Canada, Geol. Survey, Summ. Rept. 1929, pt. A, pp. 16-29, 1930.
 1348. Preliminary report on Iskut River area, British Columbia: Canada, Geol. Survey, Summ. Rept. 1929, pt. A, pp. 30-61, 1 fig., 1930.
 1349. The significance of recent discoveries in northwestern British Columbia: Canadian Min. Jour., vol. 51, no. 10, pp. 222-227, 4 figs., March 7, 1930.

Kerr, Paul F. See also Ross, 2197, 2198.

1350. Kaolinite from a Brooklyn subway tunnel: *Am. Mineralogist*, vol. 15, no. 4, pp. 144-158, 10 figs., April, 1930.

Keyes, Charles Rollin.

1351. Unconformable relations of Bethany limestones: *Iowa Acad. Sci., Proc.*, vol. 35, pp. 219-220, 1 fig. [1929].
1352. Eastward extension of ancestral Rocky Mountains geosyncline into Iowa: *Iowa Acad. Sci., Proc.*, vol. 35, pp. 220-222 [1929].
1353. Geological date of western Iowa syncline: *Iowa Acad. Sci., Proc.*, vol. 35, pp. 223-224 [1929].
1354. Scientific achievements of Frank Springer: *Annals of Iowa*, 3d ser., vol. 16, no. 7, pp. 505-515, portr., January, 1929.
1355. Facetation on the Great Basin mountains: *Pan-Am. Geologist*, vol. 51, no. 1, pp. 1-10, February, 1929.
1356. Centenary of the glacial theory: *Pan-Am. Geologist*, vol. 51, no. 1, pp. 61-64, February, 1929.
1357. Planetesimal hypothesis and theory of meteoritic agglomeration: *Pan-Am. Geologist*, vol. 51, no. 2, pp. 81-92, 1929.
1358. Historical setting in geology: *Pan-Am. Geologist*, vol. 51, no. 2, pp. 129-132, March, 1929.
1359. Geological classification according to genesis: *Pan-Am. Geologist*, vol. 51, no. 3, pp. 161-178, 3 pls., April, 1929.
1360. Duality of great Ice Age; Unitarianism in idea of regional glaciation; Complexity of morainic terminals of continental ice caps: *Pan-Am. Geologist*, vol. 51, no. 3, pp. 217-222, April, 1929.
1361. Peneplanation of Continental Divide: *Pan-Am. Geologist*, vol. 51, no. 4, pp. 249-278, 1 fig., 4 pls., May, 1929.
1362. Demesne of speculative geology; Chalk cliffs of the prairies: *Pan-Am. Geologist*, vol. 51, no. 4, pp. 289-296, May, 1929.
1363. Last Devonian sedimentation in Iowa: *Pan-Am. Geologist*, vol. 51, no. 4, pp. 229-302, May, 1929.
1364. Geological thought and isostasy: *Pan-Am. Geologist*, vol. 51, no. 5, pp. 321-332, June, 1929.
1365. Homonymy and bentonitic correlation: *Pan-Am. Geologist*, vol. 51, no. 5, pp. 357-360, June, 1929.
1366. Relief of desert range country: *Pan-Am. Geologist*, vol. 51, no. 5, pp. 361-362, June, 1929.
1367. Iowa's great natural bridge: *Pan-Am. Geologist*, vol. 51, no. 5, pp. 363-364, 1 pl., June, 1929.
1368. Guadalupan reef theory: *Pan-Am. Geologist*, vol. 52, no. 1, pp. 41-60, 2 figs., 2 pls., August, 1929.
1369. Novel type of "basin-range" structure: *Pan-Am. Geologist*, vol. 52, no. 1, pp. 61-64, August, 1929.
1370. Meeting point of diverse physiographic provinces: *Pan-Am. Geologist*, vol. 52, no. 1, pp. 65-68, 3 figs., August, 1929.
1371. Physiographic provinces in the desert: *Pan-Am. Geologist*, vol. 52, no. 2, pp. 129-150, 1 fig., 11 pls., September, 1929.
1372. Adjudication of Permian question in America: *Pan-Am. Geologist*, vol. 52, no. 2, pp. 151-154, September, 1929.
1373. Reflection of submountain structures in desert range features: *Pan-Am. Geologist*, vol. 52, no. 3, pp. 201-210, 1 fig., October, 1929.

Keyes, Charles Rollin—Continued.

1374. What's Chupadera Mesa: *Pan-Am. Geologist*, vol. 52, no. 3, pp. 211-212, October, 1929.
1375. Delaware formation and its synonymy; Abandonment of Yeso and terranal title; Manzano in terranal title: *Pan-Am. Geologist*, vol. 52, no. 3, pp. 213-216, October, 1929.
1376. Problem of continental geological correlation: *Pan-Am. Geologist*, vol. 52, no. 4, pp. 287-316, 3 pls., November, 1929.
1377. Diversity of origin of desert ranges: *Pan-Am. Geologist*, vol. 52, no. 4, pp. 317-318, November, 1929.
1378. Taxonomy of Doublian series of Texas: *Pan-Am. Geologist*, vol. 52, no. 4, pp. 319-320, November, 1929.
1379. Span of our American Cambrian: *Pan-Am. Geologist*, vol. 52, no. 5, pp. 321-339, 2 pls., December, 1929.
1380. Uniform usage in stratigraphic terminology: *Pan-Am. Geologist*, vol. 52, no. 5, pp. 365-366, December, 1929.
1381. Oil structures in Iowa (abstract): *Iowa Acad. Sci., Proc.*, vol. 39, p. 279 [1930].
1382. Faceted piedmont spurs of desert ranges (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 111, March 30, 1929.
1383. Iowa glacial vista (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 169, March 31, 1930; *Pan-Am. Geologist*, vol. 52, no. 5, p. 372, December, 1929.
1384. Most complete Iowa glacial succession (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 170, March 31, 1930; *Pan-Am. Geologist*, vol. 52, no. 5, p. 380, December, 1929.
1385. Iowa bridging of the ice ages (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 170, March 31, 1930; *Pan-Am. Geologist*, vol. 52, no. 5, p. 373, 2 pls., December, 1929.
1386. Glacial outlook from Iowa: *Pan-Am. Geologist*, vol. 53, no. 1, pp. 41-66, 3 figs., 1 pl., February, 1930; abstract, *Iowa Acad. Sci., Proc.*, vol. 39, p. 280 [1930].
1387. Glacial hypsometry in upper Mississippi Basin: *Pan-Am. Geologist*, vol. 53, no. 1, pp. 67-70, February, 1930.
1388. What shall we do with pre-Cambrian?: *Pan-Am. Geologist*, vol. 53, no. 2, pp. 111-122, 1 fig., 2 pls., March, 1930; abstract, *Iowa Acad. Sci., Proc.*, vol. 39, pp. 277-278 [1930].
1389. First designation for crinoidal limestones at Burlington, Iowa: *Pan-Am. Geologist*, vol. 53, no. 2, pp. 125-126, March, 1930.
1390. Taxonomic status of Ordovician: *Pan-Am. Geologist*, vol. 53, no. 3, pp. 201-208, April, 1930.
1391. A finale in geological surveying: *Pan-Am. Geologist*, vol. 53, no. 3, pp. 209-212, April, 1930.
1392. Taxonomic example of Bethany limestone: *Pan-Am. Geologist*, vol. 53, no. 4, pp. 275-290, 2 pls., May, 1930.
1393. Geological mapping units and geographic terminology: *Pan-Am. Geologist*, vol. 53, no. 4, pp. 291-295, May, 1930.
1394. Physiographic elements of desert bolsons (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, p. 311, May, 1930.
1395. Geological time scale (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, pp. 314-315, May, 1930.
1396. Articulation of structural and time scales in geology: *Pan-Am. Geologist*, vol. 53, no. 5, pp. 341-358, 2 pls., June, 1930.

Keyes, Charles Rollin—Continued.

1397. Colossal Cave in Arizona: *Pan-Am. Geologist*, vol. 53, no. 5, pp. 365-366, 2 pls., June, 1930.
1398. Cope and American geology: *Pan-Am. Geologist*, vol. 54, no. 1, pp. 1-16, August, 1930.
1399. Terranal resolution of Maquoketan series in Iowa: *Pan-Am. Geologist*, vol. 54, no. 1, pp. 65-68, August, 1930.
1400. Physiography of desert bolsons: *Pan-Am. Geologist*, vol. 54, no. 2, pp. 121-130, 1 fig., September, 1930.
1401. Normal order in geological classification: *Pan-Am. Geologist*, vol. 54, no. 2, pp. 131-134, September, 1930.
1402. Possible affinities of Dodge gypsum of Iowa with so-called Permian gypsums of Texas: *Pan-Am. Geologist*, vol. 54, no. 2, pp. 135-138, September, 1930.
1403. Stratigraphical affinities of Aubreyan limestones of Grand Canyon: *Pan-Am. Geologist*, vol. 54, no. 2, pp. 140-143, September, 1930.
1404. Tonto synonymy in Arizona: *Pan-Am. Geologist*, vol. 54, no. 2, pp. 143-144, September, 1930.
1405. Nicollet at Burlington (abstract): *Pan-Am. Geologist*, vol. 54, no. 2, p. 146, September, 1930.
1406. Former great lateral expanse of Rocky Mountains (abstract): *Pan-Am. Geologist*, vol. 54, no. 2, p. 147, September, 1930.
1407. Diversity in Iowa tectonics (abstract): *Pan-Am. Geologist*, vol. 54, no. 2, pp. 147-148, September, 1930.
1408. Taxonomic analysis of Permian term: *Pan-Am. Geologist*, vol. 54, no. 3, pp. 211-228, October, 1930.
1409. Reactory climatic effects of cosmical cycles: *Pan-Am. Geologist*, vol. 54, no. 3, pp. 229-234, October, 1930.
1410. Relations of Iowa Cretacic to its Rocky Mountain geosyncline: *Pan-Am. Geologist*, vol. 54, no. 4, pp. 287-302, 1 fig., 2 pls., November, 1930.
1411. Nomenclatural finality in geology: *Pan-Am. Geologist*, vol. 54, no. 4, pp. 303-306, November, 1930.
1412. Glacial periodicity and cosmical cycles: *Pan-Am. Geologist*, vol. 54, no. 5, pp. 347-367, 3 figs., 1 pl., December, 1930.
1413. Iowan till is what?: *Pan-Am. Geologist*, vol. 54, no. 5, pp. 372-377, December, 1930.
1414. Earliest mention of Devonian rocks in Arizona: *Pan-Am. Geologist*, vol. 54, no. 5, pp. 377-380, December, 1930.

Keyes, Mary G. See Washington, 2770.

Keyte, I. A.

1415. Correlation of Pennsylvanian-Permian of Glass Mountains and Delaware Mountains: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 8, pp. 903-906, 1 fig., August, 1929.

Kidd, Gordon L.

1416. Notes on East Coulee coal area, Alberta: *Canadian Min. and Met. Bull.*, no. 203, pp. 490-494, map, March, 1929.

Kidd, Robert L.

1417. Richmond fossils in Kansas Viola: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 10, pp. 1351-1352, October, 1930.

Killingsworth, Cecil. See Davis, 647.

Kindle, C. H.

1418. An "Ozarkian" fauna from Jasper Park, Alberta: Canadian Field Naturalist, vol. 43, no. 7, pp. 145-147, 1 pl., October, 1929.

Kindle, Edward Martin.

1419. The geological story of Jasper Park, Alberta, Canada: Canada, Dept. Interior, National Parks of Canada, 48 pp., illus., Ottawa, 1929(?).
1420. A comparative study of different types of thermal stratification in lakes and their influence on the formation of marl: Jour. Geology, vol. 37, no. 2, pp. 150-157, 3 figs., February-March, 1929.
1421. Paleogeographic significance of certain Arctic and sub-Arctic Devonian sections (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 226-227, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 226-227, April, 1929.
1422. The succession of fossil faunas in the eastern part of Jasper Park: Am. Jour. Sci., 5th ser., vol. 18, pp. 177-192, 3 figs., September, 1929.
1423. Notes on dinosaur collecting in North America: Canadian Min. Jour., vol. 50, no. 47, pp. 1106-1109, 7 figs., November 22, 1929.
1424. Stratigraphic relations of the Upper Devonian beds and the Bonaventure conglomerate, at Escuminac Bay, Quebec: Canada, Geol. Survey, Summ. Rept., 1928, pt. C, pp. 83-89, 1 fig., 1 pl., 1930.
1425. The rôle of fossils in geology: Institute Bulletin, Ottawa, Canada, vol. 9, no. 1, pp. 7-12, 1 fig., January, 1930; Canadian Min. Jour., vol. 51, no. 25, pp. 588-592, 3 figs., June 20, 1930.
1426. Sedimentation in a glacial lake: Jour. Geology, vol. 38, no. 1, pp. 81-87, 3 figs., January-February, 1930.

King, Philip B.

1427. Dugout Creek overthrust of west Texas (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 192-193, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, pp. 70-71, February, 1929.
1428. (and King, Robert E.). Stratigraphy of outcropping Carboniferous and Permian rocks of trans-Pecos Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 907-926, 7 figs., August, 1929.
1429. Streams of the Glass Mountains of Texas (abstract): Pan-Am. Geologist, vol. 53, no. 4, p. 310, May 1930.
1430. (and Leonard, R. J.). Contact metamorphism of Hueco limestone in trans-Pecos Texas (abstract): Pan-Am. Geologist, vol. 53, no. 4, p. 316, May, 1930.

King, Robert E. See also King, 1428.

1431. Mississippian and Pennsylvanian stratigraphy of trans-Pecos Texas (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 190-191, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 70, February, 1929.
1432. Faunas and correlation of the Permian of trans-Pecos Texas (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 247, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 230-231, April, 1929.

Kirk, Edwin.

1433. The fossil genus *Vasocrinus* Lyon: U. S. Nat. Mus., Proc., vol. 74, art. 15, 16 pp., 2 pls., January 29, 1929.
1434. *Pagecrinus*, a new crinoid genus from the American Devonian: U. S. Nat. Mus., Proc., vol. 75, art. 22, 4 pp., 1 pl., 1929.

Kirk, Edwin—Continued.

- 1435. *Cryphiocrinus*, a new genus of free-swimming crinoids: Am. Jour. Sci., 5th ser., vol. 17, pp. 153-161, 1 pl., February, 1929.
- 1436. Ordovician, Silurian, and Devonian of Alaska (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 227-229, March 30, 1929.
- 1437. The status of the genus *Mariacrinus* Hall: Am. Jour. Sci., 5th ser., vol. 18, pp. 337-346, October, 1929.
- 1438. *Mitrospira*, a new Ordovician gastropod genus: U. S. Nat. Mus., Proc., vol. 76, art. 22, 6 pp., 3 pls., 1930.
- 1439. *Trophocrinus*, a new Carboniferous crinoid genus: Washington Acad. Sci., Jour., vol. 20, no. 11, pp. 210-212, 4 figs., June 4, 1930.
- 1440. The Harding sandstone of Colorado: Am. Jour. Sci., 5th ser., vol. 20, pp. 456-465, December, 1930.

Kirk, Stuart Raeburn.

- 1441. Conodonts associated with the Ordovician fish fauna of Colorado—a preliminary note: Am. Jour. Sci., 5th ser., vol. 18, pp. 493-496, 1 pl., December, 1929.
- 1442. Cretaceous stratigraphy of the Manitoba escarpment: Canada, Geol. Survey, Summ. Rept. 1929, pt. B, pp. 112-135, 1930.

Kirkham, Virgil Raymond Drexel.

- 1443. (and Johnson, M. Melville). The Latah formation in Idaho: Jour. Geology, vol. 37, no. 5, pp. 483-504, 1 fig., July-August, 1929.
- 1444. (and Johnson, M. Melville). Active faults near Whitebird, Idaho: Jour. Geology, vol. 37, no. 7, pp. 700-711, 7 figs., October-November, 1929.
- 1445. The Moyie-Lenia overthrust fault: Jour. Geology, vol. 38, no. 4, pp. 364-374, 1 fig., May-June, 1930.
- 1446. Old erosion surfaces in southwestern Idaho: Jour. Geology, vol. 38, no. 7, pp. 652-663, 4 figs., October-November, 1930.

Kitson, H. W.

- 1447. Graphic solution of strike and dip from two angular components: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 9, pp. 1211-1213, 1 fig., September, 1929.

Knappen, Russell S.

- 1448. Geology and mineral resources of the Aniakchak district, Alaska: U. S. Geol. Survey, Bull. 797, pp. 161-223, map, 1929.
- 1449. (and Moulton, G. F.). Geology and mineral resources of parts of Carbon, Big Horn, Yellowstone, and Stillwater Counties, Mont.: U. S. Geol. Survey, Bull. 822, pp. 1-70, 1 fig., 5 pls. (incl. map), 1930.

Knebel, Moses G. See Wendlandt, 2813.

Knight, Cyril Workman.

- 1450. Pitchblende at Great Bear Lake, Northwest Territories, Canada: Canadian Min. Jour., vol. 51, no. 41, pp. 962-965, 976, 10 figs., October 10, 1930.

Knight, J. Brookes.

- 1451. Pennsylvanian outlier at St. Louis, Mo., and its correlations (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 190, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, pp. 69-70, February, 1929.

Knight, J. Brookes—Continued.

- 1452. Some Pennsylvanian gastropods and a pelecypod showing color markings (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 212-213, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 3, p. 230, April, 1929.
- 1453. Reconsideration of zygopleuroid gastropods (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 156, March, 1930.
- 1454. The ostracode genus *Hollinella*: *Jour. Paleontology*, vol. 4, no. 4, pp. 417-418, December, 1930.
- 1455. The gastropods of the St. Louis, Mo., Pennsylvanian outlier; the Pseudozygopleurinae: *Jour. Paleontology*, vol. 4, Sup. 1, 88 pp., 4 figs., 5 pls., 1930.

Knight, Nicholas.

- 1456. The chemical composition of the Burlington limestone near Oakville, Iowa: *Iowa Acad. Sci., Proc.*, vol. 35, pp. 217-218 [1929].

Knight, Samuel Howell.

- 1457. The Fountain and the Casper formations of the Laramie Basin; a study on genesis of sediments: *Wyoming, Univ., Publications in Science, Geology*, vol. 1, no. 1, pp. 1-82, 41 figs., July 1, 1929.
- 1458. Festoon cross lamination (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 130, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 86, March 31, 1930.

Knopf, Adolph.

- 1459. The Mother Lode system of California: *U. S. Geol. Survey, Prof. Paper* 157, 88 pp., 26 figs., 12 pls. (incl. map), 1929.
- 1460. (and Anderson, C. A.). The Engels copper deposits, California: *Econ. Geology*, vol. 25, no. 1, pp. 14-35, 2 figs., January-February, 1930.

Knopf, Eleanora Bliss.

- 1461. The physiography of Baltimore County: *Maryland Geol. Survey, Baltimore County*, pp. 58-96, 9 figs., 5 pls., 1929.
- 1462. (and Jonas, Anna I.). Geology of the crystalline rocks: *Maryland Geol. Survey, Baltimore County*, pp. 97-199, 2 figs., 1 pl., 1929.
- 1463. (and Jonas, Anna I.). Geology of the McCalls Ferry-Quarryville district, Pennsylvania: *U. S. Geol. Survey, Bull.*, 799, 156 pp., 15 figs., 8 pls. (incl. map), 1929.

Knowlton, Frank Hall, 1860-1926.

- 1464. The flora of the Denver and associated formations of Colorado; a posthumous work edited by Edward Wilber Berry: *U. S. Geol. Survey, Prof. Paper* 155, 142 pp., 59 pls., 1930.

Koch, Lauge.

- 1465. The geology of east Greenland: *Meddelelser om Grønland*, Bd. 73, pt. 2, pp. 1-204, 53 figs., 6 pls. (incl. map), 1929.
- 1466. Stratigraphy of Greenland: *Meddelelser om Grønland*, Bd. 73, pt. 2, pp. 205-320, 8 figs., 1929.
- 1467. Remarks on the map of Dusen Fiord: *Meddelelser om Grønland*, Bd. 74, pp. 383-394, 1930.
- 1468. Report on the geological expedition to east Greenland, 1926-27: *Meddelelser om Grønland*, Bd. 76, pp. 225-282, 18 figs., 1930.

Koerberlin, F. R.

1469. Structural control of ore deposition (discussion): *Econ. Geology*, vol. 24, no. 6, pp. 657-663, September-October, 1929.
 1470. Supergene cassiterite in tin veins (discussion): *Econ. Geology*, vol. 25, no. 1, pp. 91-99, January-February, 1930.

Koerner, H. E.

1471. Jurassic fishes from New Mexico: *Am. Jour. Sci.*, 5th ser., vol. 19, p. 463, June, 1930.

Kornfeld, M. M.

1472. Recent Gulf coast Foraminifera of Texas and Louisiana (abstract): *Pan-Am. Geologist*, vol. 54, no. 3, pp. 239-240, October, 1930.

Kovarik, Alois F.

1473. Basis for computing the age of a radioactive mineral from the lead content: *Am. Jour. Sci.*, 5th ser., vol. 20 pp., 81-100, August, 1930.

Kranck, E. H.

1474. Some features of the pre-Cambrian of western Ontario: *Finland, Comm. géol., Bull.*, no. 85, pp. 43-45, February, 1929.

Kraus, Edward Henry.

1475. (and Hunt, Walter Fred). Tables for the determination of minerals by means of their physical properties, occurrences, and associates. 2d ed., 266 pp., New York, McGraw-Hill Book Co., 1930.
 1476. The first ten years of the Mineralogical Society of America: *Am. Mineralogist*, vol. 15, no. 3, pp. 98-103, March, 1930.
 1477. (and Seaman, W. A., and Slawson, C. B.). Seamanite, a new manganese phospho-borate from Iron County, Michigan: *Am. Mineralogist*, vol. 15, no. 6, pp. 220-225, 1 fig., June, 1930.

Krieger, Philip.

1478. Notes on an X-ray diffraction study of the series calcite-rhodochrosite: *Am. Mineralogist*, vol. 15, no. 1, pp. 23-29, 1 fig., 2 pls., January, 1930.

Krueger, H. K. E.

1479. Recent geological research in the Arctic: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 50-62, January, 1929.
 1480. Zur Geologie von Westgrönland, besonders der Umgebung der Disko-Bucht und des Umanak-Fjordes: *Meddelelser om Grønland*, Bd. 74, pp. 97-136, 10 figs., 1 pl. (map), 1930.

Kuenen, Ph. H. See Escher, 769.

Kulling, Oskar.

1481. Stratigraphic studies of the geology of northeast Greenland: *Meddelelser om Grønland*, Bd. 74, p. 317-346, 1930.

Lahee, Frederic Henry.

1482. Oil and gas fields of the Mexia and Tehuacana fault zones, Texas: *Structure of typical American oil fields*, vol. 1, pp. 304-388, 32 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Laird, H. C.

1483. Preliminary report on the townships of German, Stock, Macklem, Bond, and Currie in the Porcupine district [Ontario]: *Canadian Min. Jour.*, vol. 51, no. 50, pp. 1201-1202, December 12, 1930.

Lamar, John Everts.

1484. The limestone resources of the Pontiac-Fairbury region: Illinois, State Geol. Survey, Rept. of Investigations no. 17, 27 pp., 7 figs., 1929.
1485. A simple accessory stage for the microscope: Jour. Paleontology, vol. 3, no. 2, pp. 185-188, 2 figs., June, 1929.
1486. Relation of texture to the development of porosity by weathering (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 167, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 5, pp. 371-372, December, 1929.
1487. (and Sutton, A. H.). Cretaceous and Tertiary of Kentucky, Illinois, and Missouri: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 7, pp. 845-866, 4 figs., July, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, pp. 214-215, April, 1930.

Landes, Kenneth K.

1488. The strontium occurrence near La Conner, Wash.: Am. Mineralogist, vol. 14, no. 11, pp. 408-413, November, 1929.
1489. (and Ockerman, J. W.). The geology of Mitchell and Osborne Counties, Kans.: Kansas, State Geol. Survey, Bull. 16, 55 pp., 1 fig., 15 pls. (incl. maps) [1930].
1490. Rapid specific-gravity determinations with Clerici's solution: Am. Mineralogist, vol. 15, no. 4, pp. 159-162, 1 fig., April, 1930.
1491. A mineral specific-gravity chart: Am. Mineralogist, vol. 15, no. 11, pp. 534-535, chart, November, 1930.

Landon, Robert E.

1492. An analysis of beach-pebble abrasion and transportation: Jour. Geology, vol. 38, no. 5, pp. 437-446, 5 figs., July-August, 1930.

Lane, Alfred Church.

1493. A classification of limestone reservoirs (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 2, p. 179, February, 1929.
1494. Solvent denudation overestimated—geological age underestimated (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 83, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 141, March, 1929.
1495. Duration of pegmatite crystallization (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 94, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 139, March, 1929.
1496. The earth's age by sodium accumulation: Am. Jour. Sci., 5th ser., vol. 17, pp. 342-346, 1 fig., April, 1929.
1497. Horace Bushnell Patton: Science, new ser., vol. 70, pp. 471-472, November 15, 1929.
1498. Temperature gradient in Pechelbronn, Alsace: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 12, p. 1569, December, 1929.
1499. (and Newcombe, R. B., and Thomas, W. A.). Geological significance of water analyses (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 54-55, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 1, p. 78, February, 1930.
1500. (and Cheney, William Fitch, jr.). Sea-level change near New York: Science, new ser., vol. 71, p. 319, March 21, 1930.
1501. William Otis Crosby (1850-1925): Am. Acad. Arts and Sci., Proc., vol. 64, no. 12, pp. 518-526, October, 1930.
1502. Are batholiths up-bulges of sial?: Science, new ser., vol. 72, p. 341, October 3, 1930.
1503. Geotherms: Washington Acad. Sci., Jour., vol. 20, no. 18, pp. 450-454, 2 figs., November 4, 1930.

Lang, A. H.

- 1504. Owen Lake mining camp, British Columbia: Canada Geol. Survey, Summ. Rept. 1929, pt. A, pp. 62-91, 2 figs. (incl. map), 1 pl., 1930.
- 1505. Mineral deposits at Buck Flats, British Columbia: Canada, Geol. Survey, Summ. Rept. 1929, pt. A, pp. 92-93, 1930.

Lang, Walter B. See also Mansfield, 1697.

- 1506. Subnormal temperature gradients in the Permian basin of Texas and New Mexico (abstract): Washington Acad. Sci., Jour., vol. 19, no. 11, pp. 232-233, June 4, 1929.
- 1507. Note on temperature gradients in the Permian basin: Washington Acad. Sci., Jour., vol. 20, no. 7, pp. 121-123, April 4, 1930.

Langford, George B.

- 1508. Geology of the Beardmore-Nezah gold area, Thunder Bay district: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 4, pp. 83-108, illus., map, 1929.
- 1509. Beardmore-Nezah gold area, Ontario: Econ. Geology, vol. 25, no. 3, pp. 251-269, 8 figs., May, 1930.

Langworthy, A. A.

- 1510. Cromwell field, Seminole and Okfuskee Counties, Okla.: Structure of typical American oil fields, vol. 2, pp. 300-314, 7 figs., Am. Assoc. Petroleum Geologists, 1929.

Larralde, Amadeo.

- 1511. Aguas asociados con los yacimientos petrolíferos: Bol. petróleo, vol. 28, no. 2, pp. 171-177, 2 pls., August, 1929.

Larsen, Esper Signius. See also Pardee, 1987.

- 1512. Recent mining developments in the Creede district, Colo.: U. S. Geol. Survey, Bull. 811, pp. 89-112, 9 figs., 1 pl. (map), 1929.
- 1513. (and Pardee, J. T.). The stock of alkaline rocks near Libby, Mont.: Jour. Geology, vol. 37, no. 2, pp. 97-112, 1 fig., February-March, 1929.
- 1514. The temperature of magmas: Am. Mineralogist, vol. 14, no. 3, pp. 81-94, March, 1929.
- 1515. The volcanic history of the San Juan Mountains, Colo.: Am. Geophysical Union, Tenth and Eleventh annual meetings, Trans., pp. 105-107, National Research Council, June, 1930.
- 1516. (and Shannon, Earl V.). Two phosphates from Dehrn [Utah]; dehrnite and crandallite: Am. Mineralogist, vol. 15, no. 8, pp. 303-306, August, 1930.
- 1517. (and Shannon, Earl V.). The minerals of the phosphate nodules from near Fairfield, Utah: Am. Mineralogist, vol. 15, no. 8, pp. 307-337, 3 figs., 1 pl., August, 1930.

Lasky, Samuel G.

- 1518. Transverse faults at Kennecott and their relation to the main fault systems: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 152, 17 pp., November, 1928; Trans., 1929, Year Book, pp. 303-317, 1929.
- 1519. Transverse fractures as coordinate structures: Am. Jour. Sci., 5th ser., vol. 19, pp. 451-462, 12 figs., June, 1930.
- 1520. A colloidal origin of some of the Kennecott ore minerals: Econ. Geology, vol. 25, no. 7, pp. 737-757, 7 figs., November, 1930.
- 1521. Geology and ore deposits of the Ground Hog mine, Central district, Grant County, N. Mex.: New Mexico, State Bur. Mines, Circ. No. 2, 14 pp. (mimeographed), 1 pl., December 1, 1930.

Laudermilk, J. D.

1522. (and Woodford, A. O.). Soda-rich anthophyllite asbestos from Trinity County, Calif.: *Am. Mineralogist*, vol. 15, no. 7, pp. 259-262, July, 1930.

Lauer, A. W.

1523. Some data on subsurface contouring: *Oklahoma Acad. Sci., Proc.*, vol. 8 (Oklahoma, Univ., Bull., new ser., no. 410), pp. 108-114, 13 figs. [1929].

Lausen, Carl. See also Lindgren, 1569.

1524. A geological reconnaissance of the east end of Great Slave Lake: *Canadian Min. and Met. Bull.*, no. 202, pp. 361-392, 14 figs., February, 1929; *Canadian Inst. Min. and Met., Trans.*, vol. 32, pp. 88-121, 14 figs. [1930].
1525. The pre-Cambrian greenstone complex of the Jerome quadrangle: *Jour. Geology*, vol. 38, no. 2, pp. 174-183, 2 figs., February-March, 1930.
1526. Graphic intergrowth of niccolite and chalcopyrite, Worthington mine, Sudbury [Ontario]: *Econ. Geology*, vol. 25, no. 4, pp. 356-364, 2 figs., June-July, 1930.

Lawson, Andrew Cowper.

1527. Some Huronian problems: *Geol. Soc. America, Bull.*, vol. 40, no. 2, pp. 361-383, June 30, 1929; abstract, no. 1, pp. 80-81, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 76, February, 1929.
1528. The classification and correlation of the pre-Cambrian rocks: *California, Univ., Dept. Geol. Sci., Bull.*, vol. 19, no. 11, pp. 275-293, May 22, 1930.

Leavitt, David H. See Cushman, 606.

Lee, Bourke.

1529. Death Valley [geology, pp. 185-206]. 210 pp., illus., New York, Macmillan Co., 1930.

Lee, Frederick W.

1530. Geophysical abstracts, Nos. 1-20: *U. S. Bur. Mines, Information Circular* 6120, 6133, 6154, 6164, 6175, 6203, 6209, 6224, 6233, 6253, 6273, 6287, 6309, 6324, 6341, 6355, 6366, 6393, 6403, 6422 (mimeographed). May, 1929-December, 1930.
1531. (and Swartz, J. H.). Resistivity measurements of oil-bearing beds: *U. S. Bur. Mines, Tech. Paper* 488, 12 pp., 11 figs., 1930.

Lees, James Henry.

1532. Well-water recessions in Iowa: *Iowa Geol. Survey*, vol. 33, pp. 375-400, 4 figs. (incl. maps), 1928 [1930?].
1533. Geology of Iowa coals: *Iowa Geol. Survey, Studies of Iowa coals*, Tech. Paper no. 2, pp. 54-63, 2 figs., 1930.
1534. Clarinda oil prospect (abstract): *Pan-Am. Geologist*, vol. 54, no. 2, p. 150, September, 1930.

Leet, L. Don. See also Ewing, 779.

1535. Some characteristics of Rayleigh-wave records on seismograms of distant earthquakes (abstract): *Seismol. Soc. America, Eastern section, Proc. 1930 Meeting*, Washington, p. 60 [1930].

Leighton, Henry.

1536. (and Sherrill, Richard Ellis). A series of eight radio talks entitled Through mountain, lake, and gorge with the geologist: Pittsburgh, Univ., Radio Pub. no. 51, 71 pp., 1929.
1537. The fire clays of Pennsylvania: Am. Ceramic Soc., Jour., vol. 13, no. 2, Bull., vol. 9, no. 2, pp. 22-26, February, 1930.

Leighton, Morris Morgan. See also Bell, 173.

1538. (and MacClintock, Paul). Modern and interglacial weathered zones; their structure, conditions of development, and usefulness in correlation and in interpreting interglacial history (abstract): Geol. Soc. America, Bull., vol. 40, no. 1; pp. 124-125, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 151, March, 1929.
1539. (and MacClintock, Paul). Weathered zones of drift sheets of Illinois: Jour. Geology, vol. 38, no. 1, pp. 28-53, 8 figs., 1 pl., January-February, 1930; reprinted as Illinois State Geol. Survey, Rept. Investigations, no. 20, 1930.
1540. Studies of glacial sediments in 1928: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 82-103, 1930.
1541. (and MacClintock, Paul, and Wanless, Harold R.). Further work on the profiles of weathering of the glacial drift sheets of Illinois and their application to the study of the underclays of coal (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 84-85, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 129, March, 1930.
1542. What the Paleozoic submergences did for Illinois and the Middle West: Pit and Quarry, vol. 20, no. 13, pp. 44-50, 12 figs., September 24, 1930; Western Soc. Eng., Jour., vol. 35, no. 5, pp. 371-383, 13 figs., October, 1930.

Leiter, M. Mercedes.

1543. Ueber die Denudation im Flussgebiete des Colorado: Geographische Abhandlungen (Penck), 2d ser., H. 4, pp. 75-81, 1 fig., Stuttgart, 1928.

Leith, Charles Kenneth.

1544. Chamberlin's work in Wisconsin: Jour. Geology, vol. 37, no. 4, pp. 289-292, portr., May-June, 1929.

Leonard, Raymond J. See also King, 1430.

1545. Green sphalerite from Sonora, Mexico: Am. Mineralogist, vol. 14, no. 4, p. 161, April, 1929.
1546. An earth fissure in southern Arizona: Jour. Geology, vol. 37, no. 8, pp. 765-774, 3 figs., November-December, 1929.
1547. Polygonal cracking in granite: Am. Jour. Sci., 5th ser., vol. 18, pp. 487-492, 4 figs., December, 1929.
1548. Alteration of schist and porphyry by fire (abstract): Pan-Am. Geologist, vol. 53, no. 4, p. 316, May, 1930.

Leonardon, E. G. See also Crosby, 600.

1549. (and Kelly, Sherwin F.). Some applications of potential methods to structural studies: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 180-198, 13 figs., 1929.

LeVan, L. A.

1550. Panther Valley geology [Pennsylvania]: Min. Congress Jour., vol. 15, no. 7, pp. 581-583, 6 figs., July, 1930.

LeVene, Clara M. See Schuchert, 2317.

Leverett, Frank. See also Miller, 1801.

1551. Pleistocene of northern Kentucky: Kentucky Geol. Survey, ser. 6, vol. 31, pp. 1-80, 16 figs. and pls., 1929.

1552. Moraines and shore lines of the Lake Superior region: U. S. Geol. Survey, Prof. Paper 154, pp. 1-72, 10 figs., 8 pls. (incl. map), February 9, 1929.

1553. Stratigraphic position of Loveland loess: Pan-Am. Geologist, vol. 51, no. 3, pp. 179-182, April, 1929.

1554. Pleistocene glaciations of the Northern Hemisphere: Science, new ser., vol. 69, pp. 231-239, March 1, 1929; Geol. Soc. America, Bull., vol. 40, no. 4, pp. 745-760, December 31, 1929; abstract, no. 1, pp. 202-204, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 156-157, March, 1929.

1555. Problems of the glacialist: Science, new ser., vol. 71, pp. 47-57, January 17, 1930; Pan-Am. Geologist, vol. 53, no. 1, pp. 1-22, February, 1930.

1556. Probable Illinoian till beneath Wisconsin gravel in the Delaware valley: Am. Jour. Sci., 5th ser., vol. 19, p. 71, January, 1930.

1557. Problems of the upper Ohio drainage (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 167, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 5, p. 371, December, 1929.

1558. Relative value of physiographic and paleontologic criteria in Pleistocene correlations (abstract): Science, new ser., vol. 71, p. 544, May 23, 1930.

1559. Relative length of Pleistocene glacial and interglacial stages: Science, new ser., vol. 72, pp. 193-195, August 22, 1930.

Levorsen, A. Irving.

1560. Greater Seminole district, Seminole and Pottawatomie Counties, Okla.: Structure of typical American oil fields, vol. 2, pp. 315-361, 22 figs., Am. Assoc. Petroleum Geologists, 1929.

1561. Pennsylvanian overlap in the United States (abstract): Pan-Am. Geologist, vol. 53, no. 3, pp. 226-227, April, 1930.

Lewis, James O.

1562. Delaware Extension pool, Nowata County, Okla.: Structure of typical American oil fields, vol. 2, pp. 362-364, 1 fig., Am. Assoc. Petroleum Geologists, 1929.

Ley, Henry A.

1563. Structure contouring (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 1, pp. 103-105, January, 1930.

Liddle, Ralph Alexander.

1564. Van field, Van Zandt County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 12, pp. 1557-1558, December, 1929.

1565. Magnetometer survey of Little Fry Pan area, Uvalde and Kinney Counties, Tex. (with discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 4, pp. 509-516, 1 fig., April, 1930.

Light, S. F.

1566. Fossil termite pellets from the Seminole Pleistocene [of Florida]: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 3, pp. 75-80, 2 pls., March 19, 1930.

Lindgren, Waldemar.

- 1567. Some remarks on reviews and criticisms (editorial): *Econ. Geology*, vol. 24, no. 6, pp. 650-653, September-October, 1929.
- 1568. Pseudo-eutectic textures: *Econ. Geology*, vol. 25, no. 1, pp. 1-13, 12 figs., January-February, 1930.
- 1569. (and Lausen, Carl). The pre-Cambrian greenstone complex of the Jerome quadrangle, by Carl Lausen; a discussion: *Jour. Geology*, vol. 38, no. 5, pp. 460-465, July-August, 1930.
- 1570. Discussion of the review of Annotated Bibliography of Economic Geology: *Jour. Geology*, vol. 38, no. 6, pp. 566-567, August-September, 1930.

Link, Theodore A.

- 1571. En échelon tension fissures and faults (with discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 6, pp. 627-643, 4 figs., June, 1929.
- 1572. Some applications of the strain ellipsoid: *Am. Assoc. Petroleum Geologist, Bull.* vol. 13, no. 11, pp. 1449-1466, 11 figs., November, 1929; discussion, vol. 14, no. 2, pp. 233-234, 239-244, 2 figs., February, 1930.
- 1573. Experiments relating to salt-dome structures (with discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 4, pp. 483-508, 25 figs., April, 1930; abstract, *Pan-Am. Geologist*, vol. 53, no. 3, p. 221, April, 1930.
- 1574. Alberta syncline, Canada (abstract): *Pan-Am. Geologist*, vol. 53, no. 3, p. 219, April, 1930.

Lipman, C. B.

- 1575. Living micro-organisms in ancient rocks (abstract): *Science, new ser.*, vol. 72, p. 376, October 10, 1930.

Lloyd, A. M.

- 1576. (and Thompson, W. C.). Correlation of Permian outcrops on eastern side of the west Texas basin (with discussion by C. N. Gould, R. W. Sawyer, C. M. Becker, and G. H. Norton): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 8, pp. 945-956, 1 fig., 1 pl. (map), August, 1929.

Lloyd, E. Russell.

- 1577. Capitan limestone and associated formations of New Mexico and Texas: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 6, pp. 645-658, 1 fig., June, 1929.
- 1578. Origin of porosity in reef limestone or dolomite: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 9, p. 1219, September, 1929.

Lobeck, Armin Kohl.

- 1579. The geology and physiography of the Mammoth Cave National Park: *Kentucky Geol. Survey, ser. 6*, vol. 31, pp. 327-399, 38 figs., 1929.
- 1580. The Midland Trail in Kentucky; a physiographic and geologic guide book to U. S. Highway No. 60: *Kentucky Geol. Survey, ser. 6*, vol. 33, pp. 165-252, 77 figs., 1930.

Locke, Augustus. See also Joralemon, 1309.

- 1581. Experiments in ore geology: *Econ. Geology*, vol. 24, no. 3, pp. 327-329, May, 1929.
- 1582. Outlook for ore reserves: *Pan-Am. Geologist*, vol. 53, no. 4, pp. 267-274, 1 pl., May, 1930.

Locke, Augustus—Continued.

1583. (and Billingsley, Paul). Trend of ore hunting in the United States: Eng. and Min. Jour., vol. 130, no. 11, pp. 565-566, no. 12, pp. 609-612, 8 figs., December 8 and 23, 1930.

Lockett, J. R.

1584. General structure of the producing sands in eastern Ohio: Structure of typical American oil fields, vol. 1, pp. 138-147, 1 fig., Am. Assoc. Petroleum Geologists, 1929.

Logan, William N.

1585. Some features of the upper surface of the Trenton limestone in Indiana: Indiana Acad. Sci., Proc., vol. 38, pp. 225-230, 2 figs., 1929.
1586. Report of the Division of geology: Indiana, Dept. Conservation, Tenth Ann. Rept., pp. 14-23, 1929.
1587. Geological conditions in the Siosi field [Vigo County, Ind.]: Indiana, Dept. Conservation, Tenth Ann. Rept., pp. 30-38, 1 fig., 1929.
1588. The ceramic materials of Indiana: Indiana, Dept. Conservation, Pub. no. 91, 11 pp., 2 figs., (maps), 1929.
1589. The foundry sands of Indiana: Indiana, Dept. Conservation, Pub. no. 92, 12 pp., 1930.

Longfellow, Dwight W.

1590. Continental drifting in northwestern Europe: Pan-Am. Geologist, vol. 51, no. 2, pp. 117-128, March, 1929.
1591. Suggested cause of Pleistocene glaciation and its termination (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 172, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 5; pp. 374-375, December, 1929.
1592. The magnetic poles of the earth and the birth of the moon: Science, new ser., vol. 72, pp. 424-425, October 24, 1930.

Longnecker, Oscar M., jr. See Reed, 2108.

Longwell, Chester Ray. See also Agar, 15; Pirsson, 2027.

1593. William North Rice, 1845-1928: Am. Jour. Sci., 5th ser., vol. 17, p. 100, January, 1929.
1594. Obituary; Thomas Chrowder Chamberlin: Geog. Rev., vol. 19, no. 1, pp. 164-165, January, 1929.
1595. Character and history of the "continental nuclei" (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 104, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 145, March, 1929.
1596. Outlines of physical geology; prepared from the third edition of Part I of A textbook of geology by the late Louis V. Pirsson, Charles Schuchert. 376 pp., 275 figs., New York, John Wiley & Sons, 1930.
1597. Some problems of mountain structure and mountain history: Am. Jour. Sci., 5th ser., vol. 19, pp. 419-434, 5 figs., June, 1930; abstract, Washington Acad. Sci., Jour., vol. 20, no. 18, pp. 441-446, November 4, 1930.
1598. Faulted fans west of the Sheep Range, southern Nevada: Am. Jour. Sci., 5th ser., vol. 20, pp. 1-13, 10 figs., July, 1930.
1599. The "oscillation theory" of diastrophism: Am. Jour. Sci., 5th ser., vol. 20, pp. 217-220, 2 figs., September, 1930.

Lonsdale, John Tipton. See also Tarr, 2592.

1600. Diphrite and associated contact minerals from the Franklin Mountains of Texas: Am. Mineralogist, vol. 14, no. 1, pp. 26-32, January, 1929.

Lonsdale, John Tipton—Continued.

1601. An underground placer cinnabar deposit [Brewster County, Tex.]: Econ. Geology, vol. 24, no. 6, pp. 626-631, 1 fig., September-October, 1929.

1602. Euhedral magnesite crystals from Winkler County, Tex.: Am. Mineralogist, vol. 15, no. 6, pp. 238-239, June, 1930.

Loomis, Frederick Brewster. See Bump, 371.

Louderback, George Davis. See also Berkey, 189.

1603. An outline of earth movements in the central coast region of California in late Pliocene and post-Pliocene time: Fourth Pacific Sci. Cong., Java, 1929, Proc., vol. 2B, pp. 841-848, 4 figs., 1930.

1604. Geological conditions at Lafayette Dam (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 72, August, 1930.

Loudon, Lowell R.

1605. Stratigraphy of the Kinderhook group of Iowa (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 174-175, March 31, 1930.

Loughlin, Gerald Francis.

1606. Indiana oolitic limestone; relation of its natural features to its commercial grading: U. S. Geol. Survey, Bull. 811, pp. 113-202, 10 figs., 19 pls., 1929.

1607. Indiana oolitic limestone: Mining and Metallurgy, vol. 10, no. 266, pp. 65-66, 4 figs., February, 1929.

Love, W. W. See Howard, 1187; Murray, 1878.

Lovering, Thomas S.

1608. The New World or Cooke City mining district, Park County, Mont.: U. S. Geol. Survey, Bull. 811, pp. 1-87, 7 figs., 25 pls., 1929.

1609. The Rawlins, Shirley, and Seminole iron-ore deposits, Carbon County, Wyo.: U. S. Geol. Survey, Bull. 811, pp. 203-235, 1 fig., 5 pls. (incl. map), 1929.

1610. Geologic history of the Front Range, Colorado: Colorado Sci. Soc., Proc., vol. 12, no. 4, pp. 59-111, 7 figs., 1929.

1611. Pleistocene history of Colorado Front Range (abstract): Pan-Am. Geologist, vol. 52, no. 1, p. 65, August, 1929.

1612. The Granby anticline, Grand County, Colo.: U. S. Geol. Survey, Bull. 822, pp. 71-76, 1 pl. (map), 1930.

1613. Localization of ore in the schists and gneisses of the mineral belt of the Front Range, Colorado (with discussion by George E. Collins): Colorado Sci. Soc., Proc., vol. 12, no. 7, pp. 234-268, 3 figs. (incl. map), 1930.

Low, Bela.

1614. The mineral deposits of Porto Rico: Eng. and Min. Jour., vol. 128, no. 1, pp. 5-7, 4 figs., July 6, 1929.

1615. A nickel-copper deposit in New Brunswick, Canada: Eng. and Min. Jour., vol. 130, no. 3, pp. 115-118, 6 figs., August 9, 1930.

Lowman, Shepard W.

1616. Silurian at Big Lake: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 5, pp. 618-619, May, 1930.

1617. Pre-Pennsylvanian stratigraphy of Big Lake oil field, Reagan County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 6, pp. 798-806, 3 figs., June, 1930.

Lowman, Shepard W.—Continued.

1618. Chazy-Sylvan unconformity at Big Lake, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 9, p. 1227, September, 1930.

Lucas, Frederic Augustus, 1852-1929.

1619. Meteorites, meteors, and shooting stars: Am. Mus. Nat. Hist., Guide Leaflet Series no. 64, 24 pp., illus., 1926.
1620. The hall of dinosaurs: Am. Mus. Nat. Hist., Guide Leaflet Series no. 70 (2d ed.), 20 pp., illus. [n. d. 1927?].

Lugn, Alvin Leonard.

1621. Ground-water hydrology and Pleistocene geology of the Platte River Valley and adjacent areas in Nebraska (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 171-172, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 5, pp. 373-374, December, 1929.

Lull, Richard Swann.

1622. A remarkable ground sloth [*Nothrotherium shastense*, from Aden, Dona Ana County, N. Mex.]: Yale Univ., Peabody Mus., Mem., vol. 3, pt. 2, 21 pp., 5 figs., 9 pls., 1929; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, pp. 246-247, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, p. 238, April, 1929.
1623. Skeleton of *Camarasaurus lentus* recently mounted at Yale: Am. Jour. Sci., 5th ser., vol. 19, pp. 1-5, 2 figs., January, 1930.
1624. The ground sloth, *Nothrotherium*: Am. Jour. Sci., 5th ser., vol. 20, pp. 344-352, 6 figs., November, 1930.

Lund, Richard J.

1625. Differentiation in the Cape Spencer flow [Nova Scotia]: Am. Mineralogist, vol. 15, no. 12, pp. 539-565, 7 figs., December, 1930.

Lundberg, Hans.

1626. Recent results in electrical prospecting for ore: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 87-124, 18 figs., 1929.
1627. The present status of geophysical methods of prospecting: Canadian Inst. Min. and Met., Trans., vol. 31, pp. 209-221, 7 figs., 2 pls. [1929].
1628. Om Newfoundlanders geologi och malmletningem därstädes (geology and prospecting in Newfoundland): Geol. Fören. Stockholm, Förh., Bd. 51, H. 1, pp. 91-99, 2 figs. (incl. map), January-February, 1929.
1629. Simple magnetic method for ore prospecting: Canadian Min. and Met. Bull., no. 207, pp. 843-851, 7 figs., July, 1929.
1630. Electrical prospecting for ore and oil: Mining and Metallurgy, vol. 11, no. 280, pp. 210-212, April, 1930.

Lupher, Anna Woodward.

1631. (and Lupher, Ralph L., and Packard, Earl L.). An apparatus for the reproduction of suture lines of ammonites: Jour. Paleontology, vol. 4, no. 1, pp. 22-23, 1 fig., March, 1930.

Lupher, Ralph L. See also Lupher, 1631; Packard, 1967.

1632. (and Packard, Earl L.). The Jurassic and Cretaceous rudistids of Oregon: Oregon, Univ., Pub., Geology ser., vol. 1, no. 3, pp. 203-212, 1 fig., 6 pls., February, 1930.

Lupher, Ralph L.—Continued.

1633. Age of the marine Jurassic of central Oregon (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 148, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 367, June, 1929.
1634. Geological section of Ochoco Range and Silvies Plateau (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 158, September, 1930.

Lupton, Charles T.

1635. [Geology and oil possibilities of the Frannie field, Park County, Wyo.]: Inland Oil Index, vol. 19, no. 13, pp. 1, 4, 10, 2 figs., March 29, 1929.

Lusk, Ralph Gordon, 1897–1927.

1636. Significance of structure in accumulation of oil in Tennessee: Structure of typical American oil fields, vol. 1, pp. 243–255, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Lutz, H. J.

1637. A new species of *Cupressinoxylon* (Goeppert) Gothan from the Jurassic of South Dakota: Bot. Gazette, vol. 90, no. 1, pp. 92–107, 13 figs., September, 1930.

Lynn, W. Gardner.

1638. A nearly complete carapace of a fossil turtle, *Amyda virginiana* (Clark): U. S. Nat. Mus., Proc., vol. 76, art. 26, 4 pp., 2 pls., 1929.

McAdie, Alexander.

1639. A serviceable scale for earthquake intensity: Seismol. Soc. America, Eastern section, Proc. 1930 Meeting, Washington, pp. 54–56 [1930].

McAtee, W. L.

1640. Seeds from peat bogs in southeastern Canada: Canada, Geol. Survey, Mem. 162, pp. 18–32, 1930.

McCall, T. L.

1641. Boring to upper seam, No. 2 mine, Springhill [Nova Scotia]: Canadian Min. and Met. Bull., no. 208, pp. 980–988, 2 figs., August, 1929.

MacCarthy, Gerald R.

1642. Modification of the theory of magmatic cycles (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 196, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 73, February, 1929.

McClellan, Hugh W.

1643. Subsurface distribution of pre-Mississippian rocks of Kansas and Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 12, pp. 1535–1556, 3 figs., December, 1930; Oil and Gas Jour., vol. 29, no. 3, pp. 32–33, 107–109, 3 figs., October 23, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, p. 227, April, 1930.

MacClintock, Paul. See also Leighton, 1538, 1539, 1541.

1644. Physiographic divisions of the area covered by the Illinoian drift sheet in southern Illinois: Illinois State Geol. Survey, Rept. Investigations, no. 19, pp. 6–25, 16 figs., 1929.
1645. Recent discoveries of pre-Illinoian drift in southern Illinois: Illinois State Geol. Survey, Rept. Investigations, no. 19, pp. 26–57, 11 figs., 1929.
1646. Our inheritance from the Ice Age: Western Soc. Eng., Jour., vol. 35, no. 6, pp. 439–447, 7 figs., December, 1930.

McCollough, E. H.

1647. Kettleman Hills oil field, California: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 11, pp. 1479-1483, 1 fig., November, 1929.

McCollum, Leonard F.

1648. (and Cunningham, C. J., and Burford, S. O.). Salt Flat oil field, Caldwell County, Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 11, pp. 1401-1423, 7 figs., 1 pl., November, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, p. 215, April, 1930.

McComb, H. E.

1649. A tilt-compensation seismometer: Seismol. Soc. America, Eastern section, Proc. 1930 Meeting, Washington, pp. 60-63, 4 figs. [1930].

MacCoy, Frederick.

1650. The tin deposits of Mexico: Mining and Metallurgy, vol. 10, no. 269, pp. 246-247, May, 1929.

McCutchin, John A.

1651. Preliminary discussion of geothermal gradients in Oklahoma oil fields: Oklahoma Acad. Sci., Proc., vol. 9 (Okla., Univ., Bull., new ser., no. 456), pp. 117-118, November 15, 1929.
1652. Determination of geothermal gradients in Oklahoma (with discussion by W. T. Thom, jr.): Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 5, pp. 535-557, May, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, p. 223, April, 1930.
1653. Determination of geothermal gradients in oil fields located on anticlinal structures in Oklahoma: Am. Petroleum Inst., Production Bull. no. 205, pp. 19-61, 14 figs., October, 1930.

Macelwane, James B.

1654. Some seismographic problems and our present knowledge: Seismol. Soc. America, Bull., vol. 19, no. 3, pp. 135-142, September, 1929.
1655. The Mississippi Valley earthquake problem: Seismol. Soc. America, Bull., vol. 20, no. 2, pp. 95-98, June, 1930.

McFarlan, Arthur Crane.

1656. (and Pirtle, G.). Map of the areal and structural geology of Jessamine County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
1657. (and Goodwin, S.). Map of the areal and structural geology of Montgomery County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.

McFarland, P. W.

1658. Laredo district, Tex.: Structure of typical American oil fields, vol. 1, pp. 389-408, 7 figs., Am. Assoc. Petroleum Geologists, 1929.

McFarlane, George C.

1659. Igneous metamorphism of coal beds: Econ. Geology, vol. 24, no. 1, pp. 1-14, 7 figs., January, 1929.

McGuire, I.

1660. General bibliographies for paleontology: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 188-195, March 31, 1930.

McIntosh, D. S.

1661. The Acadian-Newfoundland earthquake: Nova Scotian Inst. Sci., Trans., vol. 17, pt. 4, pp. 213-222, 2 figs., December 8, 1930.

MacKay, A. A. See Alderson, 23.

MacKay, Bertram Reid.

1662. Brûlé Mines coal area, Alberta: Canada, Geol. Survey, Summ. Rept. 1928, pt. B, pp. 1-29, 2 figs., 4 pls., map, 1929.

1663. Stratigraphy and structure of bituminous coal fields in vicinity of Jasper Park, Alberta: Canadian Min. and Met. Bull., no. 222, pp. 1306-1342, 8 figs., 5 pls. (incl. map), October, 1930.

McKibbin, R. R.

1664. The occurrence of podsoils in Quebec Province: Science, new ser., vol. 69, pp. 501-502, May 10, 1929.

McKinstry, Hugh E.

1665. On naming minerals: Am. Mineralogist, vol. 14, no. 5, pp. 197-199, May, 1929.

McLaughlin, Donald H.

1666. Geophysical prospecting in 1929: Mining and Metallurgy, vol. 11, no. 277, pp. 26-28, January, 1930.

1667. (and others). Summaries of results from geophysical surveys at various properties (with discussion): Am. Inst. Min. and Met. Eng., Tech. Pub. no. 369, 23 pp., 2 figs., October, 1930.

McLaughlin, H. C. See Kendrick, 1339.

McLaughlin, R. P.

1668. Accuracy of bore-hole surveying by orientation from the surface: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 5, pp. 579-594, 6 figs., May, 1930.

MacLean, A. See Bell, 177.

McLearn, Frank Harris.

1669. Contributions to the stratigraphy and paleontology of Skidegate Inlet, Queen Charlotte Islands, British Columbia: Canada, Nat. Mus., Bull. no. 54, pp. 1-27, 16 pls., 1929.

1670. Cretaceous invertebrates [Alberta]: Canada, Nat. Mus., Bull. no. 58, pp. 73-79, 7 pls., 1929.

1671. Stratigraphic paleontology [Blairmore district, Alberta]: Canada, Nat. Mus., Bull. no. 58, pp. 80-107, 1929.

1672. Southern Saskatchewan: Canada, Geol. Survey, Summ. Rept. 1928, pt. B, pp. 30-44, 1929.

1673. Stratigraphy, clay and coal deposits of southern Saskatchewan: Canada, Geol. Survey, Summ. Rept. 1929, pt. B, pp. 48-63, 1930.

1674. Notes on some Canadian Mesozoic faunas: Roy. Soc. Canada, Trans., ser. 3, vol. 24, sec. 4, pp. 1-8, 2 pls., May, 1930.

MacMillan, William D.

1675. The field of cosmogony [development of Chamberlin's planetesimal hypothesis]: Jour. Geology, vol. 37, no. 4, pp. 341-356, May-June, 1929.

Mac Murphy, F.

1676. Dumortierite in Riverside County, Calif.: Am. Mineralogist, vol. 15, no. 2, pp. 79-80, February, 1930.

1677. Geology of the Panamint silver district, California: Econ. Geology, vol. 25, no. 4, pp. 305-325, 8 figs., 1 pl. (map), June-July, 1930; abstract, Geol. Soc. America, Bull., vol. 41, no. 1, p. 152, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, pp. 370-371, June, 1929.

McNaughton, C. H.

1678. Mining copper at Ducktown, Tennessee: *Eng. and Min. Jour.*, vol. 128, no. 1, pp. 8-13, no. 2, pp. 52-54, 9 figs., July 6 and 13, 1929.

McQueen, Henry Silliman.

1679. Mineral production of Missouri: Missouri Bur. Geology and Mines, Biennial Rept. State Geologist [1927-28], pp. 23-92 [1929].
1680. Clay and coal resources of the Perry area [Missouri]: Missouri Bur. Geology and Mines, Biennial Rept. State Geologist [1927-28], pp. 102-112, 2 pls. (incl. map) [1929].
1681. Geologic relations of the diaspore and flint fire clays of Missouri: *Am. Ceramic Soc., Jour.*, vol. 12, no. 10, pp. 687-697, October, 1929.
1682. Insoluble residues as a guide in stratigraphic studies: Missouri, Bur. Geol. and Mines, Reprint of Appendix I, 56th Bienn. Rept., 1931, 32 pp., 12 pls. [1930].

Macready, George A.

1683. Orientation of cores: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 5, pp. 556-557, May, 1930; abstract, *Pan-Am. Geologist*, vol. 53, no. 3, pp. 222-223, April, 1930.

Maddox, D. C.

1684. Deep borings in British Columbia and Yukon: Canada, Geol. Survey, Summ. Rept. 1928, pt. A, pp. 194-195, 1929.
1685. Deep borings in the prairie provinces: Canada, Geol. Survey, Summ. Rept. 1928, pt. B, pp. 105-117, 1929.
1686. Deep borings in Ontario, Quebec, and the maritime provinces: Canada, Geol. Survey, Summ. Rept. 1928, pt. C, pp. 94-107, 1930.
1687. Deep borings in the prairie provinces: Canada, Geol. Survey, Summ. Rept. 1929, pt. B, pp. 175-194, 1930.
1688. Deep borings in Ontario, Quebec, and the maritime provinces: Canada, Geol. Survey, Summ. Rept. 1929, pt. C, pp. 33-44, 1930.
1689. Bentonite in the Ordovician near Collingwood, Ontario: *Science*, new ser., vol. 72, p. 630, December 19, 1930.

Madgwick, Thos. G.

1690. The oil and gas situation in the prairie provinces [Canada]: *Canadian Min. and Met. Bull.*, no. 204, pp. 547-570, 2 figs., April, 1929; *Canadian Inst. Min. and Met., Trans.*, vol. 32, pp. 283-307, 2 figs. [1930].

Malcolm, Wyatt.

1691. Gold fields of Nova Scotia: Canada, Geol. Survey, Mem. 156, 253 pp., 10 figs., 40 pls., map, 1929.

Malkovsky, J. A. See Heiland, 1114.

Malott, Clyde Arnett. See also Shrock, 2382.

1692. Three cavern pictures: *Indiana Acad. Sci., Proc.*, vol. 38, pp. 201-206, 1929.
1693. (and Shrock, Robert R.). Features of Wabash sluiceway of northern Indiana (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 101-102, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 144, March, 1929.
1694. (and Shrock, Robert R.). Origin and development of Natural Bridge, Virginia: *Am. Jour. Sci.*, 5th ser., vol. 19, pp. 257-273, 5 figs., April, 1930; abstract, *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 106-107, March 31, 1930.

Mansfield, George Rogers. See also Ross, 2204.

- 1695. Geography, geology, and mineral resources of the Portneuf quadrangle, Idaho: U. S. Geol. Survey, Bull. 803, 110 pp., 3 figs., 8 pls., 1929.
- 1696. (and others). [Proceedings at the fifth New York meeting], Section E (Geology and geography) and related organizations: Science, new ser., vol. 69, pp. 113-116, February 1, 1929.
- 1697. (and Lang, W. B.). Potash in Texas and New Mexico (abstract): Eng. and Min. Jour., vol. 127, no. 8, pp. 336-337, February 23, 1929.
- 1698. Proceedings of section E of the American Association for the Advancement of Science: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 179-205, March 30, 1929.
- 1699. (and Lang, W. B.). Government potash exploration in Texas and New Mexico: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 212, 17 pp., 2 figs., May, 1929; Trans, 1929, Year Book, pp. 241-255, 2 figs., 1929.
- 1700. Structure of the Blackfoot Mountains, Idaho (abstract): Washington Acad. Sci., Jour., vol. 19, no. 13, p. 292, July 19, 1929.
- 1701. Potash in the United States: Jour. Chem. Education, vol. 7, no. 4, pp. 737-761, 1 fig., 8 pls., April, 1930.

Mansfield, Wendell C.

- 1702. The Chesapeake Miocene basin of sedimentation as expressed in the new geologic map of Virginia: Washington Acad. Sci., Jour., vol. 19, no. 13, pp. 263-268, 3 figs., July 19, 1929; abstract, Geol. Soc. America, Bull., vol. 40, no. 1, pp. 191-192, March 30, 1929.
- 1703. Some deep wells near the Atlantic coast in Virginia and the Carolinas (abstract): Washington Acad. Sci., Jour., vol. 19, no. 13, p. 287, July 19, 1929.
- 1704. Miocene gastropods and scaphopods of the Choctawhatchee formation of Florida: Florida State Geol. Survey, Bull. no. 3, 142 pp., 21 pls., 1930.
- 1705. Some peculiar spiral fossil forms from California and Mexico: U. S. Nat. Mus., Proc., vol. 77, art. 13, 3 pp., 2 pls., 1930.

Marshall, William Blanchard.

- 1706. New fossil land and fresh-water mollusks from the Reynosa formation of Texas: U. S. Nat. Mus., Proc., vol. 76, art. 1, 6 pp., 1 pl., 1929.
- 1707. Nicaragua—its geology and oil possibilities: Oil Bull., vol. 16, no. 7, pp. 720-724, 12 figs., July, 1930.

Martens, James Hart Curry.

- 1708. The mineral composition of some sands from Quebec, Labrador, and Greenland: Field Mus. Nat. Hist., Geol. ser., vol. 5, no. 2, pp. 17-31, 3 pls., July 12, 1929.

Martin, George Curtis.

- 1709. The Upper Cretaceous plant-bearing beds of Alaska: U. S. Geol. Survey, Prof. Paper 159, pp. 9-37, 4 figs., map, 1930.

Martin, Handel T. See Adams, 10.

Martin, Harold.

- 1710. Prospecting, collecting, and preparing fossils [Black Hills, S. Dak.]: Black Hills Engineer, vol. 18, no. 3, pp. 226-233, illus., May, 1930.
- 1711. Fossil turtle skulls and jaws: Black Hills Engineer, vol. 18, no. 3, pp. 254-256, illus., May, 1930.

Martin, Helen M.

1712. Depew area, Creek County, Okla.: Structure of typical American oil fields, vol. 2, pp. 365-377, 7 figs., Am. Assoc. Petroleum Geologists, 1929.

Martin, Lawrence. See Dodge, 687.

Mason, Herbert L.

1713. Geological interpretation of endemism in the California Coast Range flora (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 258, March 30, 1929.

Mason, Max.

1714. Geophysical exploration for ores: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 9-43, 21 figs., 1929.

Mather, Kirtley Fletcher.

1715. (and Croneis, Carey G.). A laboratory manual of historical geology. 85 pp., illus., Cambridge, Harvard University Press, 1929.
1716. Motion pictures for classroom instruction in geology (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 106-107, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 142, March, 1929.
1717. Sons of the earth; the geologist's view of history. 272 pp., New York, W. W. Norton & Co., 1930.
1718. Proceedings of section E of the American Association for the Advancement of Science: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 161-180, March 31, 1930.

Matheson, A. F. See Bruce, 339.

Mathews, Asa A. L. See also Hubbard, 1198.

1719. The lower Triassic cephalopod fauna of the Fort Douglas area, Utah: [Chicago, Univ.], Walker Mus. Mem., vol. 1, no. 1, 46 pp., 1 fig., 11 pls., December, 1929.
1720. *Natica* as a radicle: Am. Naturalist, vol. 64, no. 694, pp. 430-435, September-October, 1930.
1721. Origin and growth of the Great Salt Lake oolites: Jour. Geology, vol. 38, no. 7, pp. 633-642, 2 pls., October-November, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 2, pp. 143-144, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 113, March 31, 1930.

Mathews, Edward Bennett.

1722. (and others). Baltimore County: Maryland Geol. Survey, 420 pp., 20 figs., 28 pls. (incl. maps), and atlas of maps, 1929.
1723. (and Watson, Edward H.). The mineral resources of Baltimore County: Maryland Geol. Survey, Baltimore County, pp. 219-304, 6 pls., map, 1929.
1724. The Maryland coal fields: U. S. Bur. Mines, Tech. Paper 465, pp. 1-5, 1 fig., 1930.
1725. Chemical characterization of rock types (abstract): Pan-Am. Geologist, vol. 53, no. 1, p. 79, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 56-57, March 31, 1930.

Matley, Charles Alfred.

1726. The basal complex of Jamaica, with special reference to the Kingston district; with petrographical notes by Frank Higham: Geol. Soc. London, Quart. Jour., vol. 85, pt. 1, pp. 440-492, 5 figs., 3 pls., December 31, 1929; abstract, Abstracts of Proc., no. 1195, pp. 60-63, February 28, 1929.

Matoušek, Otakar.

1727. Geological analysis of some tectonic phenomena on the moon and their relative ages (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 101, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 138, March, 1930.
1728. Tectonics of the moon: Pan-Am. Geologist, vol. 54, no. 2, pp. 81-86, 1 fig., 2 pls., September, 1930.

Matthes, François Émile.

1729. Evidence of multiple glaciation in the Yosemite region (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 135-136, March 30, 1929.
1730. Multiple glaciation in the Sierra Nevada: Science, new ser., vol. 70, pp. 75-76, July 19, 1929.
1731. Geologic history of the Yosemite Valley: U. S. Geol. Survey, Prof. Paper 160, 137 pp., 38 figs., 52 pls. (incl. map), 1930.
1732. The Devils Postpile and its strange setting [Sierra Nevada]: Sierra Club Bull., vol. 15, no. 1, pp. 1-8, 3 figs., 2 pls., February, 1930.
1733. Geomorphology and the question of geologic time (abstract): Pan-Am. Geologist, vol. 53, no. 1, pp. 74-75, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 50, March 31, 1930.

Matthes, Gerard H.

1734. More and better geologic data for use in hydraulic projects: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 215, pp. 47-59, July, 1929.

Matthew, William Diller, 1871-1930.

1735. A new and remarkable hedgehog from the later Tertiary of Nevada: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 4, pp. 93-102, 2 pls., January 29, 1929.
1736. Reclassification of the artiodactyl families: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 403-408, June 30, 1929; abstract, no. 1, p. 246, March 30, 1929.
1737. On the phylogeny of horses, dogs, and cats: Science, new ser., vol. 69, pp. 494-496, May 10, 1929.
1738. Range and limitations of species as seen in fossil mammal faunas: Geol. Soc. America, Bull., vol. 41, no. 2, pp. 271-274, June 30, 1930; abstract, no. 1, pp. 210-211, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, p. 156, September, 1929.
1739. (and Stirton, R. A.). Osteology and affinities of *Borophagus*: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 7, pp. 171-216, 2 figs., 14 pls., May 9, 1930.
1740. Critical observations on phylogeny of rhinoceroses (abstract): Pan-Am. Geologist, vol. 54, no. 3, p. 236, October, 1930.
1741. A Pliocene mastodon skull from California, *Pliomastodon vexillarius*, n. sp.: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 18, pp. 335-348, 2 figs., 4 pls., November 26, 1930.
1742. (and Stirton, R. A.). Equidae from the Pliocene of Texas: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 17, pp. 349-396, 14 pls., November 29, 1930.

Maury, Carlotta J.

1743. Porto Rican and Dominican stratigraphy: Science, new ser., vol. 70, p. 609, December 20, 1929.
1744. Correlation of Antillean fossil floras: Science, new ser., vol. 72, pp. 253-254, September 5, 1930.

Mawdsley, James Buckland.

1745. Desmeloizes area, Abitibi district, Quebec: Canada, Geol. Survey, Summ. Rept., 1928, pt. C, pp. 28-82, 1930.

Maxson, John H.

1746. A Tertiary mammalian fauna from the Mint Canyon formation of southern California: Carnegie Inst. Washington, Pub. no. 404, pp. 77-112, 18 figs., 1930; abstract, Geol. Soc. America, Bull., vol. 41, no. 1, pp. 214-215, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, p. 159, September, 1929.

Mayfield, S. M. See also Freeman, 881.

1747. (and Withers S.). Map of the areal and structural geology of Pulaski County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.

Maynard, J. E. See also Moore, 1834.

1748. Oba area, District of Algoma: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 6, pp. 114-125, illus., map, 1930.

Mayo, Evans B.

1749. Stratigraphy and structure of a portion of the eastern escarpment of the Sierra Nevada (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 145, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 365, June, 1929.

Meacham, R. P. See also Collins, 527; Roberts, 2168, 2169.

Mead, Warren Judson.

1750. Mechanics of gravitational restraint of subterranean fluid pressures (abstract): Pan-Am. Geologist, vol. 53, no. 1, p. 75, February, 1930.
1751. Some applications of the strain ellipsoid (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 2, pp. 234-239, February, 1930.

Megathlin, G. R.

1752. The pegmatite dikes of the Gilsum area, New Hampshire: Econ. Geol., vol. 24, no. 2, pp. 163-181, 10 figs., March-April, 1929.

Mehl, Maurice Goldsmith. See also Branson, 297, 302, 304, 305.

1753. (and Pond, Walter F.). Details in the early history of the Nashville dome (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 115, 252, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 150, March, 1929.
1754. A new genus of mosasaurs from Mexico and notes on the pelvic girdle of *Platecarpus*: Denison Univ. Bull., vol. 29, no. 10, Sci. Lab., Jour., vol. 24, pp. 383-400, 5 figs., 4 pls., January 22, 1930.

Meinzer, Oscar Edward.

1755. Artesian conditions and prospects as shown by the survey of 1923 [Edgeley and La Moure quadrangles, North Dakota]: U. S. Geol. Survey, Bull. 801, pp. 57-74, 1929.
1756. (and Stearns, Norah Dowell). A study of ground water in the Pomperaug Basin, Conn.: U. S. Geol. Survey, Water-Supply Paper 597, pp. 73-146, 9 figs., 9 pls. (incl. maps), April 25, 1929.
1757. Problems of the soft-water supply of the Dakota sandstone with special reference to the conditions at Canton, S. Dak.: U. S. Geol. Survey, Water-Supply Paper 597, pp. 147-170, 4 figs., 1 pl., April 27, 1929.

Meinzer, Oscar Edward—Continued.

- 1758. Relation of ground-water conditions to leakage of reservoirs: *Am. Inst. Min. and Met. Eng., Tech. Pub. no. 215*, pp. 19-30, July, 1929.
- 1759. Ground water in the Hawaiian Islands: *U. S. Geol. Survey, Water-Supply Paper 616*, pp 1-28, 1930.

Melton, Frank Armon. See also Hubbert, 1199.

- 1760. Joint studies in the Ouachita Mountains and interior plains of Oklahoma (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 184, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 68, February, 1929.
- 1761. Natural mounds of southern Arkansas, northern Louisiana, and eastern Texas (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 184-185, March 30, 1929.
- 1762. Superficial versus deep-seated density anomalies in the northern Great Plains: *Oklahoma Acad. Sci., Proc.*, vol. 9 (*Okla., Univ., Bull. new ser.*, no. 456), pp. 109-116, 5 figs., November 15, 1929.
- 1763. "Natural mounds" of northeastern Texas, southern Arkansas, and northern Louisiana: *Oklahoma Acad. Sci., Proc.*, vol. 9 (*Okla., Univ., Bull. new ser.*, no. 456), pp. 119-130, 1 fig., November 15, 1929.
- 1764. A reconnaissance of the joint systems in the Ouachita Mountains and central plains of Oklahoma: *Jour. Geology*, vol. 37, no. 8, pp. 729-746, 13 figs., November-December 1929.
- 1765. Johnston and Murray Counties: *Oklahoma Geol. Survey, Bull. no. 40*, vol. 3, pp. 451-470, 1 fig., July, 1930 (*Bull. 40-LL*, January, 1930).
- 1766. Age of the Ouachita orogeny and its tectonic effects: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 1, pp. 57-72, 1 fig., January, 1930.
- 1767. (and Hubbert, M. K.). Isostasy; a critical review (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, pp. 145-146, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 115, March 31, 1930.

Merriam, Charles W.

- 1768. *Alloeyon*, a new canid genus from the John Day beds of Oregon: *California, Univ., Dept. Geol. Sci., Bull.*, vol. 19, no. 9, pp. 229-244, 5 figs., 2 pls., May 10, 1930.

Merriam, John Campbell.

- 1769. (and associates). Continuation of paleontological researches: *Carnegie Inst. Washington, Year Book no. 28*, pp. 388-391, 1929.
- 1770. The place of geology among the sciences: *Science, new ser.*, vol. 70, pp. 491-493, November 22, 1929.
- 1771. The living past. 144 pp., New York, Charles Scribner's Sons, 1930.
- 1772. (and others). Report on paleontological researches: *Carnegie Inst. Washington, Year Book no. 29*, pp. 396-399, 1930.
- 1773. Plans for education work of a philosophical character at Yavapai Point, Grand Canyon, Arizona (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 105, March 31, 1930; *Pan-Am. Geologist*, vol. 54, no. 2, p. 135, September, 1930.

Merrill, Charles White.

- 1774. Economic relations of silver to other metals in argentiferous ores: *U. S. Bur. Mines, Econ. Paper 10*, 29 pp., 1930.

Merrill, George Perkins, 1854-1929.

- 1775. The story of meteorites: *Minerals from earth and sky*, vol. 3 of the *Smithsonian Scientific Series*, pp. 1-163, 7 figs., 42 pls., 1929.

Merrill, George Perkins, 1854-1929—Continued.

- 1776. A visit to the mineral-producing regions of New England: Smithsonian Inst., Explorations . . . 1928, pp. 5-6, 1 fig., 1929.
- 1777. A newly found meteoric stone reported by W. B. Lang from Peck's Spring, Midland County, Tex.: U. S. Nat. Mus., Proc., vol. 75, art. 16, 2 pp., 1 pl., 1929.
- 1778. Report on the department of geology: U. S. Nat. Mus., Rept. . . . 1929, pp. 89-98, Washington, 1929.
- 1779. Composition and structure of meteorites: U. S. Nat. Mus., Bull. 149, 62 pp., 32 pls., 1930.

Merrill, Lucius Herbert.

- 1780. (and Perkins, Edward H.). First annual report on the geology of the State of Maine. 90 pp., Augusta, 1930.

Mertie, John Beaver, jr. See also Smith, 2434.

- 1781. The Chandalar-Sheenjek district, Alaska: U. S. Geol. Survey, Bull. 810, pp. 87-139, 2 figs., 2 pls. (maps), 1929.
- 1782. The pre-Cambrian sequence of Alaska and Yukon Territory with particular reference to the Pelly gneiss (abstract): Washington Acad. Sci., Jour., vol. 19, no. 13, p. 288, July 19, 1929.
- 1783. Mining in the Fortymile district, Alaska: U. S. Geol. Survey, Bull. 813, pp. 125-142, 2 figs., 1930.
- 1784. Geology of the Eagle-Circle district, Alaska: U. S. Geol. Survey, Bull. 816, 168 pp., 6 figs., 12 pls. (incl. map), 1930.
- 1785. Mountain building in Alaska: Am. Jour. Sci., 5th ser., vol. 20, pp. 101-124, 1 fig., August, 1930; abstract, Washington Acad. Sci., Jour., vol. 20, no. 14, pp. 354-356, August 19, 1930.

Merwin, Herbert E. See Greig, 1001.

Messervey, J. P.

- 1786. A survey of the gold districts of Nova Scotia not covered in Part II of the Mines Report for 1927: Nova Scotia, Ann. Rept. Mines, 1928, pt. 2, 238 pp., 1929.
- 1787. Copper in Nova Scotia: Nova Scotia, Rept. on Mines, 1928, pp. 355-394, 1929.
- 1788. Lead and zinc in Nova Scotia: Nova Scotia, Rept. on Mines, 1928, pp. 395-436, 1929.
- 1789. Some observations on post-Carboniferous mineralization of Nova Scotia: Canadian Min. and Met. Bull., no. 208, pp. 989-994, 1 pl. (map), August, 1929.

Metcalf, R. J. See Hennen, 1129.

Meyerhoff, Howard A.

- 1790. (and Hubbell, Marion). The erosional land forms of eastern and central Vermont: Vermont, State Geologist, 16th Rept., pp. 315-381, 22 figs. [1929].
- 1791. The pre-Oligocene stratigraphy of Porto Rico: Science, new ser., vol. 71, pp. 322-323, 1 fig., March 21, 1930.

Miller, A. K.

- 1792. *Ancylocidaris*, a new echinoid genus from the Sundance of west-central Wyoming: Am. Jour. Sci., 5th ser., vol. 18, pp. 334-336, 3 figs., October, 1929.

Miller, A. K.—Continued.

- 1793. The age and correlation of the Bighorn formation of northwestern United States: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 195–213, September, 1930.
- 1794. A new ammonoid fauna of late Paleozoic age from western Texas: *Jour. Paleontology*, vol. 4, no. 4, pp. 383–412, 2 pls., December, 1930.

Miller, Alden H.

- 1795. The passerine remains from Rancho La Brea in the paleontological collections of the University of California: *California, Univ., Dept. Geol. Bull.*, vol. 19, no. 1, pp. 1–22, 1 pl., December 21, 1929.

Miller, Raymond. See also Shideler, 2370.

- 1796. (and others). Geologic map of Bath County, Ky.: *Kentucky Geol. Survey*, ser. 6, 1929. Scale 1 inch=1 mile.
- 1797. (and others). Geologic map of Boyle County, Ky.: *Kentucky Geol. Survey*, ser. 6, 1929. Scale 1 inch=1 mile.
- 1798. (and Briggs, G.). Geologic map of Bullitt County, Ky.: *Kentucky Geol. Survey*, ser. 6, 1929. Scale 1 inch=1 mile.
- 1799. (and others). Geologic map of Fleming County, Ky.: *Kentucky Geol. Survey*, ser. 6, 1929. Scale 1 inch=1 mile.
- 1800. (and Withers, Spencer). Map of the subsurface structural geology of Johnson County, Ky.: *Kentucky Geol. Survey*, ser. 6, 1929. Scale 1:62,500.
- 1801. (and Briggs, G.). Map of the areal and structural geology of Oldham County, Ky.; Illinoian glacial outcrop by Frank Leverett, 1924: *Kentucky Geol. Survey*, ser. 6, 1929. Scale 1:62,500.
- 1802. (and Briggs, G.). Geological map of Powell County, Ky.: *Kentucky Geol. Survey*, ser. 6, 1929. Scale 1 inch=1 mile.
- 1803. (and Crabb, D. H.). Geologic map of Simpson County, Ky.: *Kentucky Geol. Survey*, ser. 6, 1930. Scale 1 inch=1 mile.

Miller, William John.

- 1804. Significance of newly found Adirondack anorthosite: *Am. Jour. Sci.*, 5th ser., vol. 18, pp. 383–400, 1 fig., November, 1929.
- 1805. Geologic section across the southern Sierra Nevada (abstract): *Pan-Am. Geologist*, vol. 53, no. 1, p. 74, February, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 49–50, March 31, 1930.
- 1806. Rocks of the southwestern San Gabriel Mountains, Calif. (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 149–150, March 31, 1930; *Pan-Am. Geologist*, vol. 51, no. 5, p. 369, June, 1929.

Milton, Charles. See also Singewald, 2401, 2402, 2404.

- 1807. Some useful petrographic methods: *Science*, new ser., vol. 69, p. 382, April 5, 1929.

Miser, Hugh Dinsmore. See also Ross, 2194.

- 1808. (and Purdue, A. H.). Geology of the De Queen and Caddo Gap quadrangles, Arkansas: *U. S. Geol. Survey, Bull.* 808, 195 pp., 9 figs., 18 pls. (incl. map), 1929.
- 1809. Structure of the Ouachita Mountains of Oklahoma and Arkansas: *Oklahoma Geol. Survey, Bull.* no. 50, 30 pp., 7 figs., 3 pls. (incl. map), October, 1929.
- 1810. Paleozoic rocks in wells in Gulf Coastal Plain south of Ouachita Mountains (abstract): *Pan-Am. Geologist*, vol. 53, no. 3, pp. 215–216, April, 1930.

Mitchell, George D.

1811. The Santa Cruz earthquakes of October, 1926: *Seismol. Soc. America, Bull.*, vol. 18, no. 3, pp. 153-213, 3 pls., September, 1928.

Mitchell, R. H.

1812. Factors influencing the character and position of folds—an experimental study (abstract): *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, pp. 407-408, 1930.

Modell, David. See Palache, 1975.

Moffitt, Fred Howard.

1813. Notes on the geology of upper Nizina River, Alaska: *U. S. Geol. Survey, Bull.* 813, pp. 143-163, 1 pl. (map), 1930.

Mohr, C. L.

1814. Secondary gypsum in Delaware Mountain region: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 10, p. 1395, October, 1929.

Monahan, Joseph W.

1815. Additions to the description of the fauna of the Bertie water lime (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 204, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, pp. 158-159, March, 1930.

Money maker, Berlin C.

1816. The nature and formation of caves: *Tennessee Acad. Sci., Jour.*, vol. 5, no. 3, pp. 83-90, 7 figs., July, 1930.

Montgomery, Robert J.

1817. (and Watson, R. J.). Fire clay, kaolin, and silica sand deposits of the Mattagami and Missinaibi Rivers: *Ontario Dept. Mines, 37th Ann. Rept.*, vol. 37, pt. 6, pp. 81-120, illus., 1929.
1818. The ceramic industry of Ontario: *Ontario Dept. Mines, 39th Ann. Rept.*, vol. 39, pt. 4, 196 pp., illus., 1930.

Moodie, Roy Lee.

1819. The geological history of the vertebrates of Indiana and their position in the ancient North American fauna: *Indiana, Dept. Conservation, Pub. no. 90*, 115 pp., 95 figs., 1929.
1820. Excess callus in a Pleistocene bird [Rancho la Brea, Calif.]: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 81-84, 2 figs., January, 1929.
1821. Vertebrate footprints from the red beds of Texas: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 352-368, 9 figs., April, 1929.
1822. Dinosaur tendons: *Science*, new ser., vol. 70, p. 98, July 26, 1929.
1823. The dinosaurs of Wyoming: *Wyoming Geol. Survey, Bull.* 22, 119 pp., 46 figs., Cheyenne, Wyoming, 1930.
1824. Ancient trails in the valley of the Clear Fork, Texas: *Sci. Monthly*, vol. 30, no. 1, pp. 51-58, 11 figs., January, 1930.
1825. Vertebrate footprints from the red beds of Texas: *Jour. Geology*, vol. 38, no. 6, pp. 548-565, 16 figs., August-September, 1930.

Moody, C. L.

1826. Tertiary history of Sabine uplift (abstract): *Pan-Am. Geologist*, vol. 54, no. 2, pp. 139-140, September, 1930.

Mook, Charles Craig.

1827. McElmo formation in northeastern Arizona (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, pp. 148-149, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 107, March 31, 1930.

Mook, Charles Craig—Continued.

1828. A new species of crocodilian from the Torrejon beds [New Mexico]:
Am. Mus. Novitates no. 447, 11 pp., 7 figs., Dec. 20, 1930.

Moore, Bernard N. See also Buwalda, 398, 401.

1829. Stratigraphic relations of the *Turritella inezana* and *Turritella ocoyana* zones of the Santa Ana Mountains, Orange County, Calif. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 212, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, pp. 157-158, September, 1929.

1830. Geology of Santa Ana Mountains (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 69, August, 1930.

Moore, Elwood S.

1831. Canada's mineral resources. 301 pp., 13 figs. (maps), Toronto, Irwin & Gordon, 1929. Review, Canadian Min. and Met. Bull., no. 204, pp. 517-518, April, 1929.

1832. Keweenawan olivine diabases of the Canadian shield: Roy. Soc. Canada, Trans., ser. 3, vol. 23, sec. 4, pp. 39-45, May, 1929.

1833. Lake Savant area, District of Thunder Bay: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 4, pp. 53-82, illus., map, 1929; Canadian Min. Jour., vol. 50, no. 34, pp. 789-792, no. 35, pp. 819-821, no. 36, pp. 839-842, 9 figs., August 23, 30, September 6, 1929.

1834. (and Maynard, J. E.). Solution, transportation, and precipitation of iron and silica: Econ. Geology, vol. 24, no. 3, pp. 272-303, May, no. 4, pp. 365-402, June-July, no. 5, pp. 506-527, August, 1929.

1835. Keewatin-Timiskaming boundary: Geol. Soc. America, Bull., vol. 40, no. 3, pp. 547-556, 1 fig., 1 table, September 30, 1929; abstract, no. 1, p. 131, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 154, March, 1929.

1836. Ore deposits near the north shore of Lake Huron: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 7, pp. 1-51, illus., maps, 1930.

1837. Geological structure of the southwest portion of the Sudbury Basin [Ontario]: Canadian Min. and Met. Bull. no. 215, pp. 351-361, 2 figs., March, 1930.

1838. (and Charlewood, G. H.). Two-granite batholiths in the pre-Cambrian: Roy. Soc. Canada, Trans., ser. 3, vol. 24, sec. 4, pp. 133-136, May, 1930.

1839. Notes on the origin of pillow lavas: Roy. Soc. of Canada, Trans., ser. 3, vol. 24, sec. 4, pp. 137-139, 1 fig., May, 1930.

Moore, Raymond Cecil. See also Condra, 539.

1840. Kansas coal field: U. S. Bur. Mines, Tech. Paper 455, pp. 3-7, 2 figs., 1929.

1841. Studies on the Carboniferous of the Mid-Continent region: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 2, pp. 191-193, February, 1929.

1842. A bryozoan faunule from the upper Graham formation, Pennsylvanian, of north-central Texas: Jour. Paleontology, vol. 3, no. 1, pp. 1-27, 3 figs., 3 pls., March, no. 2, pp. 121-156, 2 figs., 4 pls., June, 1929.

1843. Environment of Pennsylvanian life in North America: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 5, pp. 459-487, 3 figs., May, 1929.

Moore, Raymond Cecil—Continued.

1844. A large fish spine from the Pennsylvanian of north-central Texas: Denison Univ. Bull., vol. 29, no. 7, Sci. Lab., Jour., vol. 24, pp. 237-243, 1 pl., August, 1929.
1845. Correlation of Pennsylvanian formations of Texas and Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 883-901, 3 figs., August, 1929.
1846. Geologic map of Kansas [with descriptive text]: Kansas State Geol. Survey [1930]. Scale 1 inch=40 miles (approx.).
1847. The surface features of Kansas (some text on map): Kansas State Geol. Survey [1930]. Scale 1 inch=40 miles (approx.).
1848. Sedimentation cycles in the Pennsylvanian of the northern Mid-Continent region (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 51-52, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 1, pp. 75-76, February, 1930.
1849. New species of bryozoans from the Pennsylvanian of Texas: Denison Univ. Bull., vol. 30, no. 3, Sci. Lab., Jour., vol. 25, pp. 147-163, 1 pl., April, 1930.

Moose, Joe E.

1850. (and Searle, V. C.). A chemical study of Oklahoma coals: Oklahoma Geol. Survey, Bull., no. 51, 112 pp., October, 1929.

Morales, Luis.

1851. La formación geológica de Cuba: Soc. cubana ingenieros, Revista, vol. 21, no. 2, pp. 147-151, March-April, 1929.

Moree, Robert W.

1852. Note on the "*Bulimina jacksonensis* zone": Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 2, p. 227, February, 1930.

Moreman, W. L.

1853. Arenaceous Foraminifera from Ordovician and Silurian limestones of Oklahoma: Jour. Paleontology, vol. 4, no. 1, pp. 42-59, 3 pls., March, 1930.

Morris, Frederick K.

1854. Amygdaloids and cavity fillings (abstract): Pan-Am. Geologist, vol. 53, no. 1, p. 74, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 49, March 31, 1930.
1855. Amygdules and pseudoamygdules: Geol. Soc. America, Bull., vol. 41, no. 3, pp. 383-404, 4 figs., September 30, 1930.

Morrison, T. E.

1856. First authentic Cretaceous formation found on Gulf Coast salt domes of Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 1065-1069, 2 figs., August, 1929.

Morse, William Clifford.

1857. Paleozoic rocks [of Mississippi]: Mississippi State Geol. Survey, Bull. no. 23, 212 pp., 15 figs., 23 pls., sections, 1930.

Moses, C. F.

1858. The place of laboratory experimentation in geologic investigation (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, p. 407, 1930.

Mossom, Stuart. See Cooke, 551, 552.

Moulton, F. R.

1859. Thomas Chrowder Chamberlin as a philosopher: Jour. Geology, vol. 37, no. 4, pp. 368-379, May-June, 1929.

Moulton, Gail Francis. See also Knappen, 1449; Shrock, 2382.

1860. (and Bell, A. H.). Three typical oil fields of the Illinois region: Structure of typical American oil fields, vol. 2, pp. 115-141, 13 figs., Am. Assoc. Petroleum Geologists, 1929.
1861. Petroleum production and development in Illinois during 1928: Illinois, State Geol. Survey, Press Bull. Ser., Illinois Petroleum no. 17, pp. 15-19, 1 fig., March 2, 1929.
1862. Anticlinal areas near Renault, Monroe County: Illinois State Geol. Survey, Press Bull. Ser., Illinois Petroleum no. 18, pp. 14-16, 1 fig., November 2, 1929.

Moyer, Dorothy A. See Cushman, 606.

Müllerried, Federico, K. G.

1863. Geología petrolera de las zonas sur del Estado de Tamaulipas y norte del Estado de Veracruz: Mexico, Inst. geol., Anales, t. 3, pp. 55-66, 1929.
1864. El llamado *Hippurites mexicana* Barcena: Inst. biología, Anales, t. 1, no. 1, pp. —, 2 figs., Mexico, April, 1930.
1865. Un *Hippurites* de la región de Cardenas, San Luis Potosí: Inst. biología, Anales, t. 1, no. 2, pp. 165-168, 2 figs., 1930.
1866. El *Hippurites calamitiformis* Barcena: Inst. biología, Anales, t. 1, no. 2, pp. 169-174, 8 figs., 1930.
1867. Informe preliminar de la exploración geológica del Estado de Chiapas durante los años de 1927, 1928, y 1929: Mexico, Inst. geol., Foll. divulg. no. 36, 16 pp., May, 1930.

Muller, Siemon William.

1868. Addition to the Mesozoic stratigraphy of the Great Basin region (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 259, March 30, 1929.
1869. New Mesozoic horizons in Nevada (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 153, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 198, March 31, 1930.
1870. New faunal horizons in Jurassic and Triassic of the Pilot Mountains, Mineral County, Nev. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 214, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, p. 159, September, 1929.
1871. Triassic stratigraphy of Hawthorne and Tonopah quadrangles, Nevada (abstract): Pan-Am. Geologist, vol. 54, no. 1, pp. 74-75, August, 1930.

Muñoz Lumbier, Manuel.

1872. Megasismos recientes en Puebla y Oaxaca: Mexico, Dept. explor. y estudios geol.; Foll. divulg. No. 31, 47 pp., October, 1928.
1873. El yacimiento de asfalto de Cuetzalán en el ex Distrito de Zacapoaxtla, del Estado de Puebla: Bol. petróleo, vol. 28, no. 2, pp. 179-181, 1 pl., August, 1929.
1874. La morfología y geología de los alrededores de la Villa de Papantla, Estado de Veracruz: Bol. petróleo, vol. 29, no. 3, pp. 327-331, March, 1930.
1875. Las exploraciones petroleras en el norte de Mexico: Bol. petróleo, vol. 29, no. 6, pp. 682-685, 1 pl. (map), June, 1930.

Murphy, P. C.

1876. (and Judson, Sidney A.). Crooked-hole problems in the Gulf coast district (with discussion by W. W. Scott): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 5, pp. 595-605, 3 figs., May, 1930.
1877. (and Judson, Sidney A.). Deep-sand development at Barbers Hill, Chambers County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 6, pp. 719-741, 11 figs., June, 1930; abstract, *Pan-Am. Geologist*, vol. 53, no. 3, p. 221, April, 1930.

Murray, A. N.

1878. (and Love, W. W.). Action of organic acids upon limestone: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 11, pp. 1467-1475, November, 1929.
1879. Limestone oil reservoirs of the northeastern United States and of Ontario, Canada: *Econ. Geology*, vol. 25, no. 5, pp. 452-469, 3 figs., August, 1930.

Musser, E. H.

1880. Preliminary report on the Kettleman Hills oil field: California, Div. Mines and Mining, *Summ. Operations California Oil Fields*, vol. 14, no. 5, pp. 5-17, 2 pls., November, 1928.
1881. Buttonwillow gas field: *California Oil Fields*, vol. 15, no. 3, pp. 5-20, 1 fig., 3 pls., January-March, 1930.

Needham, C. E.

1882. Cusps on the beach of Lake Michigan at Evanston, Ill.: *Illinois State Acad. Sci., Trans.*, vol. 22, pp. 464-469, April, 1930.

Nelson, Richard Newman.

1883. (and Schenck, Hubert G.). Additional occurrences of fossil calcareous algae in Pacific coast marine formations (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 209-210, March 31, 1930; *Pan-Am. Geologist*, vol. 52, no. 2, pp. 155-156, September, 1929.
1884. (and Schenck, H. G.). Eocene algae and stellate orbitoids from Santa Ynez Range, Calif. (abstract): *Pan-Am. Geologist*, vol. 54, no. 3, p. 240, October, 1930.

Nelson, Wilbur Armistead.

1885. New geologic map of Virginia (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 90, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 80, February, 1929.
1886. Thrust faulting from the west in the Appalachians of Virginia (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 54, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 1, p. 78, February, 1930.

Neumann, Frank.

1887. The southern Appalachian earthquake of November 2, 1928: *Seismol. Soc. America, Bull.*, vol. 18, no. 4, pp. 243-245, 1 pl., December, 1928.
1888. Seismological report: January, February, March, 1927 (serial no. 463, 81 pp.); April, May, June, 1927 (serial no. 468, 45 pp.); July, August, September, 1927 (serial no. 495, 60 pp.); October, November, December, 1927 (serial no. 503, 57 pp.); U. S. Coast and Geodetic Survey, Washington, 1929-1931.
1889. The velocity of seismic surface waves over Pacific paths: *Seismol. Soc. America, Bull.*, vol. 19, no. 2, pp. 63-76, 13 figs., June, 1929.

Neumann, Frank—Continued.

1890. An analysis of the *S*-wave: *Seismol. Soc. America, Bull.*, vol. 20, no. 1, pp. 15–32, 2 pls., March, 1930.

Neumann, Fred R.

1891. How to study geology. 9 pp., Normal, Ill., Smith Printing Co., c. 1929.

Nevel, W. D.

1892. Large topaz crystal from Maine: *Am. Mineralogist*, vol. 14, no. 2, p. 75, February, 1929.

Nevin, Charles Merrick.

1893. (and Sherrill, R. E.). Studies in differential compacting: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 1, pp. 1–22, 10 figs., January, 1929; corrections, no. 2, pp. 179–180, February, 1929.
1894. (and Sherrill, R. E.). The nature of uplifts in north-central Oklahoma and their local expression: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 1, pp. 23–30, January, 1929.
1895. (and Sherrill, R. E.). Studies in differential compaction—a reply: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 10, pp. 1396–1397, October, 1929.
1896. The sand and gravel resources of New York State: *New York State Mus. Bull.*, no. 282, 180 pp., 32 pls., June, 1929.

Newby, Jerry B.

1897. (and Torrey, Paul D., Fettke, Charles R., and Panyity, L. S.). Bradford oil field, McKean County, Pa., and Cattaraugus County, N. Y.: Structure of typical American oil fields, vol. 2, pp. 407–442, 12 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Newcombe, Robert B. See also Lane, 1499.

1898. Correlating geological markers in Michigan section: *Michigan Acad. Sci., Papers*, vol. 10, pp. 205–208, April, 1929.
1899. Structural influences on recent Michigan oil development; *Michigan Acad. Sci., Papers*, vol. 10, pp. 209–215, April, 1929.
1900. Interpretation of recent discoveries in the salt-bearing rocks of Michigan: *Michigan Acad. Sci., Papers*, vol. 12, pp. 239–250, 6 figs. 1930.

Newhouse, W. H. See also Callahan, 416.

1901. The identity and genesis of lodestone magnetite: *Econ. Geology*, vol. 24, no. 1, pp. 62–67, January, 1929.
1902. (and Flaherty, G. F.). The texture and origin of some banded or schistose ores: *Econ. Geology*, vol. 25, no. 6, pp. 600–620, 8 figs., September–October, 1930.

Newland, David Hale.

1903. Memorial of Frank Lewis Nason: *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 45–50, 1 pl. (portr), March 30, 1929.
1904. The gypsum resources and gypsum industry of New York; *New York State Mus. Bull.* no. 283, 188 pp., 59 figs. and pls., November, 1929.

Newman, Mark H.

1905. Geology at Mascot [Tennessee—zinc]: *Min. Congress Jour.*, vol. 16, no. 11, pp. 823, 833, 855, 857, November, 1930.

Nicholls, J. C.

1906. The Sudbury ore [Ontario]: Eng. and Min. Jour., vol. 130, no. 9, pp. 433-434, 4 figs., November 10, 1930.

Nichols, Henry W.

1907. Soils: Field Mus. Nat. Hist., Dept. Geology, Leaflet no. 5, 13 pp., 5 pls., 1925.

1908. Early geological history of Chicago: Field Mus. Nat. Hist., Dept. Geology, Leaflet no. 7, 30 pp., 9 figs., 9 pls., 1925.

Nickell, F. A.

1909. Geology of Soledad quadrangle (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 157, September, 1930.

Nicolas, Frank.

1910. Index to paleontology (geological publications [of the Geological Survey of Canada] 1917-1926): Canada, Geol. Survey, Misc. Ser. no. 2, pp. 385-482, 1930.

Nightingale, W. T.

1911. Geology of Vermilion Creek gas area in southwest Wyoming and north-west Colorado: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 8, pp. 1013-1040, 5 figs., August, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, pp. 227-228, April, 1930.

Nininger, H. H.

1912. The Duchesne meteorite; an undescribed find from Duchesne County, Utah: Jour. Geology, vol. 37, no. 1, pp. 83-87, 4 figs., January-February, 1929.

1913. A new meteorite from Ballinger, Tex.: Jour. Geology, vol. 37, no. 1, pp. 88-90, 3 figs., January-February, 1929.

1914. The Sandia Mountains meteorite: Am. Jour. Sci., 5th ser., vol. 18, pp. 412-415, 3 figs., November, 1929.

1915. A new Kansas meteorite: Kansas Acad. Sci., Trans., vol. 31, pp. 87-88, 1 fig. [1930?].

1916. Notes on Kansas meteorites; meteoric fall of December 17, 1923: Kansas Acad. Sci., Trans., vol. 31, pp. 88-91 [1930?].

1917. A new Kansas aerolite referable to the fall of November 9, 1923: Kansas Acad. Sci., Trans., vol. 31, pp. 94-95, 1 fig. [1930?].

1918. Pleistocene fossils from McPherson County, Kans., 1921 to 1924: Kansas Acad. Sci., Trans., vol. 31, pp. 96-97 [1930?].

1919. Notes on oxidation of certain meteorites; the formation of meteorodes: Kansas Acad. Sci., Trans., vol. 32, pp. 63-67, 6 figs. [1930].

Noé, Adolph Charles.

1920. Correlation of Illinois coal seams with European horizons: Illinois State Acad. Sci., Trans., vol. 22, pp. 470-472, April, 1930.

Nolan, Thomas Brennan. See also Knopf, 1459.

1921. Notes on the stratigraphy and structure of the northwest portion of Spring Mountain, Nev.: Am. Jour. Sci., 5th ser., vol. 17, pp. 461-472, 4 figs., May, 1929.

1922. The underground geology of the western part of the Tonopah mining district, Nev.: Nevada Univ., Bull., vol. 24, no. 4, 35 pp., 1 fig., 1 pl., August 1, 1930.

1923. Paleozoic formations in the Gold Hill quadrangle, Utah: Washington Acad. Sci., Jour., vol. 20, no. 17, pp. 421-432, 1 fig., October 19, 1930.

Nordstrom, Allan. See Sundberg, 2556.

Norris, Byron B.

1924. Report on the oil fields on or adjacent to the Whittier fault: California Oil Fields, vol. 15, no. 4, pp. 5-20, 6 pls. (maps), April-June, 1930.

Norton, G. H. See Lloyd, 1576.

Norton, William Harmon.

1925. The elements of geology. x, 464 pp., Boston, Ginn & Co. [c. 1929].
1926. Deep wells of Iowa (a supplementary report): Iowa Geol. Survey, vol. 33, pp. 9-374, map, 1928 [1930?].

Nowels, K. B.

1927. Development and relation of oil accumulation to structure in the Shiprock district of the Navajo Indian Reservation, N. Mex.: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 2, pp. 117-151, 5 figs., February, 1929

Nutting, Perley Gilman.

1928. Deformation and temperature: Washington Acad. Sci., Jour., vol. 19, no. 6, pp. 109-115, March 19, 1929.
1929. Chemical activation of quartz surfaces: Science, new ser., vol. 72, pp. 243-244, September 5, 1930.
1930. Physical analysis of oil sands: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 10, pp. 1337-1349, 2 figs., October, 1930.

Nye, S. Spencer. See also Fiedler, 814.

1931. Shallow ground-water supplies in northern Lea County, N. Mex.: New Mexico, State Eng., Ninth Bienn. Rept., pp. 363-387, map [1930].

Ockerman, John William. See also Landes, 1489.

1932. A petrographic study of the Madison and Jordan sandstones of southern Wisconsin: Jour. Geology, vol. 38, no. 4, pp. 346-353, May-June, 1930.

Oder, Charles R. L.

1933. Occurrence of doubly terminated quartz crystals in sandstone in the Shenandoah Valley, Va.: Am. Mineralogist, vol. 14, no. 10, pp. 382-385, 3 figs., October, 1929.

Oedum, Hilmar.

1934. Geologiske Iagttagelser i Landet øst for Igaliko Fjord: Meddelelser om Grønland, Bd. 74, pp. 43-54, 6 figs., 1 pl. (map), 1930.

O'Harra, Cleophas Cisney. See also Connolly, 542.

1935. An inventory of our mineral materials [South Dakota]: Black Hills Engineer, vol. 17, no. 1, pp. 5-11, January, 1929.
1936. Bentonite, its occurrence, properties, and uses: Black Hills Engineer, vol. 17, no. 1, pp. 39-48, 3 figs., January, 1929.
1937. Coal resources of the Black Hills region [South Dakota]: Black Hills Engineer, vol. 17, no. 1, pp. 49-61, 7 figs., January, 1929.
1938. A fossil mammal with unborn twins: Science, new ser., vol. 71, pp. 341-342, March 28, 1930.
1939. The Big Badlands, the wonderlands of the Great Plains: Black Hills Engineer, vol. 18, no. 3, pp. 191-205, illus., May, 1930.

Ohrenschall, R. D. See Fisher, 825.

Oles, L. M. See Ruedemann, 2227.

O'Neill, John Johnston.

1940. [Results from geophysical surveys in] Southern British Columbia (with discussion by L. B. Slichter): Am. Inst. Min. and Met. Eng., Tech. Pub. no. 369, pp. 12-14, October, 1930.

Orvin, Anders K.

1941. Beiträge zur Kenntnis des Oberdevons Ost-Grönlands: Skrifter om Svalbard og Ishavet, no. 30, pp. 3-30, 5 figs., Oslo, 1930.

Orynski, Leonard W. See Edwards, 736.

Osborn, Henry Fairfield.

1942. The titanotheres of ancient Wyoming, Dakota, and Nebraska: U. S. Geol. Survey, Monograph 55, 2 vols., 953 pp., 797 figs., 236 pls., 1929.
1943. Is the ape-man a myth?: Human Biology, vol. 1, no. 1, pp. 4-9 (of reprint), January, 1929.
1944. Bashford Dean: Nat. History (Am. Mus. Nat. Hist., Jour.), vol. 29, no. 1, pp. 102-103, portr., January-February, 1929.
1945. Note on the geologic age of *Pithecanthropus* and *Eoanthropus*: Science, new ser., vol. 69, pp. 216-217, February 22, 1929.
1946. Thomas Jefferson, the pioneer of American paleontology: Science, new ser., vol. 69, pp. 410-413, April 19, 1929.
1947. Paleontological monographs of the national geological surveys: Science, new ser., vol. 70, pp. 315-317, October 4, 1929.
1948. Influence of the glacial age on the evolution of man: Geol. Soc. America, Bull., vol. 40, no. 4, pp. 589-595, 2 figs., 1 pl., December 31, 1929; abstract, no. 1, pp. 199-201, March 30, 1929.
1949. New Eurasiatic and American proboscideans: Am. Mus. Novitates no. 393, 23 pp., 22 figs., December 24, 1929.
1950. Fifty-two years of research, observation, and publication, 1877-1929; a life adventure in breadth and depth. 160 pp., 8 pls., (incl. portr.), New York, Charles Scribner's Sons, 1930.
1951. Biographical memoir of Edward Drinker Cope, 1840-1897: Nat. Acad. Sci., Biog. Mem., vol. 13, pp. 125-171, portr., 1930.
1952. (and assistants). Bibliography of Edward Drinker Cope, 1859-1915: Nat. Acad. Sci., Biog. Mem., vol. 13, pp. 172-317, 1930.
1953. The discovery of Tertiary man: Science, new ser., vol. 71, pp. 1-7, 2 figs., January 3, 1930.
1954. The romance of the woolly mammoth: Nat. History (Am. Mus. Nat. Hist., Jour.), vol. 30, no. 3, pp. 227-241, 20 figs., May-June, 1930.
1955. Paleontology versus genetics: Science, new ser., vol. 72, pp. 1-3, July 4, 1930.
1956. *Parelephas floridanus* from the upper Pleistocene of Florida compared with *P. jeffersonii*: Am. Mus. Novitates no. 443, 17 pp., 9 figs., December 18, 1930.

Osborne, Freleigh Fitz.

1957. On the use of the term deuteric—a reply: Econ. Geology, vol. 24, no. 3, pp. 335-336, May, 1929.
1958. A diabase contact-metamorphic mineral deposit in Ontario: Econ. Geology, vol. 24, no. 7, pp. 722-732, November, 1929.
1959. The Cartier-Stralak area, District of Sudbury: Ontario Dept. Mines, 38th Ann. Rept., vol. 38, pt. 7, pp. 52-68, illus., map, 1930.

Osborne, Freleigh Fitz—Continued.

1960. A schist granite transition zone in Ontario: *Jour. Geology*, vol. 38, no. 1, pp. 75-80, 1 fig., January-February, 1930.

1961. The nepheline-gneiss complex near Egan Chute, Dungannon Township, and its bearing on the origin of the nepheline syenite: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 33-60, 6 figs., July, 1930.

Osgood, Wayland.

1962. Michigan oil and gas development and possibilities: *Lake Superior Min. Inst., Proc.*, vol. 27, pp. 160-165, 1 fig., 1929.

Ozawa, Yoshiaki. See Cushman, 606.

Pabst, Adolf.

1963. On the hydrates of sodium carbonate: *Am. Mineralogist*, vol. 15, no. 2, pp. 69-73, February, 1930.

Pack, Frederick James.

1964. Origin of the erosional forms at Bryce Canyon National Park (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 99, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 143, March, 1929.

Packard, Earl Leroy. See also Lupher, 1631.

1965. Preliminary report of the Cretaceous of central Oregon (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 166, March 30, 1929.

1966. Discovery of the Baird Mississippian fauna of central Oregon (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 257, March 30, 1929.

1967. (and Lupher, Ralph L.). Jurassic and Cretaceous rudistids from Oregon (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 209, March 31, 1930; *Pan-Am. Geologist*, vol. 52, no. 2, p. 155, September, 1929.

Page, James H. See Charles, 474.

Palache, Charles. See also Butler, 391.

1968. Paragenetic classification of the minerals of Franklin, N. J.: *Am. Mineralogist*, vol. 14, no. 1, pp. 1-18, January, 1929.

1969. A comparison of the ore deposits of Långban, Sweden, with those of Franklin, N. J.: *Am. Mineralogist*, vol. 14, no. 2, pp. 43-47, table, February, 1929.

1970. Mineralogy, 1869-1928: Chapter XXI in *The development of Harvard University, 1869-1929* (S. E. Morison, ed.), pp. 332-337, Cambridge, Mass., Harvard University Press, 1930.

1971. (and Bauer, L. H.). On the occurrence of beryllium in the zinc deposits of Franklin, N. J.: *Am. Mineralogist*, vol. 15, no. 1, pp. 30-33, January, 1930.

1972. Memorial of Loren B. Merrill: *Am. Mineralogist*, vol. 15, no. 8, pp. 277-279, August, 1930.

1973. (and Davidson, S. C., and Goranson, E. A.). The hiddenite deposit in Alexander County, N. C.: *Am. Mineralogist*, vol. 15, no. 8, pp. 280-302, 11 figs., 2 pls., August, 1930.

1974. (and Gonyer, F. A.). Lazulite from Chittenden, Vt.: *Am. Mineralogist*, vol. 15, no. 8, pp. 338-339, August, 1930.

1975. (and Modell, David). Crystallography of stibnite and orpiment from Manhattan, Nev.: *Am. Mineralogist*, vol. 15, no. 8, pp. 365-374, 9 figs., August, 1930.

Palache, Charles—Continued.

1976. (and Gonyer, F. A.). A new iron meteorite from Carbo, Mexico: *Am. Mineralogist*, vol. 15, no. 8, pp. 388-391, 3 pls., August, 1930.

Palmer, Harold Schj  th.

1977. A fossil lava tube [Honolulu, Hawaii]: *Jour. Geology*, vol. 37, no. 3, pp. 272-274, 2 figs., April-May, 1929.
1978. Geology of Molokini: Bernice P. Bishop Mus., *Occ. Papers*, vol. 9, no. 1, pp. 3-14, 1 fig., 3 pls., 1930.
1979. The geologic history of Oahu (Presidential address) (abstract): *Hawaiian Acad. Sci., Fifth Ann. Meeting, 1930, Proc.*, Bernice P. Bishop Mus., *Spec. Pub.* 16, pp. 4-6, 1930.
1980. Rock weathering in Hawaii (abstract): *Hawaiian Acad. Sci., Fifth Ann. Meeting, 1930, Proc.*, Bernice P. Bishop Mus., *Spec. Pub.* 16, p. 8, 1930.

Palmer, Robert Hastings.

1981. The rudistids of southern Mexico: *California Acad. Sci., Occ. Papers* 14, 137 pp., 8 figs., 18 pls., February 29, 1928.

Panyity, L. S. See Newby, 1897.

Papish, Jacob.

1982. New occurrences of germanium, II; The occurrence of germanium in silicate minerals: *Econ. Geology*, vol. 24, no. 5, pp. 470-480, August, 1929.
1983. (and Hanford, Zaida M.). Occurrence of germanium and arsenic in meteorites: *Science, new ser.*, vol. 71, pp. 269-270, March 7, 1930.
1984. (and Stilson, Chester B.). Gallium IV; Occurrence of gallium in zinc minerals: *Am. Mineralogist*, vol. 15, no. 11, pp. 521-527, November, 1930.

Pardee, Franklin G.

1985. Recent work of the State geological surveys in Huronian and Keweenaw areas; (A) Michigan Geological Survey: Lake Superior Min. Inst., *Proc.*, vol. 27, pp. 166-172, 1929.

Pardee, Joseph Thomas. See also Larsen, 1513.

1986. Platinum and black sand in Washington: *U. S. Geol. Survey, Bull.* 805, pp. 1-15, 1 fig., January 9, 1929.
1987. (and Larsen, E. S.). Deposits of vermiculite and other minerals in the Rainy Creek district near Libby, Mont.: *U. S. Geol. Survey, Bull.* 805, pp. 17-28, 1 pl., February 28, 1929.

Park, Charles F., jr. See Colton, 536, 537; Schwartz, 2332.

Parker, J. S.

1988. (and Southwell, C. A. P.). The chemical investigation of Trinidad well waters and its geological and economical significance: *Inst. Petroleum Technologists, Jour.*, vol. 15, no. 73, pp. 138-182, 6 figs., 2 pls., April, 1929.

Parks, William Arthur.

1989. Report on the oil and gas resources of the Province of Quebec: Quebec (Province), *Bur. Mines, Ann. Rept.* 1929, 126 pp., 9 figs., 3 maps, Quebec, 1930.

Parris, F. G. See Johnson, 1284.

Parsons, Arthur Leonard.

1990. The determination of crystallographic constants in the triclinic system: *Am. Mineralogist*, vol. 14, no. 4, pp. 154-159, 3 figs., April, 1929.

1991. Iridescent color in peristerite: *Am. Mineralogist*, vol. 15, no. 3, pp. 85-97, 3 figs., March, 1930.

1992. Pyroxene and scapolite from Templeton Township, Quebec: *Toronto, Univ., Studies, Geol. ser. no. 29*, pp. 25-28, 1930.

1993. A chemical and optical study of amphibole: *Toronto, Univ., Studies, Geol. ser. no. 29*, pp. 29-33, 1930.

1994. The lattice dimensions of natrolite from Wasson's Bluff, Nova Scotia: *Toronto, Univ., Studies, Geol. ser. no. 29*, pp. 35-36, 1930.

1995. Lattice dimensions of heulandite from Wasson's Bluff, Nova Scotia: *Toronto, Univ., Studies, Geol. ser. no. 29*, pp. 37-38, 1930.

Partridge, E. P. See Ramsdell, 2080.

Patterson, J. W. See Stock, 2518.

Patton, Leroy T.

1996. The geology of Stonewall County, Tex.: *Texas, Univ., Bull. no. 3027*, 77 pp., 4 figs., 1 pl. (map), December, 1930.

Patton, Raymond Stanton.

1997. Coordination of seismological investigation in the United States: *Seismol. Soc. America, Eastern section, Proc. 1930 Meeting, Washington*, pp. 51-54 [1930].

Patty, Ernest N.

1998. The known tin deposits of Alaska: *Eng. and Min. Jour.*, vol. 127, no. 15, pp. 589-592, 3 figs., April 13, 1929.

Payne, Henry Mace.

1999. An examination and comparative study of the work of the Kentucky Geological Survey, 1919-1929: *Kentucky Geol. Survey, ser. 6*, vol. 35, pp. 211-218, 1930.

Peck, Raymond E.

2000. Blastoids from the Chouteau limestone (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 245, March 30, 1929.

2001. Blastoids from Brazer limestones of Utah: *Pan-Am. Geologist*, vol. 54, no. 2, pp. 104-108, 1 pl., September, 1930; abstract, vol. 53, no. 4, p. 308, May, 1930; *Geol. Soc. America Bull.*, vol. 41, no. 1, p. 179, March 31, 1930.

Pedersen, Th. Bjerring.

2002. (edited by Alfred Rosenkrantz). *Efterladte Noter om geologiske Undersøgelser i Scoresby Sund, 1924-25: Dansk Geol. Foren., Med., Bd. 7, H. 4*, pp. 291-302, 5 figs., 1929.

Pegau, A. A.

2003. The pegmatites of the Amelia, Goochland, and Ridgeway areas, Virginia: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 543-547, June, 1929.

Pegrum, Reginald H.

2004. Louis Agassiz and glacial-age theory: *Hobbies (Buffalo Soc. Nat. Sci.)*, vol. 9, no. 5, pp. 151-157, 174, 8 figs. (incl. portr.), January, 1929.

Pemberton, J. R.

2005. Elk Hills, Kern County, Calif.: Structure of typical American oil fields, vol. 2, pp. 44-61, 6 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Penck, Albrecht.

- 2006. Geomorphologische Probleme im fernen Westen Nordamerikas: Preuss. Akad. Wissensch., Sitzungsber., 1929, pp. xii-xv, 187-218, 1929.
- 2007. Grove Karl Gilbert: Gesell. Erdkunde Berlin, Zeitschr., 1929, no. 7-8, pp. 265-278.

Pennsylvania, Topographic and Geologic Survey.

- 2008. Bulletin, nos. 95-100 [mimeographed]:

- 95. Mineral resources of the lower Allegheny-Beaver River district, by George H. Ashley. July 5, 1928.
- 96. Sand and gravel in the Scranton region, Pennsylvania, by Freeman Ward. October 2, 1928.
- 97. Mineral resources of Pennsylvania, by George H. Ashley. November 26, 1928.
- 98. Not yet published. (?)
- 99. Sand and gravel in the Reading region, Pennsylvania, by Freeman Ward. November 20, 1927.
- 100. Sand and gravel in the Altoona region, Pennsylvania, by Freeman Ward. March 7, 1930.

Penrose, Richard Alexander Fullerton, jr., 1863-1931.

- 2009. The early days of the department of geology at the University of Chicago: Jour. Geology, vol. 37, no. 4, pp. 320-327, 1 pl., May-June, 1929.

Pentegoff, V. P. See Henderson, 1125.

Pepperberg, Leon J.

- 2010. Nigger Creek field, Limestone County, Tex.: Structure of typical American oil fields, vol. 1, pp. 409-420, 3 figs., Am. Assoc. Petroleum Geologists, 1929.

Perkins, Edward H. See also Merrill, 1780.

- 2011. The natural history of Maine minerals: Maine [State Geologist], First Ann. Rept., pp. 53-56, 1930.
- 2012. Our Maine earthquakes: Maine [State Geologist], First Ann. Rept., pp. 57-63, 1930.
- 2013. The post-Pleistocene clays of Maine: Maine [State Geologist], First Ann. Rept., pp. 75-81, 1 fig., 1930.
- 2014. Evolution of Maine scenery: Maine [State Geologist], First Ann. Rept., pp. 82-87, 1930.

Perkins, George Henry.

- 2015. The rocks of Vermont: Vermont, State Geologist, 16th Rept., pp. 85-106 [1929].
- 2016. Mineral resources [of Vermont], 1928: Vermont, State Geologist, 16th Rept., pp. 382-386 [1929].

Perry, Elwyn Lionel.

- 2017. The geology of Bridgewater and Plymouth Townships, Vt.: Vermont, State Geologist, 16th Rept., pp. 1-64, 7 figs. [1929].
- 2018. Retreat of Cavell Glacier: Science, new ser., vol. 70, pp. 537-538, November 29, 1929.
- 2019. Fibrous magnetite after chrysotile: Am. Jour. Sci., 5th ser., vol. 20, pp. 177-179, 1 fig., September, 1930.

Peterson, Eunice.

- 2020. The Dresbach formation of Minnesota: Buffalo Soc. Nat. Sci., Bull., vol. 14, no. 2, 48 pp., 1 fig., 1 pl., 1929.

Pettijohn, F. J.

2021. Imbricate arrangement of pebbles in a pre-Cambrian conglomerate: Jour. Geology, vol. 38, no. 6, pp. 568-573, 4 figs., August-September, 1930.

Petty, Julian J.

2022. Striated cobbles from Teay Valley, W. Va.: Science, new ser., vol. 71, p. 483, May 9, 1930.

Phemister, T. C. See Hanson, 1062.

Picher, R. H.

2023. Road materials in Prince Edward Island: Canada, Dept. Mines, Mines Branch, Investigations in ceramics and road materials, 1927, pp. 46-59, 1929. [Pub. no. 697.]

Piggot, Charles Snowden.

2024. Radium in rocks; I, The radium content of some representative granites of the eastern seaboard of the United States: Am. Jour. Sci., 5th ser., vol. 17, pp. 13-34, 3 figs., January, 1929.

2025. Isotopes and the problem of geologic time: Am. Chem. Soc. Jour., vol. 52, no. 8, pp. 3161-3164, August, 1930.

Pillsbry, Henry Augustus.

2026. *Cyphoxis* Rafinesque, a Cretaceous taxodont identical with *Idonearca* Conrad: Nautilus, vol. 42, no. 4, pp. 113-114, April, 1929.

Pirsson, Louis Valentine, 1860-1919.

2027. A textbook of geology; Part I, Physical geology. Third edition, revised (Chester R. Longwell, editor), 488 pp., 322 figs., New York, John Wiley & Sons, 1929.

Pirtle, G. See McFarlan, 1656.

Platts, John B.

2028. Carbonate filling of veins: Eng. and Min. Jour., vol. 127, no. 12, p. 489, March 23, 1929.

Plummer, Frederick Byron. See also Scott, 2333.

2029. (and others.). Annual meeting of the Society of Economic Paleontologists and Mineralogists [Fort Worth, Tex., 1929]: Jour. Paleontology, vol. 3, no. 2, pp. 218-227, June, 1929.

2030. In memoriam—Daniel Franklin Higgins: Jour. Paleontology, vol. 4, no. 2, p. 211, June, 1930.

Plummer, Helen Jeanne.

2031. Photographic slide mount for microfossils: Jour. Paleontology, vol. 3, no. 2, pp. 189-195, 3 figs., June, 1929.

Plummer, T. B.

2032. (and Sargent, E. C.). Geochemical studies of Woodbine sand in eastern Texas (abstract): Pan-Am. Geologist, vol. 53, no. 3, p. 223, April, 1930.

Pohl, Erwin R.

2033. Middle Devonian pelecypods of Wisconsin and their bearing on correlation: Washington Acad. Sci., Jour., vol. 19, no. 3, pp. 53-59, February 4, 1929.

Pohl, Erwin R.—Continued.

- 2034. Faunal studies and their bearing on the correlation of the Wisconsin Devonian (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 222, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 3, p. 234, April, 1929.
- 2035. The Devonian of Wisconsin; Part I. *Lamellibranchiata*: Milwaukee, Public Mus., *Bull.*, vol. 11, no. 1, pp. 1–100, 5 figs., 14 pls., September 3, 1929.
- 2036. The Middle Devonian Traverse group of rocks in Michigan, a summary of existing knowledge: *U. S. Nat. Mus., Proc.*, vol. 76, art. 14, 34 pp., 2 pls., 1930.
- 2037. Lower Mississippian stratigraphy of Tennessee (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 118, March 31, 1930; *Pan-Am Geologist*, vol. 53, no. 2, pp. 146–147, March, 1930.
- 2038. Devonian record in central Tennessee (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, pp. 150–151, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 195, March 31, 1930.
- 2039. Devonian formations of the Mississippi Basin: *Tennessee Acad. Sci., Jour.*, vol. 5, no. 2, pp. 54–63, April, 1930.
- 2040. Underground in Tennessee and Kentucky: *Tennessee Acad. Sci., Jour.*, vol. 5, no. 3, pp. 91–111, 18 figs., July, 1930.
- 2041. The black shale series of central Tennessee: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 151–152, August, 1930.

Pollock, James B.

- 2042. The origin of Pearl Harbor, Island of Oahu [Hawaiian Islands]: *Michigan Acad. Sci., Papers*, vol. 10, pp. 217–250, 2 figs., April, 1929.

Pond, Adela Morse.

- 2043. Preliminary report on the peneplains of the Taconic Mountains of Vermont: Vermont, State Geologist, 16th Rept., pp. 292–314, 11 figs. [1929].

Pond, Walter F. See also Mehl, 1753.

- 2044. Geology and characteristics of Tennessee ground waters: *Waterworks Engineering*, vol. 83, no. 5, pp. 316 and 319, February 26, 1930.

Ponton, Gerald M. See Cole, 517.

Porter, Charles A.

- 2045. Structural control of ore deposition: *Econ. Geology*, vol. 24, no. 8, pp. 866–869, December, 1929.
- 2046. Fracturing and intrusives [occurrence of ore deposits in Utah]: *Eng. and Min. Jour.*, vol. 130, no. 7, pp. 344–345, October 9, 1930.

Posnjak, Eugen.

- 2047. The crystal structures of magnesium, zinc, and cadmium ferrites: *Am. Jour. Sci.*, 5th ser., vol. 19, pp. 67–70, January, 1930.

Post, William S.

- 2048. Santa Ana investigation, flood control and investigation; chapter 12, Historic geology relating to the absorptive sedimentary formations: California, Dept. Public Works, Div. Eng. and Irrig., *Bull.* no. 19, pp. 225–267, 7 pls. (incl. map), and map 14, December 1, 1928.

Poulser, Chr.

2049. Contributions to the stratigraphy of the Cambro-Ordovician of east Greenland: Meddelelser om Grönland, Bd., 74, pp. 297-316, 1930.

Powell, W. Carlos.

2050. Report on the investigation of the proposed dam sites on Red River, N. Mex.: New Mexico, State Eng., Ninth Bienn. Rept., pp. 91-96 [1930].
2051. Report of an investigation of the Hot Springs artesian basin, Hot Springs, N. Mex.: New Mexico, State Eng., Ninth Bienn. Rept., pp. 121-129, map [1930].

Powers, Howard A.

2052. The relation of chemical composition to texture of groundmass in siliceous lavas: Jour. Geology, vol. 37, no. 3, pp. 268-271, 1 fig., April-May, 1929.

Powers, Sidney.

2053. Crinerville oil field, Carter County, Okla.: Structure of typical American oil fields, vol. 1, pp. 192-210, 6 figs., Am. Assoc. Petroleum Geologists, 1929.
2054. History of the American Association of Petroleum Geologists: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 2, pp. 153-170, February, 1929.
2055. Structure of typical American oil fields: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 5, pp. 628-631, May, 1930.

Powers, William E. See Ball, 103.

Pressler, Edward D.

2056. Upper faunal horizons of the San Fernando group in Las Posas and South Mountain districts, Ventura County, Calif. (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 260, March 30, 1929.
2057. The Fernando group in the Las Posas-South Mountain district, Ventura County, Calif.: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 13, pp. 325-345, 4 figs., September 30, 1929.

Price, Andrew. See also Hall, 1037.

2058. Trilobites of the chert beds of Pocahontas County: West Virginia Acad. Sci., Proc., vol. 3, pp. 210-212, West Virginia Univ. Bull., ser. no. 30, no. 1 [1930].

Price, George McCready.

2059. The geological-ages hoax; a plea for logic in theoretical geology. 126 pp., New York, Fleming H. Revell Co. [c. 1931].

Price, Paul Holland.

2060. Pocahontas County: West Virginia Geol. Survey, County Reports, 531 pp., 21 figs., 71 pls., 2 maps, 1929.

Price, William Armstrong.

2061. Physiography of Corpus Christi area, Texas (abstract): Pan-Am. Geologist, vol. 53, no. 3, p. 216, April, 1930.
2062. Discovery of oil in Saxet gas field, Nueces County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 10, p. 1351, October, 1930.

Prouty, William Frederick.

2063. A bituminous fossil plant from the Triassic of North Carolina: Science, new ser., vol. 72, p. 527, November 21, 1930.

Purdue, Albert Homer. See Miser, 1808.

Pusey, William Allen.

2064. The New Madrid earthquake—an unpublished contemporaneous account: *Science*, new ser., vol. 71, pp. 285-286, March 14, 1930.

Putnam, Edward Kirby.

2065. Defossilizing fossils; a paper read before the Contemporary Club, Davenport, Iowa, March 19, 1929. 14 pp., Davenport, Iowa, Contemporary Club, 1929.

Putnam, George Rockwell.

2066. Isostatic compensation in relation to geological problems: *Jour. Geology*, vol. 38, no. 7, pp. 590-599, 1 fig., October-November, 1930.

2067. Isostasy; what gravity measurements reveal: *Washington Acad. Sci., Jour.* vol. 20, no. 18, pp. 446-447, November 4, 1930.

Putnam, W. C. See Davis, 648.

Quayle, Ernest H.

2068. Corals of genus *Caryophyllia* from California (abstract): *Pan-Am. Geologist*, vol. 54, no. 3, p. 239, October, 1930.

Quinn, A. W.

2069. Normal faulting in the Lake Champlain region (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 144, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 113-114, March 31, 1930.

Quirke, Terence Thomas.

2070. Earth deformation: *Internat. Geol. Congress*, 14th session, Spain, 1926, *Compt. rend.*, fasc. 4, pp. 1537-1558, 5 figs., 1928 [1929].

2071. The structure and batholiths of French River area: *Jour. Geology*, vol. 37, no. 7, pp. 683-699, 6 figs., October-November, 1929.

2072. (and Collins, W. H.). The disappearance of the Huronian: *Canada, Geol. Survey, Mem.* 160, 129 pp., 4 figs., 7 pls., 4 maps, 1930.

2073. Spring pits, sedimentation phenomena: *Jour. Geology*, vol. 38, no. 1, pp. 88-91, 3 figs., January-February, 1930.

2074. (and Collins, William H.). Eastward delimitation of original Huronian complex: *Pan-Am. Geologist*, vol. 54, no. 5, pp. 339-344, 1 pl., December, 1930.

Radler, Dollie.

2075. Micropaleontology in the Mid-Continent region: *National Research Council, Reprint and Circular Ser.*, no. 92 (Rept. Comm. Sedimentation), pp. 68-70, 1930.

2076. Lincoln County: *Oklahoma Geol. Survey, Bull.* no. 40, vol. 3, pp. 599-610, 7 figs., map, July, 1930 (*Bull.* 40-VV, May, 1930).

Ragatz, R. A.

2077. Preparing thin specimens for microscopic examination: *Mining and Metallurgy*, vol. 10, no. 272, pp. 372-379, 20 figs., August, 1929.

Ratsch, Erwin J.

2078. The scenery of Mount Desert Island; its origin and development: *New York Acad. Sci., Annals*, vol. 31, pp. 121-186, 46 figs., 1 pl., September 18, 1929.

2079. Physiography of Cuba (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 148, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 119, March 31, 1930.

Ramsdell, Lewis S.

2080. (and Partridge, E. P.) The crystal forms of calcium sulphate: *Am. Mineralogist*, vol. 14, no. 2, pp. 59-74, 3 figs., February, 1929.
 2081. An X-ray study of the domeykite group: *Am. Mineralogist*, vol. 14, no. 5, pp. 188-198, 2 figs., May, 1929.

Ramser, C. E.

2082. Erosion and silting of dredged drainage ditches: U. S. Dept. Agric., Tech. Bull. no. 184, 54 pp., 24 figs., 22 pls., June, 1930.

Rankin, C. H.

2083. Geologic work in eastern Colorado: *Oil and Gas Jour.*, vol. 28, no. 49, pp. 112, 187, April 24, 1930.

Rankin, C. L.

2084. Faulting in southwestern Arkansas: *Am. Assoc. Petroleum Geologists, Bull.* vol. 14, no. 7, pp. 829-844, 2 figs., July, 1930.

Rankin, Charles H., jr.

2085. Use of thin bentonite beds in mapping structure, Rosencranz area, Kansas and Colorado: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 8, pp. 1065-1070, August, 1930.

Rathbun, Mary Jane.

2086. A new crab from the Eocene of Florida: *U. S. Nat. Mus., Proc.*, vol. 75, art. 15, 4 pp., 3 pls., 1929.
 2087. New species of fossil decapod crustaceans from California: *Washington Acad. Sci., Jour.*, vol. 19, no. 21, pp. 469-472, 2 figs., December 19, 1929.
 2088. Fossil decapod crustaceans from Mexico: *U. S. Nat. Mus., Proc.*, vol. 78, art. 8, 10 pp., 6 pls., 1930.
 2089. A new *Callianassa* from the Cretaceous of South Dakota: *Washington Acad. Sci., Jour.*, vol. 20, no. 1, pp. 1-3, 3 figs., January 4, 1930.
 2090. *Hoploparia westoni* Woodward [Bearpaw shale, Alberta]: *Washington Acad. Sci., Jour.*, vol. 20, no. 10, pp. 180-183, 3 figs., May 19, 1930.

Ray, Frank A.

2091. The Ohio coal supply and its exhaustion: *Ohio, Geol. Survey*, 4th ser., Bull. 34, pp. 329-342, 1929.

Ray, James C.

2092. Importance of sulphide metasomatic replacement in certain types of ore deposits (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 152-153, March 31, 1930; *Pan-Am. Geologist*, vol. 51, no. 5, p. 371, June, 1929.
 2093. Synthetic sulphide replacement of ore minerals: *Econ. Geology*, vol. 25, no. 5, pp. 433-451, 14 figs., August, 1930.

Ray, Priyadaranyan.

2094. Atacamit aus Grönland: *Centralbl. Mineralogie*, 1929, Abt. A, no. 9, pp. 318-319.

Raymond, Percy Edward.

2095. A lower Devonian *Phacops* with ventral appendages: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 280-282, 1 fig., March, 1929.
 2096. Paleontological evidence bearing on the problem of the permanence of continents and oceans (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 105, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 145, March, 1929.

Raymond, Percy Edward—Continued.

- 2097. Report on invertebrate paleontology: Harvard Coll., Mus. Comp. Zoology, Ann. Rept. 1929-30, pp. 31-33, 1930.
- 2098. The Paleozoic formations in Jasper Park, Alberta: Am. Jour. Sci., 5th ser., vol. 20, pp. 289-300, October, 1930.
- 2099. The base of the Ordovician in the Canadian Rockies: Am. Jour. Sci., 5th ser., vol. 20, pp. 301-307, October, 1930; correction, vol. 21, p. 359, April, 1931.

Read, Charles B.

- 2100. Occurrence of *Rhododendron* in the Tertiary of western America (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 212, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, p. 157, September, 1929.
- 2101. Age and affinities of Lamar Valley flora (abstract): Pan-Am. Geologist, vol. 54, no. 3, p. 239, October, 1930.

Reagan, Albert B.

- 2102. Pleistocene mollusks from Hopi Buttes: Pan-Am. Geologist, vol. 51, no. 5, pp. 337-338, 1 pl., June, 1929.
- 2103. Recent changes in elevation of Olympic Peninsula: Pan-Am. Geologist, vol. 52, no. 4, pp. 275-276, November, 1929.
- 2104. Geology of the Deep Creek Reservation: Kansas Acad. Sci., Trans., vol. 32, pp. 105-116, 2 figs., 1 pl. (map) [1930].

Redfield, Arthur Huber.

- 2105. Oil occurrences in the British Empire: Petroleum World, London, vol. 26, no. 349, pp. 365-379, October, 1929.

Redfield, John S. See also Bullard, 369.

- 2106. A granite "mushroom" rock: Oklahoma Acad. Sci., Proc., vol. 8 (Oklahoma, Univ., Bull., n. s. no. 410), pp. 125-126, 2 figs. [1929].
- 2107. Subdivision of the Bokchito formation in Love County, Okla.: Oklahoma Acad. Sci., Proc., vol. 9 (Oklahoma, Univ., Bull., new ser., no. 456), pp. 76-77, November 15, 1929.

Redmon, H. E. See Ruedemann, 2226.

Reed, Lyman C.

- 2108. (and Longnecker, Oscar M., jr.). A Yegua-Eocene delta in Brazos County, Tex.: Texas, Univ., Bull. no. 2901, pp. 163-174, 5 figs., August, 1929.

Reed, Ralph D.

- 2109. Sespe formation, California: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 5, pp. 489-507, 1 fig., May, 1929.
- 2110. Sedimentational research on the Pacific coast, 1928-29: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 65-68, 1930.
- 2111. Structural history of the Coalinga district [California] (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 150-151, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 370, June, 1929.
- 2112. Recent sands of California: Jour. Geology, vol. 38, no. 3, pp. 223-245, 14 figs., April-May, 1930.
- 2113. Concretions and geological research (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 73, August, 1930.
- 2114. Calcareous beds of San Pedro Hills (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 155, September, 1930.

Read, W. Maxwell.

2115. The earth for Sam; the story of mountains, rivers, dinosaurs, and men. 390 pp., 207 figs., New York, Harcourt, Brace & Co., c. 1930.

Reeds, Chester Albert.

2116. The Natural Bridge of Virginia and its environs. 62 pp., 85 figs., New York, Nomad Publishing Co., 1927.
2117. Suggested correlation of solar radiation weather and varved clay (abstract): Science, new ser., vol. 70, p. 587, December 13, 1929.
2118. Weather and glaciation: Geol. Soc. America, Bull., vol. 40, no. 4, pp. 597-629, 14 figs., December 31, 1929.
2119. Land erosion: Nat. History (Am. Mus. Nat. Hist., Jour.), vol. 30, no. 2, pp. 131-149, 22 figs., March-April, 1930.
2120. (and Antevs, Ernst). Maps of the Pleistocene glaciations (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 147, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 115, March 31, 1930.

Reeside, John Bernard, jr. See also Baker, 81, 82, 83; Dobbin, 685.

2121. *Exogyra olisiponensis* and *Exogyra costata* Say in the Cretaceous of the Western Interior: U. S. Geol. Survey, Prof. Paper 154, pp. 267-278, 5 pls., April 20, 1929.
2122. (and Baker, Arthur A.). The Cretaceous section in Black Mesa, northern Arizona: Washington Acad. Sci., Jour., vol. 19, no. 2, pp. 30-37, January 19, 1929.
2123. "Triassic-Jurassic 'Red Beds' of the Rocky Mountain region"; a discussion: Jour. Geology, vol. 37, no. 1, pp. 47-63, 1 fig., January-February, 1929.
2124. Cretaceous of the Arctic and sub-Arctic regions (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 234-235, March 30, 1929.
2125. Descriptive geology of Green River Valley between Green River, Wyo., and Green River, Utah: U. S. Geol. Survey, Water-Supply Paper 618, pp. 56-63, 2 figs., 1930.
2126. The Cretaceous faunas in the section on Vermilion Creek, Moffat County, Colo.: Washington Acad. Sci., Jour., vol. 20, no. 3, pp. 35-41, February 4, 1930.
2127. A Cretaceous pelecypod with color markings: Washington Acad. Sci., Jour., vol. 20, no. 4, pp. 59-60, 1 fig., February 19, 1930.

Reeves, Frank. See also Collins, 527.

2128. Thrust faulting and oil possibilities in the plains adjacent to the Highwood Mountains, Mont.: U. S. Geol. Survey, Bull. 806, pp. 155-190, 7 figs., 1 pl., March 15, 1929.
2129. Thermal springs of Virginia (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 91-92, March 30, 1929; Pan-Am Geologist, vol. 51, no. 2, p. 140, March, 1929.
2130. (and Ross, Clyde P.). A geologic study of the Madden dam project, Alhajuela, Canal Zone: U. S. Geol. Survey, Bull. 821, pp. 11-49, 5 figs., 13 pls., 1930.

Reeves, John R.

2131. El Dorado oil field, Butler County, Kans.: Structure of typical American oil fields, vol. 2, pp. 160-167, 5 figs., Am. Assoc. Petroleum Geologists, 1929.

Reger, David Bright.

2132. Copley oil pool of West Virginia: Structure of typical American oil fields, vol. 1, pp. 440-461, 5 figs., Am. Assoc. Petroleum Geologists, 1929.
2133. The Monongahela series of West Virginia: West Virginia Acad. Sci., Proc., vol. 3, pp. 134-146, 1 fig., West Virginia Univ., Bull. ser. no. 30, no. 1 [1930].

Reichel, Eberhard.

2134. Der Wasserhaushalt des Coloradogebietes im südwestlichen Nordamerika: Geog. Abhandlungen (Penck), 2d ser., H. 4, pp. 1-74, 5 figs., Stuttgart, 1928.

Reid, Harry Fielding.

2135. Folding and faulting of strata (abstract): Pan-Am. Geologist, vol. 53, no. 1, pp. 76-77, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 53, March 31, 1930.

Reiter, W. A.

2136. Highest Taylor chalk in Jacksonville, Tex., embayment: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 3, pp. 322-323, March, 1930.

Renick, B. Coleman.

2137. Geology and ground-water resources of central and southern Rosebud County, Mont., with chemical analyses of the waters by H. B. Riffenburg: U. S. Geol. Survey, Water-Supply Paper 600, 140 pp., 15 figs., 12 pls. (incl. map), 1929. (Bentonitic materials, by Clarence S. Ross, p. 18.)
2138. The petrology and geology of a portion of Malheur County, Oreg.: Jour. Geology, vol. 38, no. 6, pp. 481-520, 8 figs., 5 pls., August-September, 1930.

Resser, Charles Elmer. See also Ulrich, 2698.

2139. Cambrian geology of the Rocky Mountains: Smithsonian Inst., Explorations and field work in 1928, pp. 21-26, 6 figs., 1929.
2140. New Lower and Middle Cambrian Crustacea: U. S. Nat. Mus., Proc., vol. 76, art. 9, 18 pp., 7 pls., 1929.
2141. Cambrian of the Arctic regions (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 224-225, March 30, 1929.
2142. Further studies of Cambrian geology in the Rocky Mountains: Smithsonian Inst., Explorations and field work in 1929, pp. 23-30, 8 figs., 1930.

Rettger, R. E.

2143. On specifying the type of subsurface structural contouring: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 12, pp. 1559-1561, 3 figs., December, 1929.

Retty, J. A.

2144. Township of McKenzie, Chibougamau region, Quebec: Quebec Bur. Mines, Ann. Rept. 1929, pt. D, pp. 41-72, map, 1930.

Reynolds, T. Emmett.

2145. New insectivores from lower Paleocene (abstract): Pan-Am. Geologist, vol. 54, no. 3, pp. 237-238, October, 1930.

Rich, John Lyon. See also Russell, 2249.

2146. Circular structural depressions in central Kansas: *Geol. Soc. America, Bull.*, vol. 41, no. 2, pp. 315-320, 2 figs., June 30, 1930; abstract, no. 1, p. 52, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 1, p. 76, February, 1930.

Richards, G. L. See Davis, 648.

Richards, Horace G.

2147. Fossils from New Jersey, indicating a warm interglacial period (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 207-208, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 154, March, 1930.
2148. Fossil mollusks and other invertebrates from the Hudson River tunnel, New York and New Jersey: *Nautilus*, vol. 43, no. 4, pp. 131-132, April, 1930.

Richardson, Charles Henry.

2149. The petrography of the Irasburg conglomerate: Vermont, *State Geologist*, 16th Rept., pp. 107-110 [1929].
2150. The geology and petrography of Reading, Cavendish, Baltimore, and Chester, Vt.: Vermont *State Geologist*, 16th Rept., pp. 208-248, 11 figs. [1929].

Richardson, George Burr.

2151. Oil and gas fields of the State of Wyoming. Scale 1:500,000. U. S. Geological Survey, 1930.

Richarz, Stephen.

2152. A peculiar blue-green amphibole from the metamorphic iron formation of the eastern Mesabi range, Minnesota: *Am. Mineralogist*, vol. 15, no. 2, pp. 65-68, February, 1930.
2153. The metamorphic iron formation of the eastern Mesabi range, Minnesota, and its relation to the Embarras granite: *Jour. Geology*, vol. 38, no. 7, pp. 600-618, 4 figs., October-November, 1930.

Rickaby, H. C. See Burrows, 381.

Ridgeway, Robert H.

2154. Summarized data of gold production: U. S. Bur. Mines, *Econ. Paper* 6, 63 pp., 1929.

Rieber, Frank. See also Heiland, 1113.

2155. A new micromagnetometer: *Am. Inst. Min. and Met. Eng.*, *Geophysical prospecting*, pp. 401-415, 9 figs., 1929.
2156. Adaptation of elastic-wave exploration to unconsolidated structures: *Am. Inst. Min. and Met. Eng.*, *Geophysical prospecting*, pp. 654-667, 12 figs., 1929.
2157. Choice of geophysical methods: *Mining and Metallurgy*, vol. 11, no. 282, pp. 301-305, 9 figs., June, 1930.
2158. Results of elastic-wave surveys in California and elsewhere (with discussion by D. C. Barton): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 12, pp. 1557-1571, 16 figs., December, 1930.

Ries, Heinrich.

2159. The origin of petroleum: *Sci. Am.*, vol. 140, no. 1, pp. 56-59, 6 figs., January, 1929.

Ries, Heinrich—Continued.

2160. The importance of geology to civil engineering: Eng. Jour. (Eng. Inst. Canada), vol. 12, no. 1, pp. 3-7, 4 figs., January, 1929; discussion, no. 5, pp. 329-332, 2 figs., May, 1929.

2161. The importance to the geologist of nonmetallic specifications: Econ. Geology, vol. 24, no. 4, pp. 440-442, June-July, 1929.

2162. Some problems of the nonmetallics: Geol. Soc. America, Bull., vol. 41, no. 1, pp. 237-269, March 31, 1930.

Riggs, Robert J.

2163. (and Charles, H. H.). Oklahoma City oil field (abstract): Pan-Am. Geologist, vol. 53, no. 3, p. 228, April, 1930.

Roberts, D. C.

2164. Long Beach oil field, Los Angeles County, Calif.: Structure of typical American oil fields, vol. 2, pp. 62-74, 4 figs., Am. Assoc. Petroleum Geologists, 1929.

Roberts, E. D.

2165. Geology of nonmetallic minerals: Pit and Quarry Hand Book, 1929 ed., pp. 5-11, Chicago [1929].

Roberts, H. N.

2166. Some underground waters of west Texas and their geological horizons: Am. Soc. Civil Eng., Texas section, First ser., Tech. Paper no. 1, 31 pp., 7 pls., July, 1929.

Roberts, Joseph Kent.

2167. The Cretaceous deposits of Trigg, Lyon, and Livingston Counties, Ky.: Kentucky Geol. Survey, ser. 6, vol. 31, pp. 281-326, 10 figs., 1929.

2168. (and Meacham, R. P.). Geologic map of Calloway County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.

2169. (and Meacham, R. P.). Geologic map of McCracken County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.

2170. Clays of the Jackson Purchase region, Kentucky: Econ. Geology, vol. 25, no. 8, pp. 832-836, December, 1930.

Robinson, J. French.

2171. Scenery Hill gas field, Washington County, Pa.: Structure of typical American oil fields, vol. 2, pp. 443-450, 1 fig., Am. Assoc. Petroleum Geologists, 1929.

2172. Stratigraphy of southwestern Pennsylvania: Eng. Soc. Western Pennsylvania, Proc., vol. 46, no. 5, pp. 133-138, 3 pls., 11 tables, May, 1930.

Robinson, Lewis Cass.

2173. Geological map of McLean County, Ky.: Kentucky Geol. Survey, ser. 6, 1930. Scale 1:62,500.

Robinson, T. W. See Stearns, 2483.

Rode, Karl.

2174. Structure in the vicinity of Santa Cruz (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 171, March 30, 1929.

2175. Geomorphogenie des Ben Lomond (Kalifornien); eine Studie über Terrassenbildung durch marine Abrasion: Zeitschr. Geomorphologie, Bd. 5, H. 1-2, pp. 16-78, 14 figs., 1 pl., April, 1930.

Rogers, Allen H.

2176. Geophysics and the mining engineer: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 44-50, 1929.

Rogers, Austin Flint.

2177. Polysynthetic twinning in dolomite: Am. Mineralogist, vol. 14, no. 7, pp. 245-250, 11 figs., July, 1929.
2178. Periclase from Crestmore near Riverside, Calif., with a list of minerals from this locality: Am. Mineralogist, vol. 14, no. 12, pp. 462-469, 12 figs., December, 1929.
2179. A unique occurrence of lechatelierite or silica glass: Am. Jour. Sci., 5th ser., vol. 19, pp. 195-202, 9 figs., March, 1930.
2180. Geological history of Lone Hill (abstract): Pan-Am. Geologist, vol. 54, no. 2, pp. 157-158, September, 1930.
2181. Distribution of crystals among the thirty-two symmetry classes (abstract): Pan-Am. Geologist, vol. 54, no. 2, pp. 159-160, September, 1930.

Rogers, James K.

2182. A type of landslide common in clay terraces (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 167, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 304, 1929.

Rogers, William Ross.

2183. (and Young, A. C.). Statistical review of Ontario's mineral industry in 1927: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 1, pp. 1-68, Toronto, 1929.
2184. (and Young, A. C.). Statistical review of Ontario's mineral industry in 1929: Ontario, Dept. Mines, 39th Ann. Rept., vol. 39, pt. 1, pp. 1-68, 1930.

Rolfe, Deette.

2185. The Rock River country of northern Illinois: Illinois, State Geol. Survey, Educ. ser. no. 2, 59 pp., illus., 1929.

Romer, Alfred Sherwood.

2186. Taxonomy and morphology of some Pennsylvanian amphibians (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 243, March 30, 1929.
2187. A fresh skull of an extinct American camel: Jour. Geology, vol. 34, no. 3, pp. 261-267, 5 figs., April-May, 1929.

Romer, Eugenjusz.

2188. A few contributions to the physiography of Glacier Bay, Alaska: Przegląd Geograficzny (Revue polonaise de géographie), vol. 9, pp. 1-27, 1 pl. (map), 1929.

Romine, Thomas B.

2189. Oil fields and structure of Sweetgrass arch, Montana: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 7, pp. 779-797, 1 fig., July, 1929.

Rooney, W. J. See Hotchkiss, 1186.

Ropes, Leverett S.

2190. The man at the face and ore genesis: Eng. and Min. Jour., vol. 127, no. 16, pp. 645-646, April 20, 1929.

Rosenkrantz, Alfred. See also Pedersen, 2002.

2191. Marine Permian deposits in east Greenland: Dansk Geol. Foren., Med., Bd. 7, H. 4, pp. 287-290, 1929.

2192. Preliminary account of the geology of the Scoresby Sound district [Greenland]: Meddelelser om Grønland, Bd. 73, pt. 2, pp. 135-154, 1929.

2193. Summary of investigations of younger Paleozoic and Mesozoic strata along the east coast of Greenland in 1929: Meddelelser om Grønland, Bd. 74, pp. 347-364, 1930.

Ross, Clarence Samuel. See also Renick, 2137.

2194. (and Miser, Hugh D., and Stephenson, Lloyd W.). Water-laid volcanic rocks of early Upper Cretaceous age in southwestern Arkansas, southeastern Oklahoma, and northeastern Texas: U. S. Geol. Survey, Prof. Paper 154, pp. 175-202, 3 figs., 10 pls., March 26, 1929.

2195. Origin of the magnetite and associated rocks of Cranberry, N. C. (abstract): Washington Acad. Sci., Jour., vol. 19, no. 11, pp. 233-234, June 4, 1929.

2196. Is chromite always a magmatic segregation product?: Econ. Geology, vol. 24, no. 6, pp. 641-645, September-October, 1929.

2197. (and Kerr, Paul F.). Dickite, a kaolin mineral: Am. Mineralogist, vol. 15, no. 1, pp. 34-39, January, 1930.

2198. (and Kerr, Paul). The kaolin minerals: Am. Ceramic Soc., Jour., vol. 13, no. 3, pp. 151-160, March, 1930.

Ross, Clyde Polhemus. See also Reeves, 2130; Umpleby, 2700.

2199. Early Pleistocene glaciation in Idaho: U. S. Geol. Survey, Prof. Paper 158, pp. 123-128, 1 fig., 4 pls. (incl. map), 1929; abstract, Washington Acad. Sci., Jour., vol. 19, no. 2, p. 50, January 19, 1929.

2200. History of mining in Idaho (abstract): Washington Acad. Sci., Jour., vol. 19, no. 13, pp. 292-293, July 19, 1929.

2201. A graphic history of metal mining in Idaho: U. S. Geol. Survey, Bull. 821, pp. 1-9, 3 pls., 1930.

2202. Geology and ore deposits of the Seafoam, Alder Creek, Little Smoky, and Willow Creek mining districts, Custer and Gamas Counties, Idaho: Idaho, Bur. Mines and Geology, Pam. no. 33, 26 pp. (mimeographed), 9 pls. (incl. maps), March, 1930.

2203. Classification of the ore deposits of south-central Idaho (abstract): Washington Acad. Sci., Jour., vol. 20, no. 17, p. 436, October 19, 1930.

2204. Erosion surfaces in Idaho (with discussion by George R. Mansfield and Alfred L. Anderson): Jour. Geology, vol. 38, no. 7, pp. 643-651, October-November, 1930.

Ross, J. S.

2205. Deep sand development in Cotton Valley field, Webster Parish, La.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 8, pp. 983-995, 4 figs., August, 1930.

Roth, Robert.

2206. A revision of the ostracod genus *Kirkbya* and subgenus *Amphissites*: Wagner Free Inst. Sci., Pub., vol. 1, pp. 1-56, 2 figs., 3 pls., 1929.

2207. A comparative faunal chart of the Mississippian and Morrow formations of Oklahoma and Arkansas: Oklahoma Geol. Survey, Circ. no. 18, 16 pp., 1 fig., February, 1929.

Roth, Robert—Continued.

2208. A correction of generic and specific names: Jour. Paleontology, vol. 3, no. 3, p. 292, September, 1929.
2209. Some notes on the ostracode *Graphiodactylus* Roth: Jour. Paleontology, vol. 3, no. 3, pp. 293-294, September, 1929.
2210. Some ostracodes from the Haragan marl, Devonian, of Oklahoma: Jour. Paleontology, vol. 3, no. 4, pp. 327-372, 4 pls., December, 1929.
2211. Simpson versus "detrital" at Oklahoma City: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 2, pp. 228-230, February, 1930.
2212. Regional extent of Marmaton and Cherokee Mid-Continent Pennsylvanian formations: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 10, pp. 1249-1278, 1 fig., October, 1930.
2213. (and Skinner, John). The fauna of the McCoy formation, Pennsylvanian, of Colorado: Jour. Paleontology, vol. 4, no. 2, pp. 332-352, 1 fig., 4 pls., December, 1930.

Rothrock, Edgar Paul.

2214. Mineral producers in 1929: South Dakota Geol. Nat. Hist. Survey, Rept. Investigations, no. 1, 30 pp., 3 pls. (mimeographed), January, 1930.
2215. The Fairburn structure: South Dakota Geol. and Nat. Hist. Survey, Rept. Investigations, no. 6, 12 pp. (mimeographed), October, 1930.

Rouse, John T.

2216. Marl balls of the Miami Valley (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 172, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 309, 1929.

Rove, Olaf N. See Hewett, 1140; Trischka, 2675.

Row, Charles H.

2217. Darst Creek fault, Guadalupe County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 10, p. 1387, October, 1929.

Rowe, Paul.

2218. Proboscidian remains from western Iowa (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 147, September, 1930.

Rowser, Edwin M.

2219. Study of the Gower of east-central Iowa (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 174, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 5, pp. 375-376, December, 1929.

Roy, Sharat Kumar.

2220. How old are fossils?: Field Mus. Nat. Hist., Dept. Geology, Leaflet no. 9, 12 pp., 4 pls., 1927.
2221. Contributions to paleontology [descriptions of fossils]: Field Mus. Nat. Hist., Pub. 254, Geol. ser., vol. 4, no. 5, pp. 201-220, 9 pls., February, 1929.
2222. Columnar structure in limestone: Science, new ser., vol. 70, pp. 140-141, August 9, 1929.

Rubey, William W.

2223. Origin of the siliceous Mowry shale of the Black Hills region: U. S. Geol. Survey, Prof. Paper 154, pp. 153-170, 3 pls., March 18, 1929.
2224. Lithologic studies of fine-grained Upper Cretaceous sedimentary rocks of the Black Hills region: U. S. Geol. Survey, Prof. Paper 165, pp. 1-54, 3 figs., 5 pls., 1930.

Rubey, William W.—Continued.

2225. Structural history of Cap au Grès faulted flexure (abstract): Pan-Am. Geologist, vol. 53, no. 1, p. 76, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 52-53, March 31, 1930.

Ruedemann, Paul.

2226. (and Redmon, H. E.). Turkey Mountain lime pools, Oklahoma: Structure of typical American oil fields, vol. 1, pp. 211-219, 6 figs., Am. Assoc. Petroleum Geologists, 1929.
2227. (and Oles, L. M.). Helium—its probable origin and concentration in the Amarillo fold, Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 7, pp. 799-810, 3 figs., July, 1929.

Ruedemann, Rudolf.

2228. (and Goldring, Winifred). Making fossils popular in the State Museum: New York State Mus. Bull. no. 279, pp. 47-51, 6 pls., January, 1929.
2229. Note on *Oldhamia* (*Murchisonites*) *occidens* (Walcott): New York State Mus. Bull. no. 281, pp. 47-50, 4 figs., 1 pl., 1929.
2230. Neuere Beobachtungen an Graptolithen-schiefern in America: Leopoldina, Amerika-Band (K. Leopold. deutsch. Akad. Naturf. Halle, Ber.), Bd. 4, pp. 6-12, 4 figs., 1 pl., 1929.
2231. Graptolites of Arctic areas (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 235-236, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 227-228, April, 1929.
2232. Alternating oscillatory movement in the Chazy and Levis troughs of the Appalachian geosynclines: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 409-416, 2 figs., June 30, 1929; abstract, no. 1, pp. 115, 252, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 149-150, March, 1929.
2233. Coralline algae, Guadalupe Mountains: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 1079-1080, 1 fig., August, 1929.
2234. Geology of the capital district (Albany, Cohoes, Troy, and Schenectady quadrangles): New York State Mus. Bull. no. 285, 218 pp., 40 figs., 39 pls., map, December, 1930.
2235. Age and origin of the siderite and limonite of the Burden iron mines near Hudson, N. Y. (abstract): Pan-Am. Geologist, vol. 53, no. 1, pp. 79-80, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 57, March 31, 1930.
2236. Some new fossils from the Middle Cambrian Burgess shale of British Columbia (abstract): Science, new ser., vol. 71, p. 544, May 23, 1930.
2237. A graptolite from the Chushina formation [British Columbia]: Am. Jour. Sci., 5th ser., vol. 20, pp. 308-311, 2 figs., October, 1930.

Russell, Bert.

2238. Possible effects of continuing density segregation on continental drift and related phenomena (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 173, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 4, p. 307, May, 1930.

Russell, Lorin S.

2239. Paleocene vertebrates from Alberta: Am. Jour. Sci., 5th ser., vol. 17, pp. 162-178, 4 figs., February, 1929.
2240. The validity of the genus *Stylomyleodon*: Am. Jour. Sci., 5th ser., vol. 17, pp. 369-371, April, 1929.

Russell, Loris S.—Continued.

- 2241. Upper Cretaceous and lower Tertiary Gastropoda from Alberta: Roy. Soc. Canada, Trans., ser. 3, vol. 23, sec. 4, pp. 81-90, 1 pl., May, 1929.
- 2242. Upper Cretaceous dinosaur faunas of North America: Am. Philos. Soc., Proc., vol. 69, no. 4, pp. 133-159, 1930.
- 2243. Fresh-water plesiosaurs (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 153, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 198, March 31, 1930.
- 2244. A new species of *Aspideretes* from the Paskapoo formation of Alberta: Am. Jour. Sci., 5th ser., vol. 20, pp. 27-32, 3 figs., July, 1930.

Russell, Richard Dana. See also Hinds, 1152.

- 2245. Fossil pearls from the Chico formation of Shasta County, Calif.: Am. Jour. Sci., 5th ser., vol. 18, pp. 416-428, 12 figs., November, 1929.
- 2246. (and Hinds, N. E. A.). Ione formation of the Redding district [California] (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 157, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 375, June, 1929.

Russell, Richard Joel.

- 2247. Do fault patterns indicate type of displacement? (abstract): Pan-Am. Geologist, vol. 54, no. 1, pp. 75-76, August, 1930.
- 2248. Tundra climate land forms in the United States (abstract): Pan-Am. Geologist, vol. 54, no. 2, pp. 158-159, September, 1930.

Russell, William L. See also Hartnagel, 1076.

- 2249. Is geologic distillation of petroleum possible? with discussion by John L. Rich: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 1, pp. 75-84, 1 fig., January, 1929.
- 2250. Drainage alignment in the western Great Plains: Jour. Geology, vol. 37, no. 3, pp. 249-255, 1 fig., April-May, 1929.
- 2251. Stratigraphy and structure of the Smoky Hill chalk in western Kansas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 6, pp. 595-604, 1 fig., June, 1929.
- 2252. Local subsidence in western Kansas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 6, pp. 605-609, June, 1929.
- 2253. The origin of artesian pressure: Econ. Geology, vol. 24, no. 5, pp. 542-554, August, 1929.
- 2254. The possibilities of oil and gas in western Potter County: South Dakota Geol. and Nat. Hist. Survey, Rept. Investigations no. 7, 14 pp. (mimeographed), 4 figs., December, 1930.

Rutherford, Ralph L.

- 2255. Preliminary notes on the geology of the Peace Hills area; Athabasca and Lesser Slave Lake districts: Alberta, Sci. and Ind. Research Council, Ninth Ann. Rept., 1928, Rept. no. 24, pp. 33-38, map, 1929.
- 2256. Pre-Cambrian algal structures from the Northwest Territories, Canada: Am. Jour. Sci., 5th ser., vol. 17, pp. 258-259, 1 fig., March, 1929.
- 2257. Geology and water resources in parts of the Peace River and Grande Prairie districts, Alberta: Alberta, Research Council, Geol. Survey Div., Rept. no. 21, pp. 1-56, 2 pls., map, 1930.
- 2258. Report of progress on the water supply in the Peace River country [Alberta]: Alberta, Sci. and Ind. Research Council, 10th Ann. Rept. (Rept. no. 25), pp. 31-34, 1 fig., 1930.

Ryan, C. W.

2259. Soapstone mining in Virginia: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 160, 31 pp., 10 figs., January, 1929.

Ryniker, Charles. See Galloway, 898.

Salazar Salinas, Leopoldo.

2260. El Instituto geológico de México. 103 pp., 26 pls., México, Dept. exploraciones y estudios geológicos, 1929.
2261. La naturaleza geológica de una región como base indispensable de todo proyecto de planeación: Mexico, Inst. geol., Foll. divulg. no. 35, 18 pp., April, 1930.

Sampson, Edward.

2262. The determination of anisotropism in metallic minerals: Econ. Geology, vol. 24, no. 4, pp. 412-423, 5 figs., June-July, 1929.
2263. May chromite crystallize late?: Econ. Geology, vol. 24, no. 6, pp. 632-641, 6 figs., September-October, 1929.

Sanborn, Ethel I.

2264. Goshen flora (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 260, March 30, 1929.
2265. Notes on Comstock flora of Oregon (abstract): Pan-Am. Geologist, vol. 54, no. 3, p. 236, October, 1930.

Sanders, C. W., jr.

2266. A composite stock at Snowbank Lake in northeastern Minnesota: Jour. Geology, vol. 37, no. 2, pp. 135-149, 3 figs., February-March, 1929.

Sands, J. Melville.

2267. Burbank field, Osage County, Okla.: Structure of typical American oil fields, vol. 1, pp. 220-229, 5 figs., Am. Assoc. Petroleum Geologists, 1929.

Sanford, John T.

2268. Fossil trails and geological sketches—let's hunt fossils: Hobbies (Buffalo Mus. Sci.), vol. 11, no. 1, pp. 19-20, 1 figs., July, 1930.

Santillán, Manuel.

2269. Geología minera de la región comprendida entre Durango, Dgo., y Mazatlán, Sin., á uno y otro lado de la carretera en proyecto entre esas ciudades: Mexico, Inst. geol., Bol. no. 48, pp. 1-46, 2 pls. (incl. map), 1929.
2270. Geología minera de las regiones norte, noroeste y central del Estado de Guerrero: Mexico, Inst. geol., Bol. no. 48, pp. 45-102, 9 pls. (incl. maps), 1929.
2271. Arcillas y arenas en Cerro Blanco, Tlaxcala, y sus alrededores: Mexico, Inst. geol., Anales, t. 4, pp. 83-95, 2 pls., 1930.
2272. El criadero de yeso de Apipilulco, Estado de Guerrero: Mexico, Inst. geol., Anales, t. 4, pp. 147-151, 1930.

Santmyers, R. M.

2273. Strontium from a domestic standpoint: U. S., Bur. Mines, Econ. Paper 4, 19 pp., 1929.

Sardeson, Frederick William.

2274. Ordovician brachiopod habit: Pan-Am. Geologist, vol. 51, no. 1, pp. 23-40, 1 pl., February, 1929.

Sardeson, Frederick William—Continued.

- 2275. What are Iowan loess and Iowan till?: Pan-Am. Geologist, vol. 51, no. 2, pp. 97-108, March, 1929.
- 2276. Pleistocene glacial stages in North America: Pan-Am. Geologist, vol. 51, no. 3, pp. 193-206, 1 pl. April, 1929.
- 2277. Poesy in paleontology: Pan-Am. Geologist, Bull., vol. 51, no. 4, pp. 281-286, May, 1929.
- 2278. Keweenawan rocks in southern Minnesota: Pan-Am. Geologist, vol. 52, no. 5, pp. 355-364, 1 pl., December, 1929.
- 2279. *Actinoceras* in Minnesota: Pan-Am. Geologist, vol. 53, no. 2, pp. 91-104, 1 pl., March, 1930.
- 2280. *Cameroeras* and its allies: Pan-Am. Geologist, vol. 53, no. 3, pp. 175-182, 1 pl., April, 1930.
- 2281. Known glaciations of North America: Pan-Am. Geologist, vol. 53, no. 5, pp. 327-340, 1 pl., June, 1930; abstract, no. 4, p. 315, May, 1930.
- 2282. Rational delimitation of species in paleontology: Pan-Am. Geologist, vol. 54, no. 4, pp. 281-286, November, 1930.

Sargent, E. C. See Plummer, 2032.

Sauer, Carl.

- 2283. Land forms in the Peninsular Range of California as developed about Warner's Hot Springs and Mesa Grande: California, Univ., Pub. in Geography, vol. 3, no. 4, pp. 199-290, 5 figs., 21 pls., December 31, 1929.

Savage, Thomas Edmund.

- 2284. Tully fauna at the base of the black shale in east-central Kentucky (abstract): Geol. Soc. America, Bull., vol. 1, pp. 112, 249, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 148, March, 1929.
- 2285. The Devonian rocks of Kentucky: Kentucky Geol. Survey, ser. 6, vol. 33, pp. 1-161, 52 figs., 1930.
- 2286. The geological history of the Macomb region: Illinois State Acad. Sci., Trans., vol. 22, pp. 492-502, April, 1930.
- 2287. On the age of the New Albany shale: Science, new ser., vol. 71, p. 537, May 23, 1930.
- 2288. Sedimentary cycles in the Pennsylvania strata: Am. Jour. Sci., 5th ser., vol. 20, pp. 125-135, August, 1930.

Sawyer, R. W. See Lloyd, 1576.

Sayles, Robert Wilcox.

- 2289. Pleistocene formations at Bermuda (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 130, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 153-154, March, 1929.
- 2290. New interpretation of Permo-Carboniferous varves at Squantum [Mass.]: Geol. Soc. America, Bull., vol. 40, no. 3, pp. 541-546, 5 pls., September 30, 1929; abstract, no. 1, pp. 197-198, March 30, 1929.
- 2291. The geological museum, 1907-1929; Chapter XX in The development of Harvard University, 1869-1929 (S. E. Morison, ed.), pp. 329-331, Cambridge, Mass., Harvard University Press, 1930.

Schairer, J. F. See Bowen, 258, 259.

- Schaller, Waldemar Theodore. See also Taber, 2588.
2292. (and Henderson, Edward P.). Mineralogy of the potash fields of New Mexico and Texas (abstract): *Mining and Metallurgy*, vol. 10, no. 268, pp. 197-198, April, 1929.
2293. (and Henderson, E. P.) Mineralogy of potash cores from New Mexico and Texas (abstract): *Washington Acad. Sci., Jour.*, vol. 19, no. 13, p. 287, July 19, 1929.
2294. The properties and associated minerals of gillespite: *Am. Mineralogist*, vol. 14, no. 9, pp. 319-322, September, 1929.
2295. Borate minerals from the Kramer district, Mohave Desert, Calif.: *U. S. Geol. Survey, Prof. Paper* 158, pp. 137-170, 27 figs., 6 pls., 1930.
2296. Adjectival endings of chemical elements used as modifiers to mineral names: *Am. Mineralogist*, vol. 15, no. 12, pp. 566-574, December, 1930.
- Schenck, Hubert Gregory. See also Nelson, 1883, 1884.
2297. *Discocyclina* in California: *San Diego Soc. Nat. Hist., Trans.*, vol. 5, no. 14, pp. 211-240, 10 figs., 4 pls., February 27, 1929; abstract, *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 259, March 30, 1929.
2298. Pittsburg Bluff fauna of the Oregon Oligocene (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 163-164, March 30, 1929.
2299. Miocene brown shale of Kettleman Hills wells, California (abstract): *Pan-Am. Geologist*, vol. 54, no. 1, p. 76, August, 1930.
2300. Cephalopods of genus *Aturia* from western North America (abstract): *Pan-Am. Geologist*, vol. 54, no. 3, pp. 238-239, October, 1930.
- Schillhahn, Ernest O. See Carman, 446, 447.
- Schlumberger, Conrad.
2301. (and Schlumberger, Marcel). Depth of investigation attainable by potential methods of electrical exploration and electrical studies of the earth's crust at great depths: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 315, 16 pp., 2 figs., Mar. 1930.
- Schmitt, Harrison.
2302. Extension of ore shoots with comments on the art of ore finding: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 164, 9 pp., 3 figs., February, 1929; *Trans.*, 1929, Year Book, pp. 318-324, 3 figs., 1929.
2303. Geology of the Parral area of the Parral district, Chihuahua, Mexico: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 304, 24 pp., 10 figs., February, 1930.
- Schneider, G. W.
2304. Urania oil field, Lasalle, Winn, and Grant Parishes, La.: Structure of typical American oil fields, vol. 1, pp. 91-104, 5 figs., *Am. Assoc. Petroleum Geologists*, 1929.
- Schneider, Hyrum.
2305. Structure and stratigraphy at the junction of the Wasatch Mountains with the Wasatch Plateau (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 89, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 80, February, 1929.
- Schoewe, Walter Henry.
2306. Drift in Kansas (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 125-126, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 151, March, 1929.

Schoewe, Walter Henry—Continued.

- 2307. Glacial erratics in Shawnee, Douglas, and Johnson Counties, Kans.: Kansas Acad. Sci., Trans., vol. 31, pp. 107–109, 1 fig. [1930?].
- 2308. Additional evidences of an ice invasion south of Kansas River in eastern Kansas: Kansas Acad. Sci., Trans., vol. 31, pp. 109–111 [1930?].
- 2309. Evidences of stream piracy on the Dakota hogback between Golden and Morrison, Colo.: Kansas Acad. Sci., Trans., vol. 31, pp. 112–114, 3 figs. [1930?].
- 2310. Evidences for a relocation of the drift border in eastern Kansas: Jour. Geology, vol. 38, no. 1, pp. 67–74, 2 figs., January–February, 1930.
- 2311. Significance of fossil fish found in the Lykins formation in Garden Park, Colo. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 203, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 153, March, 1930.
- 2312. (and Bryan, Kirk). Selenite fragments or crystals as criteria of wind action: Science, new ser., vol. 72, pp. 169–170, August 15, 1930.

Scholz, M. J. See Butler, 391.

Schrader, Frank Charles.

- 2313. Antimony deposits (abstract): Washington Acad. Sci., Jour., vol. 20, no. 17, pp. 436–438, October 19, 1930.

Schroeder, Russell A. See Smith, 2422.

Schuchert, Charles.

- 2314. The hypothesis of continental displacement. In Theory of continental drift, pp. 104–144, 9 figs., Am. Assoc. Petroleum Geologists, 1928; Smithsonian Inst., Ann Rept. 1928, pp. 249–282, 4 figs., 4 pls., 1929.
- 2315. The making of paleogeographic maps: Leopoldina, Amerika-Band (K. Leopold. deutsch. Akad. Naturf. Halle, Berichte), Bd. 4, pp. 116–125, 1 fig., 1929.
- 2316. Geological history of the Antillean region: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 204–205 (abstract), 337–359, 9 figs. (paleogeographic maps), March 30, 1929; Science, new ser., vol. 69, pp. 139–145, February 8, 1929; summary, Pan-Am. Geologist, vol. 51, no. 2, pp. 157–159, March, 1929.
- 2317. (and LeVene, Clara M.). New names for brachiopod homonyms: Am. Jour. Sci., 5th ser., vol. 17, pp. 119–122, February, 1929.
- 2318. Thomas Chrowder Chamberlain, 1843–1928: Am. Jour. Sci., 5th ser., vol. 17, pp. 194–196, February, 1929.
- 2319. Chamberlin's philosophy of correlation: Jour. Geology, vol. 37, no. 4, pp. 328–340, May–June, 1929.
- 2320. Cretaceous and Cenozoic continental connections according to Von Huene: Am. Jour. Sci., 5th ser., vol. 19, pp. 55–66, January, 1930.
- 2321. Stratigraphy and threefold orogeny of the northern Appalachians (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 138–139, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 102–103, March 31, 1930.
- 2322. Synopsis and discussion of Lauge Koch's geology of Greenland: Am. Jour. Sci., 5th ser., vol. 19, pp. 337–350, May, 1930.
- 2323. "Ancestral Rocky Mountains" and Siouis: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 9, pp. 1224–1227, 1 fig. (paleogeographic map), September, 1930.

Schuchert, Charles—Continued.

2324. (and Cooper, G. Arthur). Upper Ordovician and lower Devonian stratigraphy and paleontology of Percé, Quebec: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 161-176, 4 figs., September, pp. 265-288, 3 pls., October, pp. 365-392, 7 figs., November, 1930; abstract, *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 199, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, pp. 154-155, March, 1930.

2325. William Diller Matthew: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 483-484, December, 1930.

Schuette, C. N.

2326. Occurrence of quicksilver ore bodies: *Am. Inst. Min. and Met. Eng.*, Tech. Pub. no. 335, 88 pp., 16 figs., July, 1930.

Schwartz, George Melvin.

2327. A new natural intergrowth of bornite and chalcocite: *Econ. Geology*, vol. 24, no. 4, pp. 443-444, 2 figs., June-July, 1929.

2328. The growth of magnetite crystals: *Econ. Geology*, vol. 24, no. 6, pp. 592-600, 8 figs., September-October, 1929.

2329. Intergrowths of bornite and chalcopyrite (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 149, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 59, March 31, 1930.

2330. The Tin Mountain spodumene mine, Black Hills, S. Dak.: *Econ. Geology*, vol. 25, no. 3, pp. 275-284, 2 figs., May, 1930.

2331. The relations of magnetite and ilmenite in the magnetite deposits of the Duluth gabbro: *Am. Mineralogist*, vol. 15, no. 7, pp. 243-252, 12 figs., July, 1930.

2332. (and Park, Charles F., jr.). Pseudo-eutectic textures: *Econ. Geology*, vol. 25, no. 6, pp. 658-663, 5 figs., September-October, 1930.

Scott, Gayle.

2333. (and Plummer, F. B.). New species of Carboniferous ammonites illustrating downward extension of their genera in the Pennsylvanian of north-central Texas: *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 104, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 140, March, 1930.

Scott, Irving Day.

2334. Dunes of Lake Michigan (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 128, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 83, March 31, 1930.

Scott, W. W. See Murphy, 1876.

Scott, William Berryman.

2335. Extinction of Pleistocene mammals (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 140, March; no. 4, pp. 303-304, May, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 104-105, March 31, 1930.

Seaman, W. A. See also Kraus, 1477.

2336. Geological and magnetic field work in the Keweenaw of the Michigan copper country: *Lake Superior Min. Inst., Proc.*, vol. 27, pp. 155-159, 1 pl. (map), 1929.

Searight, Walter V.

2337. A preliminary report on the coal resources of South Dakota: *South Dakota Geol. and Nat. Hist. Survey, Rept. Investigations no. 3*, 46 pp. (mimeographed), map, June, 1930.

Searle, V. C. See Moose, 1850.

Sears, Paul B.

2338. Common fossil pollen of the Erie Basin: *Bot. Gazette*, vol. 89, no. 1, pp. 95-106, 3 pls., March, 1930.

Sederholm, J. J.

2339. The use of the term "deuteric": *Econ. Geology*, vol. 24, no. 8, pp. 869-871, December, 1929.

Seismological Society of America, Eastern Section.

2340. Proceedings of the 1930 meeting, Washington, D. C.; a joint meeting with the section of seismology of the American Geophysical Union, 86 pp. (photolithographed) [1930].

Sellards, Elias Howard.

2341. Underground position of the pre-Cambrian in Texas (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 134, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 159, March, 1929.
2342. (and Williams, Waldo). World's deepest well (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 135, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, pp. 159-160, March, 1929.
2343. The Texas meteor of June 23, 1928: *Texas, Univ., Bull.* no. 2901, pp. 85-94, 2 figs., August, 1929.
2344. (and Williams, Waldo). The University deep well in Reagan County, Tex.: *Texas, Univ., Bull.*, no. 2901, pp. 175-201, 1 fig., August, 1929.
2345. Ground subsidence at Sour Lake, Tex.: *Mining and Metallurgy*, vol. 11, no. 284, pp. 377-380, 3 figs., August, 1929.
2346. Man-made earthquakes: *Science, new ser.*, vol. 71, pp. 188-189, February 14, 1930.
2347. Pennsylvanian-Permian shale basin of west Texas (abstract): *Pan-Am. Geologist*, vol. 53, no. 1, p. 75, February, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 51, March 31, 1930.
2348. Malakoff image (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 207, March 31, 1930.
2349. Pre-Cretacic rocks of Balcones fault belt (abstract): *Pan-Am. Geologist*, vol. 53, no. 3, p. 232, April, 1930.
2350. Activities of the Texas Bureau of Economic Geology: *Pan-Am. Geologist*, vol. 53, no. 3, pp. 233-240, April, 1930.

Sellers, Jesse E. See Van Valkenburgh, 2716.

Semmes, Douglas R.

2351. Oil and gas in Alabama: *Alabama Geol. Survey, Special Rept.* 15, 408 pp., 76 figs., 13 maps, July, 1929.

Senstius, M. W.

2352. Studies on weathering and soil formation in the tropics (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 111-112, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 142, March, 1930.

Shannon, Earl Victor. See also Larsen, 1516; Short, 2378.

2353. Tschermigite, ammoniojarosite, epsomite, celestite, and paligorskite from southern Utah: *U. S. Nat. Mus., Proc.*, vol. 74, art. 13, 12 pp., 1 fig., January 31, 1929.
2354. Miargyrite silver ore from the Randsburg district, Calif.: *U. S. Nat. Mus., Proc.*, vol. 74, art. 21, 10 pp., 3 figs., January 31, 1929.

Sharp, Henry Staats.

- 2355. The physical history of the Connecticut shore line: Connecticut State Geol. and Nat. Hist. Survey, Bull. no. 46, 97 pp., 29 figs., 8 pls., 1929.
- 2356. The Fall Zone peneplain: Science, new ser., vol. 69, pp. 544-545, May 24, 1929.
- 2357. A pre-Newark peneplain and its bearing on the origin of the lower Hudson River: Am. Jour. Sci., 5th ser. vol. 18, pp. 509-518, 5 figs., December, 1929.

Shaub, B. M.

- 2358. A unique feldspar deposit near Dekalb Junction, N. Y.: Econ. Geology, vol. 24, no. 1, pp. 68-89, 13 figs., January, 1929.

Shead, Arthur Curtis.

- 2359. Chemical analyses of Oklahoma mineral raw materials: Oklahoma Geol. Survey, Bull. no. 14, 138 pp., January, 1929.

Shearer, H. K.

- 2360. Geology of Catahoula Parish, La.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 4, pp. 433-450, 4 figs., April, 1930.
- 2361. (and Hutson, E. B.). Dixie oil pool, Caddo Parish, La.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 6, pp. 743-763, 4 figs., June, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, pp. 216-217, April, 1930.

Sheldon, Pearl G.

- 2362. On the derivation of the Portage sandstones of central New York: Am. Jour. Sci., 5th ser., vol. 17, pp. 525-533, 3 figs., June, 1929.
- 2363. Pyramidal jointing in shales: Jour. Geology, vol. 38, no. 7, pp. 625-632, 3 figs., October-November, 1930.

Shepard, Francis Parker.

- 2364. Origin of continental abyssal slopes (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 107-108, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 146, March, 1929.
- 2365. Fundian fault versus Fundian glaciers (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 128-129, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 83-84, March 31, 1930.

Shepherd, Ernest Stanley. See Greig, 1001.

Sherrill, Richard Ellis. See also Leighton, 1536; Nevin, 1893, 1894, 1895.

- 2366. Origin of the en échelon faults in north-central Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 1, pp. 31-37, January, 1929.
- 2367. Origin of en échelon faults: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 10, pp. 1398-1399, October, 1929.

Shideler, William H.

- 2369. Geologic map of Carroll County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
- 2370. (and Briggs, G., and Miller, R.). Geologic map of Nelson County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
- 2371. Geologic map of Spencer County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.
- 2372. Geologic map of Trimble County, Ky.: Kentucky Geol. Survey, ser. 6, 1929. Scale 1 inch=1 mile.

Shideler, William H.—Continued.

- 2373. Conodonts of the Ordovician (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 167, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 304, 1929.
- 2374. The Richmond group in the Nashville Basin (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 168, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 305, 1929.
- 2375. Examination of some paleogeographic criteria (abstract): *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, p. 405, 1930.

Shimek, Bohumil.

- 2376. Pleistocene and recent mollusks: *Nautilus*, vol. 44, no. 2, pp. 37-41, October, 1930.

Shimer, Hervey Woodburn.

- 2377. *Evolution and man*. 273 p., 28 figs., Boston, Ginn & Co., c. 1929.

Short, Maxwell Naylor.

- 2378. (and Shannon, Earl V.). Violarite and other rare nickel sulphides: *Am. Mineralogist*, vol. 15, no. 1, pp. 1-17, 3 pls., January, 1930.
- 2379. A qualitative and quantitative determination of the ores of Cobalt, Ontario (discussion): *Econ. Geology*, vol. 25, no. 7, pp. 764-771, November, 1930.

Shreve, E. Norris.

- 2380. Greensand bibliography to 1930 (annotated), with a chapter on zeolite water softeners: *U. S. Bur. Mines, Bull.* 328, 78 pp., 1930.

Shrock, Robert R. See also Malott, 1693, 1694.

- 2381. The klintar of the upper Wabash Valley in northern Indiana: *Jour. Geology*, vol. 37, no. 1, pp. 17-29, 6 figs., January-February, 1929.
- 2382. (and Malott, Clyde A.) Structural features of West Franklin formation of southwestern Indiana (with discussion by Gail F. Moulton): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 10, pp. 1301-1315, 3 figs., October, 1929.
- 2383. Polyhedral pisolites: *Am. Jour. Sci.*, 5th ser., vol. 19, pp. 368-372, 3 figs., May, 1930.

Shuler, Ellis William.

- 2384. Undergraduate preparation for the geologist: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 10, pp. 1317-1321, October, 1929.

Simpson, George Gaylord. See also Granger, 987.

- 2385. *American Mesozoic Mammalia*: Yale Univ., Peabody Mus., Mem., vol. 3, pt. 1, 235 pp., 62 figs., 32 pls., 1929.
- 2386. The extinct land mammals of Florida: *Florida State Geol. Survey*, 20th Ann. Rept., 1927-1928, pp. 229-279, 4 figs., 11 pls., 1929.
- 2387. Third contribution to the Fort Union fauna at Bear Creek, Mont.: *Am. Mus. Novitates* no. 345, 12 pp. 5 figs., table, March 18, 1929.
- 2388. Some Cretaceous mammals from the Lance formation: *Carnegie Mus. Annals*, vol. 19, no. 2, pp. 107-113, 6 figs., May, 1929.
- 2389. A collection of Paleocene mammals from Bear Creek, Mont.: *Carnegie Mus., Annals*, vol. 19, no. 2, pp. 115-122, 4 figs., May, 1929.
- 2390. Hunting extinct animals in Florida: *Nat. History (Am. Mus. Nat. Hist., Jour.)*, vol. 29, no. 5, pp. 505-518, illus., September-October, 1929.
- 2391. A new Paleocene untathere and molar evolution in the Amblypoda: *Am. Mus. Novitates* no. 387, 9 pp., 9 figs., November 27, 1929.

Simpson, George Gaylord—Continued.

- 2392. Pleistocene mammalian fauna of the Seminole field, Pinellas County, Fla.: Am. Mus. Nat. Hist., Bull., vol. 56, pp. 561-599, 22 figs., 1930.
- 2393. Additions to the Pleistocene of Florida: Am. Mus. Novitates no. 406, 14 pp., 7 figs., March 17, 1930.
- 2394. A new specimen of *Eodelphis cutleri* from the Belly River formation of Alberta: Canada, Nat. Mus., Bull. no. 63, pp. 29-32, 1 pl., 1930.
- 2395. *Holmesina septentrionalis*, extinct giant armadillo of Florida: Am. Mus. Novitates no. 442, 10 pp., 5 figs., December 18, 1930.
- 2396. *Allognathosuchus mooki*, a new crocodile from the Puerco formation: Am. Mus. Novitates no. 445, 16 pp., 6 figs., December 19, 1930.

Simpson, Howard Edwin.

- 2397. Geology and ground-water resources of North Dakota: U. S. Geol. Survey, Water-Supply Paper 598, 312 pp., 10 figs., 3 pls., 1929.
- 2398. Ground-water resources of Regina, Saskatchewan: Canada, Geol. Survey. Summ. Rept. 1929, pt. B, pp. 65-111, 1930.

Sinclair, William John.

- 2399. (and Jepsen, Glenn L.). A mounted skeleton of *Palaeonictis*: Am. Philos. Soc., Proc., vol. 68, no. 3, pp. 163-173, 4 figs., 1 pl., 1929.

Singewald, Joseph T., jr. See also Ball, 105.

- 2400. (and Milton, Charles). Origin of iron ores of Iron Mountain and Pilot Knob, Mo.: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 197, 12 pp., 2 figs., March, 1929; Trans., 1929, Year Book, pp. 330-340, 2 figs., 1929.
- 2401. (and Milton, Charles). Authigenic feldspar in limestone at Glens Falls, N. Y.: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 463-468, 1 pl., June 30, 1929; abstract, no. 1, p. 94, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 141, March, 1929.
- 2402. (and Milton, Charles). Greisen and associated mineralization at Silvermine, Mo.: Econ. Geology, vol. 24, no. 6, pp. 569-591, 12 figs., September-October, 1929; abstract, Washington Acad. Sci., Jour., vol. 19, no. 13, p. 291, July 19, 1929.
- 2403. [Discussion on chromite]: Econ. Geology, vol. 24, no. 6, pp. 645-649, September-October, 1929.
- 2404. (and Milton, Charles). An alnoite pipe, its contact phenomena, and ore deposition near Avon, Mo.: Jour. Geology, vol. 38, no. 1, pp. 54-66, 6 figs., January-February, 1930.
- 2405. Supergene cassiterite in Bolivian tin veins (discussion): Econ. Geology, vol. 25, no. 2, pp. 211-218, March-April, 1930.

Singewald, Quentin Dreyer.

- 2406. (and Butler, B. S.). Preliminary geologic map of the Alma mining district, Colorado: Colorado Sci. Soc., Proc., vol. 12, no. 9, pp. 295-308, 3 figs., 1930.
- 2407. (and Van Tuyl, F. M.). Discoloration of sediments by bacteria: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 5, pp. 626-628, May, 1930.

Sisler, James Donaldson.

- 2408 Map of the coal fields of Pennsylvania: Pennsylvania, Topog. and Geol. Survey, Bull. M 6, pt. 2, pl. 1, 1929. Scale 1:380,160 or 6 miles=1 inch.

Skelton, R. H.

2409. Some notes on a portion of the Lizard Springs anticline: *Inst. Petroleum Technologists, Jour.*, vol. 15, no. 75, pp. 443-455, August 1929.

Skerrett, R. G.

2410. Meteor Crater again a scene of activity: *Compressed Air Mag.*, vol. 34, no. 6, pp. 2773-2778, no. 7, pp. 2809-2813, 27 figs., June and July, 1929.

Skinner, John. See Roth, 2213.

Slater, George.

2411. The structure of the drumlins exposed on the south shore of Lake Ontario: *New York State Mus., Bull.*, no. 281, pp. 3-19, 14 figs., 1929; abstract, *British Assoc. Adv. Sci., Rept. 96th Meeting*, 1928, p. 547, 1929.

Slawson, Chester B. See also Kraus, 1477.

2412. Note on hydrophilite: *Am. Mineralogist*, vol. 14, no. 4, pp. 160-161, April, 1929.
2413. The quantitative optical determination of sodium and potassium chlorides: *Am. Mineralogist*, vol. 14, no. 8, pp. 293-298, 3 figs., August, 1929.

Slichter, L. B. See also O'Neill, 1940.

2414. Certain aspects of magnetic surveying: *Am. Inst. Min. and Met. Eng. Geophysical prospecting*, pp. 238-260, 11 figs., 1929.

Small, John K.

2415. Vegetation and erosion on the Everglade keys [Florida]: *Sci. Monthly*, vol. 30, no. 1, pp. 31-49, 12 figs., January, 1930.

Smith, Burnett.

2416. Recent finds of Quaternary mammals at Syracuse, N. Y.: *New York State Mus. Bull.* no. 281, pp. 21-23, 1 pl., 1929.
2417. Influence of erosion intervals on the Manlius-Helderberg series of Onondaga County, N. Y.: *New York State Mus. Bull.* no. 281, pp. 25-36, 1 fig., 4 pls., 1929.

Smith, Edward S. C.

2418. New fossils from Maine: *Science, new ser.*, vol. 70, pp. 168-169, August 16, 1929.
2419. Contributions to the geology of Maine, no. IV; The geology of the Katahdin area; Part I, A new rhyolite from the State of Maine: *Am. Jour. Sci.*, 5th ser., vol. 19, pp. 6-8, January, 1930.
2420. The igneous rocks of Mount Kineo and vicinity: Maine [State Geologist], *First Ann. Rept.*, pp. 64-71, 1 fig., 1930.
2421. A new rhyolite from the State of Maine: Maine [State Geologist], *First Ann. Rept.*, pp. 72-74, 1930.

Smith, Ernest Rice.

2422. (and Schroeder, Russell A.). Fibrous marcasite in crystalline calcite near Logansport, Ind.: *Indiana Acad. Sci., Proc.*, vol. 38, p. 231, 1929.

Smith, George E. P.

2423. Important indirect effect of irrigation (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, pp. 317-318, May, 1930.

Smith, George Otis.

- 2424. Fiftieth annual report of the Director of the [U. S.] Geological Survey to the Secretary of the Interior, 1929. 87 pp., 1 pl. (map), Washington, 1929.
- 2425. Fifty-first annual report of the Director of the [U. S.] Geological Survey to the Secretary of the Interior, 1930. 91 pp., 1 pl. (map), Washington, 1930.

Smith, James Perrin, 1864-1931.

- 2426. Geological map of the State of California issued by State Mining Bureau, 1916. Reprinted 1929. Scale 1 inch=12 miles.
- 2427. The transitional Permian ammonoid fauna of Texas: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 63-80, 3 pls., January, 1929.

Smith, John Eliphalet.

- 2428. Agricultural geology, by Frederick V. Emerson. Revised by John E. Smith. 377 pp., 271 figs., New York, John Wiley & Sons, 1928.
- 2429. Recessional stages between the Altamont and the Gary (?) moraines in Iowa (abstract): *Iowa Acad. Sci., Proc.*, vol. 39, pp. 278-279 [1930].

Smith, Norman.

- 2430. Application of the petrographic microscope to research in ore-finding geology: *Eng. and Min. Jour.*, vol. 127, no. 9, pp. 353-356, no. 12, pp. 472-475, 3 figs., March 2 and 23, 1929.

Smith, Philip Sidney. See also Dodge, 687.

- 2431. Surveys in northwestern Alaska in 1926: *U. S. Geol. Survey, Bull.* 797, pp. 125-142, map, 1929.
- 2432. Mineral industry of Alaska in 1927 and administrative report: *U. S. Geol. Survey, Bull.* 810, pp. 1-85, 1929.
- 2433. Mineral industry of Alaska in 1928 and administrative report: *U. S. Geol. Survey, Bull.* 813, pp. 1-96, 3 figs., 1930.
- 2434. (and Mertie, J. B., jr.). Geology and mineral resources of northwestern Alaska: *U. S. Geol. Survey, Bull.* 815, 351 pp., 22 figs., 34 pls. (incl. maps), 1930.
- 2435. Mineral industry of Alaska in 1929 and administrative report: *U. S. Geol. Survey, Bull.* 824, pp. 1-109, 1930.
- 2436. The gold resources of Alaska: *Econ. Geology*, vol. 25, no. 2, pp. 176-196, 3 figs., March-April, 1930.

Smith, R. H. See Ackers, 1.

Smith, Richard W.

- 2437. Sedimentary kaolins of the Coastal Plain of Georgia: *Georgia, Geol. Survey, Bull.* no. 44, 482 pp., 7 figs., 18 pls., 1929.

Smith, Warren Du Pré. See also Fuller, no. 888.

- 2438. Diatomaceous deposits of eastern Oregon (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 167, March 30, 1929.
- 2439. Owyhee project (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 167, March 30, 1929.
- 2440. Oregon shore line: a report of progress (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 153, March 31, 1930; *Pan-Am. Geologist*, vol. 51, no. 5, p. 372, June, 1929.
- 2441. Reconsideration of some geological dogmas: *Pan-Am. Geologist*, vol. 54, no. 2, pp. 87-103, September, 1930.

Smitheringale, William V.

2442. Notes on etching tests and X-ray examination of some manganese minerals: *Econ. Geology*, vol. 24, no. 5, pp. 481-505, August, 1929.

Smithsonian Institution.

2443. Explorations and field work of the Smithsonian Institution in 1928; *Smithsonian Inst. (Pub. 3011)*, 198 pp., 173 figs., 1929.
2444. Explorations and field work of the Smithsonian Institution in 1929: *Smithsonian Inst. (Pub. 3060)*, 222 pp., 200 figs., 1930.

Snow, D. R.

2445. (and Dean, David). Rainbow Bend field, Cowley County, Kans.: Structure of typical American oil fields, vol. 1, pp. 52-59, 2 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Somers, George B.

2446. Anomalies of vertical intensity compared with regional geology for the State of California: *Colorado School of Mines Mag.*, vol. 19, no. 9, pp. 23-30, September; no. 10, pp. 20, 41, October, 1929.
2447. Anomalies of vertical intensity; correlation of the anomalies of vertical intensity of the earth's magnetic field with the regional geology of North America: *Colorado School of Mines Mag.*, vol. 20, no. 8, pp. 9-12, 25-26, August, no. 9, pp. 15-18, 45, September, no. 10, 19-23, October, no. 11, pp. 21-23, 40-41, November, no. 12, pp. 27-30, December, 1930; vol. 21, no. 1, pp. 20-24, 42, January, no. 2, pp. 27-30, February 1931. Reprinted, with tables of data, 64 pp., 1931.

Southwell, C. A. P. See Parker, 1988.

Spearman, Charles.

2448. Oil in Ontario and Quebec; possibilities of discovering commercial accumulations of oil and gas in certain Paleozoic areas: *Canadian Min. Jour.*, vol. 51, no. 9, pp. 205-207, 1 fig., February 21, 1930.

Spence, Hugh Swaine.

2449. Mica: Canada, Dept. Mines, Mines Branch, 142 pp., 10 figs., 21 pls., 1929.
2450. (and Carnochan, R. K.). The Wilberforce radium occurrences [Haliburton County, Ontario]: *Canadian Min. and Met. Bull.*, no. 217, pp. 649-688, 8 figs., May, 1930.
2451. Pegmatite minerals of Ontario and Quebec: *Am. Mineralogist*, vol. 15, no. 9, pp. 430-450, no. 10, pp. 474-496, 4 figs., September and October, 1930.
2452. A remarkable occurrence of thucholite and oil in a pegmatite dike, Parry Sound district, Ontario: *Am. Mineralogist*, vol. 15, no. 11, pp. 499-520, 13 figs., November, 1930.

Spencer, Leonard James.

2453. Fluorescence of minerals in ultra-violet rays: *Am. Mineralogist*, vol. 14, no. 1, pp. 33-37, January, 1929.

Spieker, Edmund Maute.

2454. Effects of compaction in coal-bearing strata (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 173, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 310, 1929.
2455. Bituminous sandstone near Vernal, Utah: *U. S. Geol. Survey, Bull.* 822, pp. 77-98, 3 figs., 3 pls., 1930.

Spieker, Edmund Maute—Continued.

2456. Structure of Manti-Salina area, Utah (abstract): *Pan-Am. Geologist*, vol. 53, no. 1, pp. 78-79, February, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 55-56, March 31, 1930.

Spooner, W. C.

2457. Homer oil field, Claiborne Parish, La.: Structure of typical American oil fields, vol. 1, pp. 196-228, 11 figs., *Am. Assoc. Petroleum Geologists*, 1929.
2458. Stephens oil field, Columbia and Ouachita Counties, Ark.: Structure of typical American oil fields, vol. 2, pp. 1-17, 6 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Squires, H. Dayton.

2459. Bay of Fundy structure on the eastern shore of Passamaquoddy Bay (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 143, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 112-113, March 31, 1930.

Stadnichenko, Taisia.

2460. Microthermal studies of some "mother rocks" of petroleum from Alaska: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 7, pp. 823-840, July, 1929.

Stansfield, Edgar.

2461. A study of post-Carboniferous coals: Fuel Conference (World Power Conference, London, 1928), *Trans.*, vol. 1, pp. 54-61 [1929].
2462. (and Sutherland, J. W.). The classification of Canadian coals: *Canadian Min. and Met. Bull.*, no. 210, pp. 1158-1186, 4 figs., 1 pl., October, 1929; *Canadian Inst. Min. and Met., Trans.*, vol. 32, pp. 360-388, 4 figs. [1930].

Stanton, Timothy William.

2463. Triassic and Jurassic of the Arctic region (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 231-234, March 30, 1929.
2464. Stratigraphic names: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 8, pp. 1070-1079, August, 1930.

Stanton, W. Layton, jr.

2465. Geology of Adelaida quadrangle, California (abstract): *Pan-Am. Geologist*, vol. 54, no. 1, p. 77, August, 1930.

Stark, J. T.

2466. Agawa iron formation of northeastern Minnesota: *Econ. Geology*, vol. 24, no. 5, pp. 528-541, 1 fig. (map), August, 1929; abstract, *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 191, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 70, February, 1929.
2467. Pre-Cambrian water-laid tuff in the Baraboo, Wis., district: *Jour. Geology*, vol. 38, no. 5, pp. 466-471, 3 figs., July-August, 1930.

Starks-Field, B.

2468. Asbestos in Canada: *Min. and Geol. Inst. India, Trans.*, vol. 23, pt. 2, pp. 149-160, May, 1929.

Strauber, I. J.

2469. A sandstone copper deposit [Guadalupe County, N. Mex.]: *Min. Congress Jour.*, vol. 16, no. 12, pp. 929-931, December, 1930.

Stauffer, Clinton Raymond.

2470. Memorial of John Adams Bownocker: *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 17-22, 1 pl. (portr.), March 30, 1929.
2471. The Devonian of California: *California, Univ., Pub. Geol. Sci.*, vol. 19, no. 4, pp. 81-118, 5 pls., May 7, 1930.
2472. Conodonts from Decorah shale: *Jour. Paleontology*, vol. 4, no. 2, pp. 121-128, June, 1930.

Stearn, Noel H.

2473. A background for the application of geomagnetics to exploration: *Am. Inst. Min. and Met. Eng., Geophysical prospecting*, pp. 315-344, 1929.
2474. The dip needle as a geological instrument: *Am. Inst. Min. and Met. Eng., Geophysical prospecting*, pp. 345-363, 6 figs., 1929.
2475. Hotchkiss superdip; a new magnetometer: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 6, pp. 659-675, 7 figs., June, 1929.
2476. A geomagnetic survey of the bauxite region in central Arkansas: *Arkansas Geol. Survey, Bull.* 5, 16 pp., 4 figs., 4 pls. (incl. maps), 1930.
2477. Depth finding by magnetic triangulation: *Eng. and Min. Jour.*, vol. 129, no. 8, pp. 396-399, 4 figs., April 24, 1930.
2478. Practical geomagnetic exploration with the Hotchkiss superdip: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 370, 31 pp., 18 figs. October, 1930.

Stearns, Harold T.

2479. The "Craters of the Moon" in Idaho: *Geog. Jour.*, vol. 71, no. 1, pp. 43-49, 1 fig., 2 pls., January, 1928; *Smithsonian Inst., Ann. Rept.* 1928, pp. 307-313, 4 pls., 1929.
2480. Geology and water resources of the upper McKenzie Valley, Oreg.: *U. S. Geol. Survey, Water Supply Paper* 597, pp. 171-188, 2 figs., 3 pls. (incl. map); April 29, 1929.
2481. Success and failure of reservoirs in basalt: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 215, pp. 111-112, July, 1929.
2482. (and Clark, William O.). Geology and water resources of the Kau District, Hawaii (including parts of Kilauea and Mauna Loa volcanoes): *U. S. Geol. Survey, Water-Supply Paper* 616, pp. 29-191, 9 figs., 33 pls. (incl. maps), 1930.
2483. (and Robinson, T. W., and Taylor, G. H.). Geology and water resources of the Mokelumne area, California: *U. S. Geol. Survey, Water-Supply Paper* 619, 402 pp., 33 figs., 21 pls. (incl. maps), 1930.

Stearns, Norah Dowell. See Meinzer, 1756.

Steckschulte, Victor C.

2484. (and Dyk, Carl). The registration of earthquakes at the Berkeley station and at the Lick Observatory station from April 1, 1928, to September 30, 1928: *California, Univ., Seismographic Stations, Bull.*, vol. 2, no. 16, pp. 301-329, March 25, 1929.
2485. The registration of earthquakes at the Berkeley station and at the Lick Observatory station from October 1, 1928, to March 31, 1929: *California, Univ., Seismographic Stations, Bull.*, vol. 2, no. 17, pp. 331-360, October 31, 1929.

Steiger, George.

- 2486 Bibliography on chemical studies which bear on sedimentation: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 76-82, 1930.

Steinmayer, R. A.

2487. Phases of sedimentation in Gulf coastal prairies of Louisiana: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 7, pp. 903-916, 1 fig., July, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, p. 217, April, 1930.

Stephens, Frank.

2488. Notes on the marine Pleistocene deposits of San Diego County, Calif.: San Diego Soc. Nat. Hist., Trans., vol. 5, no. 16, pp. 247-255, 1 fig., August 5, 1929.

Stephenson, C. D.

2489. An oil field in T. 25 N., R. 8 E., Osage County, Okla.: Structure of typical American oil fields, vol. 2, pp. 378-395, 10 figs., Am. Assoc. Petroleum Geologists, 1929.

Stephenson, Eugene A. See Davis, 639.

Stephenson, Lloyd William. See also Ross, 2194.

2490. Two new mollusks of the genera *Ostrea* and *Exogyra* from the Austin chalk, Texas: U. S. Nat. Mus., Proc., vol. 76, art. 18, 6 pp., 3 pls., 1929.
2491. (and Berry, E. W.). Marine shells in association with land plants in the Upper Cretaceous of Guatemala: Jour. Paleontology, vol. 3, no. 2, pp. 157-162, 2 pls., June, 1929.
2492. Age of Brownstown marl of Arkansas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 1073-1074, August, 1929.
2493. Unconformities in Upper Cretaceous series of Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 10, pp. 1323-1334, 5 figs., 1 pl., October, 1929.

Sternberg, Charles M.

2494. A toothless armoured dinosaur [*Anodontosaurus lambei*] from the Upper Cretaceous of Alberta: Canada, Nat. Mus., Bull. no. 54, pp. 28-33, 4 pls., 1929.
2495. A new species of horned dinosaur [*Anchiceratops*] from the Upper Cretaceous of Alberta: Canada, Nat. Mus., Bull. no. 54, pp. 34-37, 2 pls., 1929.
2496. New records of mastodons and mammoths in Canada: Canadian Field Naturalist, vol. 44, no. 3, pp. 59-65, 2 figs., March, 1930.
2497. Miocene gravels in southern Saskatchewan: Roy. Soc. Canada, Trans., ser. 3, vol. 24, sec. 4, pp. 29-30, May, 1930.

Sternberg, George F.

2498. Thrills in fossil hunting: Aerend (Kansas State Teachers College, Hays, Kans.), vol. 1, no. 3, pp. 139-153, 1930.

Stetson, Henry C.

2499. Report from the department of paleontology: Harvard Coll., Mus. Comp. Zoology, Ann. Rept., 1928-29, pp. 24-26, 1929.
2500. Report on vertebrate paleontology: Harvard Coll., Mus. Comp. Zoology, Ann. Rept. 1929-30, pp. 34-35, 1930.

Stetson, Henry C.—Continued.

2501. Notes on the structure of *Dinichthys* and *Macropetalichthys*: Harvard Coll., Mus. Comp. Zool., Bull., vol. 71, no. 2, pp. 19–39, 3 figs., 7 pls., September, 1930.

Stewart, Duncan, jr.

2502. Analyses and derivations of two beach sands from the Holsteinsborg district of Greenland: Am. Mineralogist, vol. 15, no. 2, pp. 74–77, 1 pl., February, 1930.
2503. Minerals at Manton, R. I.: Am. Mineralogist, vol. 15, no. 10, pp. 496–497, October, 1930.

Stewart, Grace Anne.

2504. A study of some Devonian coral genera (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 169, July, 1929; Ohio Acad. Sci. Proc. vol. 8, pt. 6, p. 306, 1929.
2505. Additional species from the Silica shale of Lucas County, Ohio: Ohio Jour. Sci., vol. 30, no. 1, pp. 52–58, 1 pl., January, 1930.
2506. Supplement to catalogue of type fossils in the geological museum at the Ohio State University: Ohio Jour. Sci., vol. 30, no. 4, pp. 273–284, July, 1930.

Stewart, Katherine C. See Cushman, 613; Stewart, 2508, 2509.

Stewart, Ralph B.

2507. Gabb's California Cretaceous and Tertiary type lamellibranchs: Acad. Nat. Sci. Philadelphia, Spec. Pub. no. 3, 314 pp., 17 pls., August 9, 1930.

Stewart, Roscoe E. See also Cushman, 613.

2508. (and Stewart, Katherine C.). Post-Miocene Foraminifera from the Ventura quadrangle, Ventura County, Calif.; twelve new species and varieties from the Pliocene: Jour. Paleontology, vol. 4, no. 1, pp. 60–72, 2 pls., March, 1930.
2509. (and Stewart, Katherine C.). "Lower Pliocene" in eastern end of Puente Hills, San Bernardino County, Calif.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 11, pp. 1445–1450, 1 fig., November, 1930.

Stilson, Chester B. See also Papish, 1984.

Stipp, T. F.

2510. Oil possibilities of the Colorado River delta region; a reconnaissance report of a geological examination of this desolate and unreclaimed portion of Lower California: Oil Bull., vol. 16, no. 4, pp. 375–377, 450, 5 figs., April, 1930.

Stirton, R. A. See also Matthew, 1739, 1742.

2511. (and Weddle, H. W.). The California tapir, *Tapirus hayssi californicus* Merriam, from Santa Barbara County, Calif.: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 7, pp. 225–226, 1 fig., March 19, 1929.
2512. Artiodactyla from the fossil beds of Fish Lake Valley, Nev.: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 11, pp. 291–302, 9 figs., June 1, 1929.
2513. A new genus of Soricidae from the Barstow Miocene of California: California, Univ., Dept. Geol. Sci., Bull., vol. 19, no. 8, pp. 217–228, 2 figs., May 5, 1930.

Stock, Chester.

- 2514. (and Furlong E. L.). Pleistocene elephant of Santa Rosa Island, Calif. (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 176, 257, March 30, 1929.
- 2515. (and Patterson, J. W., and Furlong, E. L.). Tertiary mammalian fauna from the Kern River series, California (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 260, March 30, 1929.
- 2516. Significance of abraded and weathered mammalian remains from Rancho La Brea [asphalt deposits, California]: *Southern California Acad. Sci., Bull.*, vol. 28, pt. 1, pp. 1-5, 2 pls., June 15, 1929.
- 2517. Oreodonts from the Sespe deposits of South Mountain, Ventura County, Calif.: *Carnegie Inst. Washington, Pub. no. 404*, pp. 27-42, 2 figs., 2 pls., 1930.
- 2518. Carnivora new to the Mascall Miocene fauna of eastern Oregon: *Carnegie Inst. Washington, Pub. no. 404*, pp. 43-48, 2 figs., 1 pl., 1930.
- 2519. Rancho La Brea; a record of Pleistocene life in California: *Los Angeles Mus., Pub. no. 1*, 82 pp., 27 figs., April 15, 1930.
- 2520. Quaternary antelope remains from a second cave deposit in the Organ Mountains, N. Mex.: *Los Angeles Mus., Pub. no. 2*, 18 pp., 3 figs., May 29, 1930.
- 2521. Problems of antiquity presented in Gypsum Cave, Nev. (abstract): *Science, new ser.*, vol. 72, p. 405, October 17, 1930.

Stockdale, Paris Buell.

- 2522. Stratigraphic units of the Harrodsburg limestone: *Indiana Acad. Sci., Proc.*, vol. 38, pp. 233-242, 3 figs., 1929.
- 2523. Facies of the Borden rocks of southern Indiana (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 170, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 307, 1929.
- 2524. Relations of faunas to lithologic facies in the Borden rocks of southern Indiana (abstract): *Pan-Am. Geologist*, vol. 53, no. 2, p. 152, March, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 196-197, March 31, 1930.

Stockwell, C. H.

- 2525. Reindeer Lake area, Saskatchewan and Manitoba: *Canada, Geol. Survey, Summ. Rept. 1928*, pt. B, pp. 46-72, 2 pls., map, 1929.

Stoller, James Hough.

- 2526. Glacial fill of a portion of the Mohawk Valley (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 134, March 30, 1929.
- 2527. Upper Hudson interglacial valley (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 95-99, 4 figs., March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 136, March, 1930.

Stone, Alan T.

- 2528. A machine for investigation of structure—some results (abstract): *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, p. 407, 1930.

Stone, J. A.

- 2529. (and Cooper, C. L.). Geology of Haskell, Latimer, Leflore, and Sequoyah Counties: *Oklahoma Geol. Survey, Bull. no. 40*, vol. 3, pp. 411-430, 2 figs., maps, July, 1930 (*Bull. 40-II*, August, 1929).
- 2530. Oolitic horizons in the Arbuckle formation: *Oklahoma Acad. Sci., Proc.*, vol. 8 (*Oklahoma, Univ., Bull.*, n. s. no. 410), pp. 135-136 [1929].

Stone, J. A.—Continued.

2531. The Criner Hills [south-central Oklahoma]: Oklahoma Acad. Sci., Proc., vol. 9 (Okla., Univ., Bull., new ser., no. 456), pp. 74-75, November 15, 1929.

Stone, Ralph Walter.

2532. Asymmetrical drainage in southwestern Pennsylvania: Pennsylvania Acad. Sci., Proc., vol. 2, pp. 34-37, 1 fig., 1928.
2533. Pennsylvania caves: Pennsylvania, Geol. Survey, 4th ser., Bull. G3, 63 pp., 34 figs., 1930.
2534. (and Hughes, H. H.). Feldspar in Pennsylvania (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 149, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 58, March 31, 1930.

Stookey, S. W.

2535. The Nashua marls of the St. Johns River region [Florida] (abstract): Iowa Acad. Sci., Proc., vol. 39, p. 277 [1930].

Storm, L. W.

2536. Notes on the Boggy Creek salt dome, located in Anderson and Cherokee Counties, Tex.: Colorado School of Mines Mag., vol. 19, no. 7, pp. 20-22, 5 figs., July, 1929.

Storm, Willis.

2537. Smith-Ellis oil field, Brown County, Tex.: Structure of typical American oil fields, vol. 2, pp. 556-570, 9 figs., Am. Assoc. Petroleum Geologists, 1929.

Stose, George Willis. See also Jonas, 1292.

2538. (and Bascom, F.). Description of the Fairfield and Gettysburg quadrangles: U. S. Geol. Survey, Geol. Atlas, Fairfield-Gettysburg folio, Pennsylvania (no. 225), 22 pp., 8 maps, columnar section, and 3 illus. sheets, 1929.
2539. Is the Bryn Mawr peneplain a warped surface?: Am. Jour. Sci., 5th ser., vol. 19, pp. 177-184, March, 1930.
2540. Unconformity at base of Medina sandstone in southeastern Pennsylvania (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 131, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 88, March 31, 1930.
2541. Review of the peneplains and gravel terraces of the northern Appalachians (abstract): Washington Acad. Sci., Jour., vol. 20, no. 8, pp. 152-153, April 19, 1930.

Stout, Wilber.

2542. The Monongahela series in eastern Ohio: West Virginia Acad. Sci., Proc., vol. 3, pp. 118-133, 1 fig., West Virginia Univ. Bull. ser. no. 30, no. 1 [1930].
2543. Refractory clays of Ohio: Am. Ceramic Soc., Jour., vol. 13, no. 2, Bull., vol. 9, no. 2, pp. 29-37, February, 1930.
2544. Coal resources of Ohio: Ohio State Univ., Eng. Exper. Sta. News, vol. 2, no. 4, pp. 1-3, 1 fig., September, 1930.

Stovall, J. Willis.

2545. The protoloph-ectoloph angle and its correlation with the geologic horizon of five genera of North American Equidae: Jour. Geology, vol. 37, no. 8, pp. 790-794, 1 fig., November-December, 1929.

Stow, Marcellus H.

2546. Calcereous concretions in streams near Lexington, Va.: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 214-216, September, 1930.
 2547. A preliminary investigation of some sediments from James River, Va.: *Am. Mineralogist*, vol. 15, no. 11, pp. 528-533, November, 1930.

Stoyanow, Alexander A.

2548. Cambrian formations of southeastern Arizona and their trilobitic faunas (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, p. 315, May, 1930.
 2549. Certain aspects of Devonian in Arizona (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, pp. 316-317, May, 1930.
 2550. Observations on Mississippian corals of Arizona (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, p. 317, May, 1930.

Strock, Lester W.

2551. Spessartite from Avondale, Delaware County, Pa.: *Am. Mineralogist*, vol. 15, no. 1, pp. 40-42, January, 1930.

Stuckey, Jasper L.

2552. Water supplies from crystalline rocks of North Carolina (abstract): *Elisha Mitchell Sci. Soc., Jour.*, vol. 45, no. 1, p. 21, November, 1929.
 2553. The ground-water resources of the crystalline rocks of North Carolina; Reprint from North Carolina Water and Sewage Works Assoc., *Jour.*, vol. 7, no. 1, 26 pp., 1 fig. [1930?].
 2554. The mineralogy of some deposits of kaolinized volcanic ash from the slate belt of North Carolina: *Am. Mineralogist*, vol. 15, no. 7, pp. 253-258, July, 1930.

Suffel, G. G.

2555. Dolomites of western Oklahoma: *Oklahoma Geol. Survey, Bull.* no. 49, 155 pp., 12 figs., 17 pls. (incl. maps), January, 1930.

Sugden, F. J. See Beaton, 160.

Summers, E. Buhler. See Barton, 133.

Sundberg, Karl.

2556. (and Nordstrom, Allen). Electrical prospecting for molybdenite at Questa, N. Mex.: *Am. Inst. Min. and Met. Eng., Geophysical prospecting*, pp. 125-137, 10 figs., 1929.
 2557. Electrical prospecting for oil structure: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 9, pp. 1145-1163, 10 figs., September, 1930.

Sur, F. J. S.

2558. The source rocks of Alberta's oil: *Canadian Min. and Met. Bull.*, no. 221, pp. 1117-1119, September, 1930.

Sutherland, J. C. See Buwalda, 402.

Sutherland, J. W. See Stansfield, 2462.

Sutton, Arle H. See also Freeman, 881; Lamar, 1487; Weller, 2805.

2559. Geology of the southern part of the Dawson Springs quadrangle, Kentucky: *Kentucky Geol. Survey, ser. 6*, vol. 31, pp. 169-280, 21 figs., 5 pls., 1929.
 2560. (and others). Geologic map of northern Hardin County, Ky.: *Kentucky Geol. Survey, ser. 6*, 1929. Scale 1:62,500.

Swann, C. E.

2561. The geology of the Rock Springs coal field [Sweetwater County, Wyo.]: Min. Congress Jour., vol. 16, no. 2, pp. 97-99, 3 figs., February, 1930.
2562. Footprints of prehistoric dinosaurs [Superior and Reliance districts, Wyoming]: Min. Congress Jour., vol. 16, no. 2, p. 99, 3 figs., February, 1930.

Swartz, Charles Kephart.

2563. (and Swartz, Frank M.). Age of the Schawangunk conglomerate of eastern New York: Am. Jour. Sci., 5th ser., vol. 20, pp. 467-474, December, 1930.
2564. (and Swartz, Frank M.). Silurian of the central Appalachians (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 112-113, 250, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 148-149, March, 1929.

Swartz, Frank McKim. See also Swartz, 2563, 2564.

2565. The Helderberg group from central Pennsylvania to southwestern Virginia: Pennsylvania Acad. Sci., Proc., vol. 3, pp. 75-88; 3 figs., 1 pl., 1929.
2566. The Helderberg group of parts of West Virginia and Virginia: U. S. Geol. Survey, Prof. Paper 158, pp. 27-75, 6 figs., 4 pls., 1929.
2567. Correlation of the McKenzie shale (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 117-118, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 146, March, 1930.

Swartz, Joel Howard. See also Lee, 1531.

2568. Devono-Mississippian boundary in Virginia and Tennessee (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 93, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 140-141, March, 1929.
2569. The age and stratigraphy of the Chattanooga shale in northeastern Tennessee and Virginia: Am. Jour. Sci., 5th ser., vol. 17, pp. 431-448, 3 figs., May, 1929.
2570. The Devono-Mississippian boundary in the southeastern United States: Science, new ser., vol. 70, p. 609, December 20, 1929.

Swartzlow, Carl R.

2571. Oolitic rock of secondary origin: Pan-Am. Geologist, vol. 53, no. 3, pp. 197-200, April, 1930; abstract, no. 4, p. 304, May, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 168, March 31, 1930.

Swinerton, A. A.

2572. Oil shale from Pictou County, Nova Scotia: Canada, Dept. Mines, Mines Branch, Investigations of Fuels and Fuel Testing, 1928, pp. 13-24, 3 figs., 2 pls., 1930. (Pub. No. 712.)

Swinerton, Allyn C.

2573. The caves of Bermuda: Geol. Mag., vol. 66, pp. 79-84, February, 1929.
2574. Changes in base-level indicated by caves in Kentucky and Bermuda (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 194, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 68-69, February, 1929.
2575. Outline of the geology of Bermuda (abstract): Ohio Jour. Sci., vol. 29, no. 4, p. 171, July, 1929; Ohio Acad. Sci., Proc., vol. 8, pt. 6, p. 308, 1929.
2576. Problems relative to cavern formation in limestone (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, p. 400, 1930.

Sykes, Godfrey.

2577. Study of the delta of the Colorado River: Carnegie Inst. Washington. Year Book no. 29, pp. 411-413, 1930.

Symons, Henry H.

2578. California mineral production for 1928: California, Division of Mines, Bull. no. 102, 215 pp. September, 1929.
2579. Mineral-paint materials in California: California, Dept. Nat. Res., Div. Mining, Mining in California, vol. 26, no. 2, pp. 148-160, April 1930.
2580. California mineral production for 1929: California, Div. Mines, Bull. no. 103, 231 pp., September, 1930.

Taber, Stephen.

2581. Chrysotile veins of southern Quebec (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 95-96, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, pp. 142-143, March, 1929.
2582. Experiments in soil freezing (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 108-109, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 147, March, 1929.
2583. Frost heaving: Jour. Geology, vol. 37, no. 5, pp. 428-461, 21 figs., July-August, 1929.
2584. The mechanics of frost heaving: Jour. Geology, vol. 38, no. 4, pp. 303-317, 5 figs., May-June, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 2, pp. 131-132, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 88-89, March 31, 1930.
2585. (and Schaller, Waldemar T.). Psittacinite from the Higgins mine, Bisbee, Ariz.: Am. Mineralogist, vol. 15, no. 12, pp. 575-579, December, 1930.

Tagg, G. T.

2586. The electrical resistance method of geophysical surveying: Canadian Min. Jour., vol. 50, no. 49, pp. 1156-1159, 7 figs., December 6, 1929.

Taliaferro, Nicholas Lloyd.

2587. Geology of the Nipomo quadrangle, San Luis Obispo and Santa Barbara Counties, Calif. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 146, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 236, June, 1929.
2588. Analcite diabase and related rocks in California (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 73, August, 1930.

Talmage, Sterling B.

2589. Thermal springs near the Wasatch fault (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 181, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, pp. 73-76, February, 1929.
2590. The significance of "unsupported inclusions": Econ. Geology, vol. 24, no. 6, pp. 601-610, 16 figs., September-October, 1929.

Tarr, William Arthur.

2591. Doubly terminated quartz crystals occurring in gypsum: Am. Mineralogist, vol. 14, no. 1, pp. 19-25, 3 figs., January, 1929.
2592. (and Lonsdale, John T.). Pseudocubic quartz crystals from Artesia, N. Mex.: Am. Mineralogist, vol. 14, no. 2, pp. 50-53, 1 fig., February, 1929.

Tarr, William Arthur—Continued.

2593. The origin of the zinc deposits at Franklin and Sterling Hill, N. J.: *Am. Mineralogist*, vol. 14, no. 6, pp. 207-221, June, 1929.
2594. Introductory economic geology. 664 pp., illus., New York, McGraw-Hill Book Co., 1930.
2595. Recent publications on chert, flint, concretions, cone-in-cone, and styolites: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 55-61, 1930.

Tate, R. C.

2596. Some notes on the location of fossil leaves from the Dakota sandstone in Cimarron County: *Oklahoma Acad. Sci., Proc.*, vol. 8 (Oklahoma, Univ., Bull., n. s. no. 410), p. 127 [1929].

Taylor, David O.

2597. A new shale and related structure in the Chicago area: *Illinois State Acad. Sci., Trans.*, vol. 22, pp. 473-477, 1 pl., April, 1930; abstract, *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 176, March 31, 1930.

Taylor, E. McKenzie.

2598. An examination of clays associated with oil-bearing strata in the United States: *Inst. Petroleum Technologists, Jour.*, vol. 16, no. 84, pp. 681-683, October, 1930.

Taylor, Frank Bursley.

2599. The status of Lake Erie in present and recent land tilting: *Michigan Acad. Sci., Papers*, vol. 10, pp. 251-260, 1 fig., April, 1929.
2600. New facts on the Niagara gorge: *Michigan Acad. Sci., Papers*, vol. 12, pp. 251-265, 3 figs., 1 pl., 1930.
2601. Correlation of Tertiary mountain ranges in the different continents: *Geol. Soc. America, Bull.*, vol. 41, no. 3, pp. 431-473, 4 figs., September 30, 1930; abstract, no. 1, pp. 83-85, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, p. 78, February, 1929.

Taylor, G. H. See Stearns, 2483.

Taylor, T. U.

2602. Silting of reservoirs: *Texas, Univ., Bull.* no. 3025, 170 pp., 59 figs., 1930.
2603. Silting of the lake at Austin, Tex. (with discussion): *Am. Soc. Civil Eng., Trans.*, vol. 93, pp. 1681-1735, 1929.

Taylor, W. L.

2604. The Mesabi iron range: *Min. Congress Jour.*, vol. 15, no. 10, pp. 788-792, 5 figs., October, 1929.

Teas, L. P.

2605. Irma oil field, Nevada County, Ark.: Structure of typical American oil fields, vol. 1, pp. 1-17, 5 figs. (incl. map), *Am. Assoc. Petroleum Geologists*, 1929.
2606. Bellevue oil field, Bossier Parish, La.: Structure of typical American oil fields, vol. 1, pp. 229-253, 4 figs., *Am. Assoc. Petroleum Geologists*, 1929.

Tegland, Nellie May.

2607. Correlation and affinities of certain species of *Pitaria*: *California, Univ. Dept. Geol. Sci., Bull.* vol. 18, no. 10, pp. 275-290, 3 pls., May 8, 1929.
2608. Occurrence and relationship of *Galeodea* in Oligocene of Washington (abstract): *Pan-Am. Geologist*, vol. 54, no. 3, p. 237, October, 1930.

Teichert, Curt. See Foerste, 855.

Tenney, J. B.

2609. Arizona copper prospects: Eng. and Min. Jour., vol. 127, no. 19, pp. 752-754, 1 fig., May 11, 1929.

2610. Relation of the ore deposits of the southern Rocky Mountain region to the Colorado Plateau: Colorado Sci. Soc., Proc., vol. 12, no. 8, pp. 269-277, 1 fig., 1930.

Termmer, Franz.

2611. Besuch des Vulkans Izalco in Salvador im März 1928: Zeitschr. Vulkanologie, Bd. 12, H. 2-3, pp. 228-230, 1 fig., August, 1929.

2612. Ausbruch des Vulkans Santa Maria in Guatemala am 14. Mai 1928: Zeitschr. Vulkanologie, Bd. 12, H. 2-3, pp. 231-235, 1 fig., August, 1929.

Terzaghi, Charles.

2613. The origin of artesian pressure: Econ. Geology, vol. 24, no. 1, pp. 94-100, 1 fig., January, 1929.

2614. Compressibility and elasticity of artesian aquifers: Econ. Geology, vol. 24, no. 2, pp. 211-213, March-April, 1929.

2615. Effect of minor geologic details on the safety of dams: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 215, pp. 31-46, 6 figs., July, 1929.

Tester, Allen C.

2616. Type section of the Dakota stage (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 177-178, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 4, p. 300, May, 1930.

2617. Chemung formation of Iowa and western New York (abstract): Pan-Am. Geologist, vol. 54, no. 2, p. 150, September, 1930.

2618. Stratigraphy of Cretacic in northwestern Iowa (abstract): Pan-Am. Geologist, vol. 54, no. 2, pp. 150-151, September, 1930.

Thiel, George Alfred.

2619. Experiments bearing on the biochemical reduction of sulphate waters: Econ. Geology, vol. 25, no. 3, pp. 242-250, 2 figs., May, 1930.

2620. A correlation of marl beds with types of glacial deposits: Jour. Geology, vol. 38, no. 8, pp. 717-728, 5 figs., November-December, 1930.

Thiessen, Reinhardt.

2621. (and Francis, Wilfred). Terminology in coal research: U. S., Bur. Mines, Tech. Paper 446, 27 pp., 15 figs., 1929.

2622. Recently developed methods of research in the constitution of coal and their application to Illinois coals: Illinois, State Geol. Survey, Coop. Min. Ser., Bull. 33, pp. 58-89 figs., 1930.

2623. The microscopic structure of coals of the Monongahela series: West Virginia Acad. Sci., Proc., vol. 3, pp. 159-198, 33 pls., West Virginia Univ. Bull. ser. no. 30, no. 1 [1930].

Thoenen, J. R.

2624. Economics of new sand and gravel developments: U. S., Bur. Mines, Econ. Paper 7, 60 pp., 1929.

Thom, Burton Peter.

2625. Dust to life; the scientific story of creation. 409 pp., illus., New York, E. P. Dutton & Co. [c. 1929].

Thom, William Taylor, jr. See also McCutchin, 1652.

- 2626. Petroleum and coal, the keys to the future. 223 pp., Princeton, Princeton University Press, 1929.
- 2627. Nature of orogenic process (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 105-106, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, pp. 145-146, March, 1929.
- 2628. Inhomogeneities in the earth or atmosphere which may cause irregularities in isogeothermal surfaces in the earth's crust: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 5, pp. 556-557, May, 1930.
- 2629. (and Field, Richard M.). The advancement of geology through cooperative research: *Science, new ser.*, vol. 72, pp. 117-118, August 1, 1930.
- 2630. (and Field, Richard M.). Cooperative geologic research near Red Lodge, Mont.: *Science, new ser.* vol. 72, pp. 655-656, December 26, 1930.

Thomas, Abram Owen.

- 2631. Foraminifera in the Iowa Devonian (abstract): *Iowa Acad. Sci., Proc.*, vol. 39, pp. 279-280 [1930].
- 2632. A review of the time factor represented by the stratigraphic breaks in the Iowa geological column (abstract): *Iowa Acad. Sci., Proc.*, vol. 39, p. 280 [1930].
- 2633. Recent modifications and contributions to the Iowa geological section (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 173-174, March 31, 1930; *Pan-Am. Geologist*, vol. 52, no. 5, p. 375, December, 1929.

Thomas, Chester Reams.

- 2634. Flank production of the Nemaha Mountains (Granite Ridge), Kans.: Structure of typical American oil fields, vol. 1, pp. 60-72, 5 figs., *Am. Assoc. Petroleum Geologists*, 1929.
- 2635. Oil on ancient Nemaha uplift: *Pan-Am. Geologist*, vol. 51, no. 3, pp. 207-216, 2 pls., April, 1929.

Thomas, Norman L. See also Cushman, 610.

- 2636. Hypoparia and Opisthoparia from the St. Clair limestone, Arkansas: *Denison Univ. Bull.*, vol. 29, no. 2, *Sci. Lab., Jour.* vol. 24, pp. 1-26, 1 pl., April, 1929.
- 2637. Some Proparia from the St. Clair limestone, Arkansas: *Denison Univ. Bull.*, vol. 29, no. 7, *Sci. Lab., Jour.*, vol. 24, pp. 115-128, 2 pls., August, 1929.

Thomas, W. A. See Lane, 1499.

Thompson, Arthur Perry.

- 2638. Finding the Lost Vulture mine [Maricopa County—gold]: *Min. Jour.*, Phoenix, Ariz., vol. 14, no. 13, pp. 9-11, 28-30, November 30, 1930.

Thompson, B. E. See Fuqua, 890.

Thompson, David Grosh.

- 2639. The Mohave Desert region, California; a geographic, geologic, and hydrologic reconnaissance: *U. S. Geol. Survey, Water-Supply Paper* 578, 759 pp., 20 figs., 34 pls. (incl. maps), 1929.
- 2640. The origin of artesian pressure: *Econ. Geology*, vol. 24, no. 7, pp. 758-771, November, 1929.
- 2641. Ground-water supplies in the vicinity of Asbury Park: *New Jersey, Dept. Conserv. and Devel., Bull.* 35, 50 pp., 1930.

Thompson, Wallace C. See also Lloyd, 1576.

2642. (and Hubbard, W. E.). Relation of accumulation to structure in oil fields of Archer County, Tex.: Structure of typical American oil fields, vol. 1, pp. 421-439, 8 figs., 1 pl., Am. Assoc. Petroleum Geologists, 1929.

Thompson, Warren O.

2643. Petrologic study of the sandstone at the Nevada State prison (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 153, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, pp. 371-372, June, 1929.

Thomson, Ellis. See also Emmons, 756.

2644. A mineralographic study of the marcasite group: Toronto, Univ., Studies, Geol. ser. no. 29, pp. 75-83, 6 pls., 1930.
2645. Quantitative microscopic analysis: Jour. Geology, vol. 38, no. 3, pp. 193-222, 9 figs., 8 pls., April-May, 1930.
2646. A qualitative and quantitative determination of the ores of Cobalt, Ontario: Econ. Geology, vol. 25, no. 5, pp. 470-505, no. 6, pp. 627-652, 32 figs., August, September-October, 1930.

Thomson, J. E.

2647. Heron Bay area, Ontario: Canadian Min. Jour., vol. 51, no. 50, p. 1198, December 12, 1930.

Thornburgh, H. R.

2648. Wave-front diagrams in seismic interpretation: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 2, pp. 185-200, 6 figs., February, 1930.

Thorpe, Malcolm Rutherford.

2649. A new Triassic fossil field: Am. Jour. Sci., 5th ser., vol. 18, pp. 277-300, 8 figs., October, 1929; abstract, Geol. Soc. America, Bull., vol. 40 no. 1, pp. 114-115, 251-252, March 30, 1929.

Thwaites, Fredrik Turville. See also Ekern, 740.

2650. Glacial geology of part of Vilas County, Wis.: Wisconsin Acad. Sci., Trans., vol. 24, pp. 109-125, 2 figs., 1929.

Tieje, Arthur Jerrold.

2651. The study of geology by aeroplane: Science, new ser., vol. 69, pp. 301-302, March 15, 1929.
2652. Miocene oysters of California (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 214, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, p. 158, September, 1929.

Tilden, Josephine E.

2653. A phycological examination of fossil red salt from three localities in the Southern States: Am. Jour. Sci., 5th ser., vol. 19, pp. 297-303, April, 1930.

Tilton, John Littlefield, 1863-1930.

2654. History of the department of geology at West Virginia University: West Virginia Univ. Bull., ser. 29, no. 3, West Virginia Univ. Sci. Assoc., Bull., vol. 2, no. 3, pp. 11-19, October 15, 1928.
2655. Geology from Morgantown to Cascade, W. Va., along State route no. 7: West Virginia Univ. Bull., ser. 29, no. 3, West Virginia Univ. Sci. Assoc., Bull., vol. 2, no. 3, pp. 65-86, 10 figs., October 15, 1928.
2656. Marine faunas of the Devonian tree horizons of Tygart Valley, W. Va.: Am. Jour. Sci., 5th ser., vol. 17, pp. 347-351, April, 1929.

Tilton, John Littlefield, 1863-1930—Continued.

2657. River clays and the Pleistocene problems in West Virginia: West Virginia Sci. Assoc., Bull., vol. 2, no. 4, pp. 38-49, 1 fig., 1930.

2658. The trend of geologic thought: West Virginia Acad. Sci., Proc., vol. 3, pp. 33-43, West Virginia Univ. Bull. ser. no. 30, no. 1 [1930].

Tolmachoff, Innokenti Pavlovich.

2659. Extinction and extermination: Smithsonian Inst., Ann. Rept. 1929, pp. 269-284, 1930.

Tolman, Carl.

2660. The Birch Lake batholith, Ontario: Am. Jour. Sci., 5th ser., vol. 17, pp. 403-424, 1 fig., May, 1929.

2661. Obatogamau River area, Abitibi Territory, Quebec: Canada, Geol. Survey, Summ. Rept., 1929, pt. C, pp. 20-32, 1 fig., 1930.

Tomlinson, Charles Weldon.

2662. The Pennsylvanian system in the Ardmore Basin: Oklahoma Geol. Survey, Bull. no. 46, 79 pp., 3 figs., 20 pls. (incl. maps), March, 1929.

Torrey, Paul D. See also Newby, 1897.

2663. Geology of gas fields of New York: Oil and Gas Jour., vol. 29, no. 24, pp. 67-70, 107, October 30, 1930.

Touwaide, Marcel E.

2664. Origin of the Boleo copper deposit, Lower California, Mexico: Econ. Geology, vol. 25, no. 2, pp. 113-144, 10 figs., March-April, 1930.

Trainer, David W., jr.

2665. Mineral concentrates of beach sand: Am. Mineralogist, vol. 15, no. 5, pp. 194-197, 1 fig., May., 1930.

Trask, Parker Davies.

2666. Research on marine sediments conducted by the American Petroleum Institute: National Research Council, Reprint and Circular Ser. no. 92 (Rept. Comm. Sedimentation), pp. 52-54, 1930.

2667. Summary of results obtained to date by the American Petroleum Institute research investigation on the origin and environment of source sediments: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 3, pp. 314-316, March, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, pp. 223-224, April, 1930.

2668. (and Wu, C. C.). Free sulphur in recent sediments (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 132, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, pp. 89-90, March 31, 1930.

2669. (and Wu, C. C.). Analyses of oil and gas from distillation of recent sediments: Econ. Geology, vol. 25, no. 3, pp. 235-241, May, 1930.

2670. Mechanical analyses of sediments by centrifuge: Econ. Geology, vol. 25, no. 6, pp. 581-599, 1 fig., September-October, 1930.

2671. (and Wu, C. C.). Does petroleum form in sediments at time of deposition?: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 11, pp. 1451-1463, November, 1930.

Trechmann, C. T.

2672. The Manchioneal beds of Jamaica: Geol. Mag., vol. 67, no. 791, pp. 199-218, 2 pls., May, 1930.

2673. Fossils from the Blue Mountains of Jamaica: Geol. Mag., vol. 67, pp. 481-491, 1 fig., 1 pl., November, 1929.

Trischka, Carl.

2674. Diatomite in Arizona: Eng. and Min. Jour., vol. 127, no. 1, pp. 13-14, 2 figs., January 5, 1929.
2675. (and Rove, O. N., and Barringer, D. M., jr.). Boxwork siderite: Econ. Geology, vol. 24, no. 7, pp. 677-686, 4 figs., November, 1929.

Troedsson, Gustaf T.

2676. On the middle and upper Ordovician faunas of northern Greenland, Part II: Meddelelser om Grønland, Bd. 72, pp. 1-197, 12 figs., 56 pls., 1929; Mus. minér. et géol. Univ. Copenhagen, Comm. paléont., no. 30, 1928.
2677. On the middle and upper Ordovician faunas of northern Greenland; I, Cephalopods: Meddelelser om Grønland, Bd. 71, pp. 1-157, 17 figs., 65 pls., 1929.

Trowbridge, Arthur Carleton.

2678. Investigations of fluvial deposits: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 104-122, 1930.
2679. Diastrophic history of the Mississippi Valley above Grafton, Ill. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 165-166, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 5, pp. 369-370, December, 1929.
2680. Building of Mississippi Delta: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 7, pp. 867-901, 14 figs., July, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, pp. 217-218, April, 1930.

Troxell, Edward Leffingwell.

2681. Collecting in the lower Eocene: Science, new ser., vol. 70, p. 451, November 8, 1929.
2682. New vertebrates from Eocene of Wyoming (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 151, March, 1930.
2683. Field work in Big Horn Basin, 1929 (abstract): Pan-Am. Geologist, vol. 53, no. 2, p. 151, March, 1930.

Tuck, Ralph.

2684. Classification and specifications of siliceous sands: Econ. Geology, vol. 25, no. 1, pp. 57-64, January-February, 1930.

Turner, A. M.

2685. Some interesting geological formations in southern Colorado: Colorado School of Mines Mag., vol. 20, no. 3, pp. 24-25, 6 figs., March, 1930.

Turner, Homer Griffield.

2686. Constitution and nature of Pennsylvania anthracite with comparisons to bituminous coal: Am. Inst. Min. and Met. Eng., Tech. Pub. 234, 17 pp., 26 figs., October, 1929; Lehigh Univ. Pub. vol. 3, no. 11, Inst. Research, Circ. no. 35, 15 pp., 26 figs., November, 1929.

Twenhofel, William Henry.

2687. (and Hollister, D. E.). The mural pores of the genus *Paleofavosites*: Am. Jour. Sci., 5th ser., vol. 17, pp. 449-452, 2 figs., May, 1929.
2688. Magnitude of the sediments beneath the deep sea: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 385-401, June 30, 1929.
2689. Report of the committee on sedimentation 1928-29; Introduction: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 1-4, 1930.

Twitchell, George B.

- 2690. The structure and relationship of the true stromatoporoids: *Am. Midland Naturalist*, vol. 11, nos. 6-7, pp. 270-306, 2 figs., 9 pls., November-January, 1928-29.
- 2691. Primitive characters of the fresh-water bryozoans (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, pp. 170-171, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, pp. 307-308, 1929.
- 2692. *Urnatella gracilis*, a possible survivor of the Trepostomata (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 206, March 31, 1930.
- 2693. The structure and relationship of the Trepostomata (abstract): *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, pp. 402-403, 1930.

Ulrich, Edward Oscar.

- 2694. The status of the classification of the trilobites: *Washington Acad. Sci., Jour.*, vol. 19, no. 3, pp. 59-63, February 4, 1929.
- 2695. *Trachelocrinus*, a new genus of Upper Cambrian crinoids: *Washington Acad. Sci., Jour.*, vol. 19, no. 3, pp. 63-66, 2 figs., February 4, 1929.
- 2696. New classification of the Paleozoic deposits in Oklahoma (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 85-86, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 1, pp. 78-79, February, 1929.
- 2697. Ordovician trilobites of the family Telephidae and concerned stratigraphic correlations: *U. S. Nat. Mus., Proc.*, vol. 76, art. 21, 101 pp., 1930.
- 2698. (and Resser, C. E.). The Cambrian of the upper Mississippi Valley; Part I, Trilobita; Dikelocephalinae and Osceolinae: *Milwaukee, Public Mus., Bull.*, vol. 12, no. 1, pp. 1-122, 23 pls., June 16, 1930.
- 2699. (and Foerste, Aug. F., and Bridge, J.). Systematic paleontology [of Cambrian and Ordovician formations of Ozark region, Missouri]: *Missouri Bur. Geology and Mines, Second ser.*, vol. 24, pp. 186-222, 5 pls., 1930.

Umpleby, Joseph Bertram.

- 2700. (and Westgate, Lewis G., and Ross, Clyde P.). Geology and ore deposits of the Wood River region, Idaho; with a description of the Minnie Moore and near-by mines by D. F. Hewett: *U. S. Geol. Survey, Bull.* 814, 250 pp., 20 figs., 33 pls. (including maps), 1930.

U. S. Bureau of Mines.

- 2701. Mineral resources of the United States, 1926. Part I—Metals, 774 pp., 4 figs.; Part II—Nonmetals, 675 pp., 30 figs., Washington, Government Printing Office, 1929.
- 2702. Analyses of Kansas coals: *U. S. Bur. Mines, Tech. Paper* 455, 52 pp., 1929.

Valerius, M. M. See Allan, 33.

Van der Gracht, W. A. J. M. Van Waterschoot.

- 2703. Geological favor of continental drift: *Pan-Am. Geologist*, vol. 51, no. 1, pp. 41-60, February, 1929.
- 2704. Remarks on recent research work on the genesis of petroleum: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 9, pp. 1221-1227, September, 1929.
- 2705. Barrier reefs in west Texas basin: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 10, p. 1397, October, 1929.
- 2706. Permo-Carbonic orogeny in south-central United States (abstract): *Pan-Am. Geologist*, vol. 53, no. 3, pp. 228-229, April, 1930.

Van der Veer, H. J.

2707. Microscopic examination of ore samples from the Pinar del Rio copper of Cuba: Colorado School of Mines Mag., vol. 20, no. 5, pp. 16-17, 28, 8 figs., May, 1930.

Vandervelt, J. W. See Butler, 394.

Vanderwilt, John W.

2708. A laboratory method for grading abrasives: Econ. Geology, vol. 24, no. 8, pp. 853-859, 3 figs., December, 1929.

Van Horn, Frank Robertson.

2709. Proceedings of the ninth annual meeting of the Mineralogical Society of America at New York City: Am. Mineralogist, vol. 14, no. 3, pp. 95-116, March, 1929.
2710. Proceedings of the ninth annual meeting of the Mineralogical Society of America, held at New York City, December 27 and 28, 1928: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 273-280, March 30, 1929.
2711. Proceedings of the tenth annual meeting of the Mineralogical Society of America at Washington D. C.: Am. Mineralogist, vol. 15, no. 3, pp. 109-124, March, 1930.
2712. Replacement of wolframite by scheelite with observations on the fluorescence of certain tungsten minerals: Am. Mineralogist, vol. 15, no. 10, pp. 461-469, 2 figs., October, 1930.

Van Orstrand, Charles Edwin.

2713. Temperature tests as an aid in locating oil fields: Oil Bull., vol. 15, no. 5, pp. 485-486, May, 1929.
2714. Description of apparatus for the measurement of temperatures in deep wells; also some suggestions in regard to the operation of the apparatus, and methods of reduction and verification of the observations: Am. Petroleum Inst., Production Bull. no. 205, pp. 9-18, 16 figs., October, 1930.

Van Tuyl, Francis Maurice. See also Singewald, 2407.

2715. Contribution to salt-dome problem: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 8, pp. 1041-1047, 2 figs., August, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, p. 221, April, 1930.

Van Valkenburgh, Horace B.

2716. (and Sellers, Jesse E.). Investigation of the Estes Park "meteorite" [Colorado]: Colorado, Univ., Studies, vol. 17, no. 1, pp. 16-22, May, 1929.

Vaughan, Thomas Wayland.

2717. Descriptions of the genus *Discocyclina* from the Eocene of Mexico: U. S. Nat. Mus., Proc., vol. 76, art. 3, 18 pp., 7 pls., 1929.
2718. Studies of orbitoidal Foraminifera; the subgenus *Polylepidina* of *Lepidocyclina* and *Orbitocyclina*, a new genus: Nat. Acad. Sci., Proc., vol. 15, no. 3, pp. 288-295, 1 pl., March, 1929.
2719. A note on the names *Cyclostrophia* Ehrenberg, 1856, and *Lepidocyclina* Gumbel, 1868: Jour. Paleontology, vol. 3, no. 1, pp. 28-29, March, 1929.
2720. Memorial of Earle Sloan: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 57-61, 1 pl. (portr.), March 30, 1929.

Vaughan, Thomas Wayland—Continued.

2721. *Actinosiphon semmesi*, a new genus and species of orbitoidal Foraminifera, and *Pseudorbitoides trechmanni* H. Douvillé: Jour. Paleontology, vol. 3, no. 2, pp. 163-169, 1 pl., June, 1929.
2722. Species of *Orbitocyclina*, a genus of American orbitoid Foraminifera from the Upper Cretaceous of Mexico and Louisiana: Jour. Paleontology, vol. 3, no. 2, pp. 170-175, 1 pl., June, 1929.
2723. Additional new species of Tertiary larger Foraminifera from Jamaica: Jour. Paleontology, vol. 3, no. 4, pp. 373-383, 3 pls., December, 1929.
2724. Recent progress in the study of fossil larger Foraminifera in America (abstract): Fourth Pacific Sci. Cong., Java, 1929, Proc., vol. 2B, pp. 1039-1040, 1930.
2725. Studies of marine bottom deposits at the Scripps Institution of Oceanography: National Research Council, Reprint and Circular Ser., no. 92 (Rept. Comm. Sedimentation), pp. 48-49, 1930.
2726. Investigations of geological significance at the Scripps Institution of Oceanography (abstract): Pan-Am. Geologist, vol. 54, no. 1, pp. 70-71, August, 1930.
2727. Notes on larger Foraminifera (abstract): Pan-Am. Geologist, vol. 54, no. 3, p. 238, October, 1930.

Ver Steeg, Karl. See also Johnson, 1269.

2728. Certain characteristics of peneplains: Pan-Am. Geologist, vol. 52, no. 5, pp. 340-342, December, 1929.
2729. Drainage changes in the vicinity of Wooster, Ohio: Ohio Jour. Sci., vol. 30, no. 5, pp. 309-314, 3 figs., September, 1930.
2730. Relation of wind gaps and water gaps to peneplanation (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, pp. 405-406, 1930.
2731. Some features of Appalachian peneplains: Pan-Am. Geologist, vol. 53, no. 5, pp. 359-364, June, vol. 54, no. 1, pp. 17-28, 2 pls., August, 1930; abstract, Geol. Soc. America, Bull., vol. 41, no. 1, p. 166, March 31, 1930; Ohio Acad. Sci., Proc., vol. 8, pt. 7, pp. 408-409, 1930; Pan-Am. Geologist, vol. 52, no. 5, p. 370, December, 1929.
2732. Wind gaps and water gaps of the northern Appalachians, their characteristics and significance: New York Acad. Sci., Annals, vol. 32, pp. 87-220, 172 figs. and pls., July 1, 1930.

Ver Wiebe, Walter A.

2733. Tectonic classification of oil fields in the United States: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 5, pp. 409-440, 1 fig., May, 1929.
2734. Unconformity at top of Trenton in Lima, Ohio, district: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 6, pp. 688-689, June, 1929.
2735. Oil fields in the United States. 629 pp., 230 figs., New York, McGraw-Hill Book Co., 1930.
2736. Ancestral Rocky Mountains: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 6, pp. 765-788, 3 figs., June, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, p. 229, April, 1930.

Villatoro, Jorge A.

2737. Influencia de los geosinclinales en la distribución del petróleo: Bol. petróleo, vol. 27, no. 3, pp. 330-332, March, 1929.

Visher, Stephen Sargent.

2738. The climate of Kentucky: Kentucky Geol. Survey, ser. 6, vol. 31, pp. 81-165, 109 figs. and pls., 1929.

Vivar, Gonzalo.

2739. El petróleo en Aragón, Guadalupe Hidalgo, D. F.: Mexico, Inst. geol., Anales, t. 3, pp. 87-92, 1929.

Vogt, Johan Herman Lie.

2740. A review of geological advance: Eng. and Min. Jour., vol. 130, no. 5, pp. 214-217, September 8, 1930.

Von Engel, Oscar Diedrich.

2741. Interglacial deposit in central New York: Geol. Soc. America, Bull., vol. 40, no. 2, pp. 469-479, 5 figs., June 30, 1929; abstract, no. 1, pp. 126-127, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 2, p. 152, March, 1929.

2742. Type form of faceted and striated glacial pebbles: Am. Jour. Sci., 5th ser., vol. 19, pp. 9-16, 1 fig., January, 1930.

2743. Palisade glacier, Sierra Nevada Mountains, California (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 99-100, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, p. 136, March, 1930.

Von Estorff, Fritz E.

2744. Kreyenhagen shale at type locality, Fresno County, Calif.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 10, pp. 1321-1336, 5 figs., October, 1930.

Waitz, Paul.

2745. Informe sobre las condiciones geológicas de las boquillas del Río de San Pedro, afluente del Río Conchos, Chihuahua: Soc. cient. "Ant. Alz.," Mem. y rev., t. 49, nos. 7-12, pp. 235-266, 20 pls., 1928 [1930?].

Waksman, Selman A.

2746. Chemical composition of peat and the rôle of microorganisms in its formation: Am. Jour. Sci., 5th ser., vol. 19, pp. 32-54, January, 1930.

Walker, John Fortune.

2747. (and Bancroft, M. F.). Lardeau map area, British Columbia; general geology: Canada, Geol. Survey, Mem. 161, pp. 1-16, 1929.

2748. Kootenay Lake district, British Columbia: Canada, Geol. Survey, Summ. Rept. 1928, pt. A, pp. 119-135, 1 fig., map, 1929.

2749. Mineral developments in Salmo map area, British Columbia: Canada, Geol. Survey, Summ. Rept. 1929, pt. A, pp. 253-273, 1930.

Walker, Thomas Leonard.

2750. Mineral association at the Marble Bay mine, Texada Island, British Columbia: Toronto, Univ., Studies, Geol. ser. no. 29, pp. 5-8, 1930.

2751. Dalmatianite, the spotted greenstone from the Amulet mine, Noranda, Quebec: Toronto, Univ., Studies, Geol. ser. no. 29, pp. 9-12, 1930.

2752. Stephanite, argentite, and silver, South Lorrain, Ontario: Toronto, Univ., Studies, Geol. ser. no. 29, pp. 13-15, 1930.

Wallace, Robert Charles.

2753. The educational function of the geological sciences: Roy. Soc. Canada, Trans., ser. 3, vol. 23, sec. 4, pp. 1-3, May, 1929.

Wandke, Alfred. See also Butler, 391.

2754. Ore deposition in open fissures formed by solution pressure: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 342, 15 pp, 6 figs., July, 1930.

Wanenmacher, J. M.

2755. (and Gealy, W. B.). Surface and subsurface structure of the Tri-County oil field of southwestern Indiana (with discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 14, no. 4, pp. 423-431, April, 1930; abstract, *Pan-Am. Geologist*, vol. 53, no. 3, p. 229, April, 1930.

Wanless, Harold Rollin. See also Leighton, 1541.

2756. Geology and mineral resources of the Alexis quadrangle: *Illinois State Geol. Survey Bull.* no. 57, 230 pp., 53 figs., 6 pls., 1929.

2757. Nebraskan till in Fulton County, Ill.: *Illinois State Acad. Sci., Trans.*, vol. 21, pp. 273-282, 3 figs., 2 pls., February, 1929.

Ward, Freeman. See also Pa. G. S., 2008.

2758. A Wisconsin ice tongue in the Delaware Valley [Pa.]: *Am. Jour. Sci.*, 5th ser., vol. 18, pp. 446-448, November, 1929.

2759. The rôle of solution in peneplanation: *Jour. Geology*, vol. 38, no. 3, pp. 262-270, 1 fig., April-May, 1930.

Wark, Arthur Frederick.

2760. New giant tortoise from the Pliocene of Florida: *Am. Jour. Sci.*, 5th ser., vol. 17, pp. 400-402, 1 fig., May, 1929.

Warner, Thor.

2761. Mercury deposit in Coso Range, Inyo County, Calif.: *Mining in California* (California, Dept. Nat. Res., Div. Mines), vol. 26, no. 1, pp. 59-63, 4 figs., January, 1930.

Warren, Percival S.

2762. Sedimentary record in the Rocky Mountains at about the 51st parallel: *Canadian Field-Naturalist*, vol. 43, no. 2, pp. 23-27, February, 1929.

2763. Oil and gas prospects in central Saskatchewan: *Canada, Geol. Survey, Summ. Rept.* 1929, pt. B, pp. 40-47, 1930.

2764. New species of fossils from Smoky River and Dunvegan formations, Alberta: *Alberta, Research Council, Geol. Survey Div., Rept.* no. 21, pp. 57-68, 5 pls., 1930.

2765. Three new ammonites from the Cretaceous of Alberta: *Roy. Soc. Canada, Trans.*, ser. 3, vol. 24, sec. 4, pp. 21-26, 4 pls., May, 1930.

Warthin, Alfred S., jr.

2766. Boulders in the Hudson River formation (abstract): *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 112, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, pp. 142-143, March, 1930.

2767. Micropaleontology of the Wetumka, Wewoka, and Holdenville formations: *Oklahoma Geol. Survey, Bull.* no. 53, 94 pp., 9 pls. (incl. map), October, 1930.

Washington, Henry S.

2768. The rock suites of the Pacific and Atlantic basins: *Nat. Acad. Sci., Proc.*, vol. 15, no. 7, pp. 604-609, July, 1929; abstract, *Science*, new ser., vol. 69, pp. 554-555, May 24, 1929.

2769. The origin of the mid-Atlantic ridge: *Maryland Acad. Sci., Jour.*, vol. 1, no. 1, pp. 20-29, 3 figs., January, 1930.

2770. (and Keyes, Mary G.). Rocks of the Pribilof Islands: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 321-338, 1 fig., November, 1930.

Wasson, Isabel B. See Wasson, 2771.

Wasson, Theron.

2771. (and Wasson, Isabel B.). Cabin Creek field, West Virginia: Structure of typical American oil fields, vol. 1, pp. 462-475, 5 figs., 1 pl., Am. Assoc. Petroleum Geologists, 1929.

Waterfall, Louis N.

2772. A contribution to the paleontology of the Fernando group, Ventura County, Calif.: California, Univ., Dept. Geol. Sci., Bull., vol. 18, no. 3, pp. 71-92, 1 fig., 2 pls., April 6, 1929.

Waters, Aaron Clement. See also Fuller, 888.

2773. (and Flagler, Charles W.). Origin of the small mounds on the Columbia River Plateau: Am. Jour. Sci., 5th ser., vol. 18, pp. 209-224, 8 figs., September, 1929.

Waters, James A. See Cushman, 606; Heath, 1100.

Watson, Edward H. See also Mathews, 1723.

2774. Origin of Maryland pegmatites (abstract): Washington Acad. Sci., Jour., vol. 19, no. 13, p. 290, July 19, 1929.
 2775. A diopside-bearing pegmatite in dolomite: Econ. Geology, vol. 24, no. 6, p. 611-625, 7 figs., September-October, 1929.
 2776. Sequence of the rocks near Baltimore (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 144-145, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 114, March 31, 1930.

Watson, R. J. See also Montgomery, 1817.

2777. Huronian gold mine, Moss Township, District of Thunder Bay: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 4, pp. 109-127, illus., 1929.
 2778. Platinum-bearing nickel-copper deposit on Lower Shebandowan Lake, District of Thunder Bay: Ontario Dept. Mines, 37th Ann. Rept., vol. 37, pt. 4, pp. 128-149, illus., map, 1929.

Watt, Betty P.

2779. A new species of fossil hackberry (*Celtis*) from the lower Pliocene of Philips County, Kans.: Pennsylvania Acad. Sci., Proc., vol. 2, p. 54, 1928.

Weaver, Charles Edwin.

2780. Geology of the Coast Range immediately north of San Francisco Bay (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 46, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 1, p. 72, February, 1930.
 2781. Eocene lavas in western Washington (abstract): Pan-Am. Geologist, vol. 53, no. 2, pp. 130-131, March, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 87, March 31, 1930.
 2782. Stratigraphic relations of Domengine and Markeley formations in Antioch, Vacaville, and Napa quadrangles [California] (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 79, August, 1930.

Weaver, D. K. See Hendrickson, 1126.

Weaver, Warren.

2783. Certain applications of the surface potential method: Am. Inst. Min. and Met. Eng., Geophysical prospecting, pp. 68-86, 14 figs., 1929.

Webber, Benj. N.

2784. Marcasite in the contact metamorphic ore deposits of the Twin Buttes district, Pima County, Ariz.: Econ. Geology, vol. 24, no. 3, pp. 304-310, 6 figs., May, 1929.

Weddle, H. W. See Stirton, 2511.

Weeks, Albert W.

2785. Geology of Larremore area, Caldwell County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 7, pp. 917-922, 3 figs., July, 1930.

Weeks, Ludlow J.

2786. Michipicoten River map area, Algoma district, Ontario: Canada, Geol. Survey, Summ. Rept., 1928, pt. C, pp. 1-11, 1930.

2787. Mistake Bay area, west coast of Hudson Bay, Northwest Territories: Canada, Geol. Survey, Summ. Rept., 1929, pt. B, pp. 172-174, 1930.

Weeks, W. G.

2788. Notes on a new mud volcano in the sea off the south coast of Trinidad: Inst. Petroleum Technologists, Jour., vol. 15, no. 74, pp. 385-391, June, 1929.

Weidman, Samuel.

2789. Age of certain chert gravels in the lead and zinc district of Oklahoma (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 177, March 31, 1930.

Weigel, W. M.

2790. The barite industry in Missouri: Am. Inst. Min. and Met. Eng., Tech. Pub. 201, 26 pp., 8 figs., March, 1929; Trans., 1929, Year Book, pp. 256-279, 8 figs., 1929.

Weinzierl, J. F.

2791. Application of the torsion balance: Internat. Geol. Congress, 14th session, Spain, 1926, Compt. rend., fasc. 4, pp. 1677-1683, 8 figs., 1928 [1929].

Weinzierl, Laura Lane.

2792. (and Applin, Esther R.). The Claiborne formation on the coastal domes: Jour. Paleontology, vol. 3, no. 4, pp. 384-410, 3 pls., December, 1929.

Weirich, T. E.

2793. Cushing oil and gas field, Creek County, Okla.: Structure of typical American oil fields, vol. 2, pp. 396-406, 6 figs., Am. Assoc. Petroleum Geologists, 1929.

2794. Features of the Simpson formation [Oklahoma]: Oil and Gas Jour., vol. 28, no. 49, pp. 112, 187-188, 1 fig., April 24, 1930.

2795. Pottawatomie County: Oklahoma Geol. Survey, Bull. no. 40, vol. 3, pp. 587-597 6 figs., July, 1930. (Bull. 40-TT, May, 1930).

2796. Simpson of central Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 12, pp. 1507-1513, 2 figs., December, 1930; abstract, Pan-Am. Geologist, vol. 53, no. 3, pp. 229-230 April, 1930.

Weller James Marvin.

2797. Geologic map of Edmonson County, to accompany ser. 6, vol. 28, The geology of Edmonson County: Kentucky Geol. Survey, ser. 6, 1929. Scale 1:62,500.

2798. The gastropod genus *Yvania*; contribution to the paleontology of Illinois: Illinois State Geol. Survey, Rept. Investigations no. 18, 44 pp., 3 pls., 1929.

2799. On some of Gurley's unfigured species of Carboniferous *Bellerophon*: Illinois State Acad. Sci., Trans., vol. 21, pp. 313-325, 1 pl., February, 1929.

Weller, James Marvin—Continued.

2800. A group of larviform crinoids from lower Pennsylvanian strata of the eastern interior basin: Illinois State Geol. Survey, Rept. Investigations no. 21, 38 pp., 8 figs., 2 pls., 1930.
2801. Cyclical sedimentation of the Pennsylvanian period and its significance: Jour. Geology, vol. 38, no. 2, pp. 97-135, 6 figs., February-March, 1930.
2802. Ophiuroid remains of Pennsylvanian age: Jour. Paleontology, vol. 4, no. 1, pp. 1-13, 1 pl., March, 1930.
2803. A new species of *Euphemus*: Jour. Paleontology, vol. 4, no. 1, pp. 14-21, 1 fig., 1 pl., March, 1930.
2804. On the occurrence of *Platycrinus* in Pennsylvanian strata of western Indiana: Illinois State Acad. Sci., Trans., vol. 22, pp. 478-484, 1 pl., April, 1930.

Weller, Stuart.

2805. (and Sutton, Arle H.). Map of the areal and structural geology (fault pattern) of Crittenden County, Ky., with regional stratigraphic section: Kentucky Geol. Survey, ser. 6, 1929. Scale 1:62,500.

Wells, Edgar Herbert.

2806. An outline of the mineral resources of New Mexico: New Mexico, State Bur. Mines, Circ. no. 1 (revised), 15 pp., September 1, 1930.

Wells, Francis G.

2807. The hydrothermal alteration of serpentine: Am. Jour. Sci., 5th ser., vol. 18, pp. 35-52, 1 fig., July, 1929.

Wells, John W.

2808. Corals of the Glen Rose formation (Comanchean) of central Texas (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 206-207, March 31, 1930.

Wells, Roger Clark. See also Butler, 391; Hess, 1137.

2809. Chemistry of the deposition of native copper from ascending solutions: U. S. Geol. Survey, Prof. Paper 144, pp. 137-141, 1929.
2810. (and Bailey, R. K., and Henderson, E. P.). Salinity of the water of Chesapeake Bay: U. S. Geol. Survey, Prof. Paper 154, pp. 105-152, 5 figs., 1 pl., March 14, 1929.
2811. Origin of helium-rich natural gas: Washington Acad. Sci., Jour., vol. 19, no. 15, pp. 321-327, 1 fig., September 19, 1929.
2812. Uraninite from Placer de Guadalupe, Chihuahua [Mexico]: Am. Mineralogist, vol. 15, no. 10, pp. 470-473, October, 1930.

Wendlandt, E. A.

2813. (and Knebel, Moses G.). Lower Claiborne of east Texas, with special reference to Mount Sylvan dome and salt movements: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 10, pp. 1347-1375, 7 figs. (incl. maps), October, 1929.

Wenner, Frank.

2814. A proposed accelerometer for use in a seismic region: Seismol. Soc. America, Eastern section, Proc. 1930 Meeting, Washington, pp. 46-51 [1930].

Wentworth, Chester Keeler.

2815. The geology of dam sites: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 215, pp. 78-96, July, 1929.

Wentworth, Chester Keeler—Continued.

2816. Method of computing mechanical composition types in sediments: *Geol. Soc. America, Bull.*, vol. 40, no. 4, pp. 771-790, 8 figs., December 31, 1929; abstract, no. 1, p. 110, March 30, 1929; *Pan-Am. Geologist*, vol. 51, no. 2, p. 147, March, 1929.
2817. Sand and gravel resources of the Coastal Plain of Virginia: *Virginia Geol. Survey, Bull.* 32, 146 pp., 154 figs., 19 pls., 1930.
2818. Types of pyroclastic rocks on Hawaii (abstract): *Pan-Am. Geologist*, vol. 53, no. 1, p. 80, February, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 57-58, March 31, 1930.
2819. A simplified method of determining the average slope of land surfaces: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 184-194, 5 figs., September, 1930.
2820. The plotting and measurement of exaggerated cross sections: *Econ. Geology*, vol. 25, no. 8, pp. 827-831, 4 figs., December, 1930.

Wernecke.

2821. *Naturgas in Kalifornien*: *Petroleum*, Berlin-Wien, Bd. 26, no. 27, pp. 735-737, July 2, 1930.

Westgate, Lewis Gardner. See also Umpleby, 2700.

2822. William North Rice, 1845-1928: *Science*, new ser., vol. 69, pp. 31-32, January 11, 1929.
2823. Memorial of William North Rice: *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 50-57, 1 pl. (portr.), March 30, 1929.
2824. Physiography of the Pioche district, Nevada (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 167, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 304, 1929.
2825. The origin of the Devonian cherts of central Ohio (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 171, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 308, 1929.
2826. White clays or upland-flat soils of southern Ohio: *Geol. Soc. America, Bull.*, vol. 41, no. 2, pp. 329-340, June 30, 1930; abstract no. 1, p. 85, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 1, p. 73, February 1930; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, p. 400, 1930.

Wetmore, Alexander.

2827. Birds of the past in North America: *Smithsonian Inst., Ann. Rept.* 1928, pp. 377-389, 11 pls., 1929.
2828. A Pleistocene avifauna from Florida (abstract): *Science*, new ser. vol. 69, p. 554, May 24, 1929.
2829. The age of the supposed Cretaceous birds from New Jersey: *Auk*, vol. 47, no. 2, pp. 186-188, April, 1930.
2830. Fossil bird remains from the Temblor formation near Bakersfield, Calif.: *California Acad. Sci., Proc.*, 4th ser., vol. 19, no. 8, pp. 85-93, 7 figs., July 15, 1930.

Wherry, Edgar Theodore.

2831. Mineral determination by absorption spectra: *Am. Mineralogist*, vol. 14, no. 8, pp. 299-308, no. 9, pp. 323-328, August and September, 1929.
2832. Fractured stalactite-stalagmite (abstract): *Pan-Am. Geologist*, vol. 53, no. 1, p. 72, February, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 47, March 31, 1930.
2833. Suggestions as to standardizing the names of crystal forms: *Am. Mineralogist*, vol. 15, no. 9, pp. 418-427, September, 1930.

Whipple, Ralph W.

- 2834. Note on *Castoroides ohioensis*; plastotype (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, p. 410, 1930.
- 2835. New reptilian fossil from the Dunkard (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, p. 410, 1930.
- 2836. (and Case, E. C.). Discovery of Permo-Carboniferous vertebrates in the Dunkard formation of West Virginia: Washington Acad. Sci., Jour., vol. 20, no. 15, pp. 370-372, September 19, 1930.

Whitbeck, R. H. See Dodge, 687.

Whitcomb, Lawrence.

- 2837. New information on *Homalonotus trentonensis*: Geol. Soc. America, Bull., vol. 41, no. 2, pp. 341-350, 2 pls., June 30, 1930; abstract, no. 1, p. 197, March 31, 1930; Pan-Am. Geologist, vol. 53, no. 2, pp. 152-153, March, 1930.

White, David.

- 2838. Study of the fossil floras in the Grand Canyon, Ariz.: Carnegie Inst. Washington, Year Book no. 28, pp. 392-393, 1929.
- 2839. Interpreting the Grand Canyon: Science, new ser., vol. 69, pp. 671-672, June 28, 1929.
- 2840. Description of fossil plants found in some "mother rocks" of petroleum from northern Alaska: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 7, pp. 841-848, 8 pls., July, 1929.
- 2841. Flora of the Hermit shale, Grand Canyon, Ariz.: Carnegie Inst. Washington, Pub. no. 405, 221 pp., 55 pls., December, 1929.
- 2842. Study of the fossil floras in the Grand Canyon, Ariz.: Carnegie Inst. Washington, Year Book no. 29, pp. 400-403, 1930.
- 2843. Deposition and age of the Hermit shale (abstract): Pan-Am. Geologist, vol. 53, no. 1, pp. 72-73, February, 1930; Geol. Soc. America, Bull., vol. 41, no. 1, p. 47, March 31, 1930.
- 2844. Obituary; Hilbert A. C. Jenison: Washington Acad. Sci., Jour., vol. 20, no. 10, pp. 190-191, May 19, 1930.
- 2845. Iron bacteria in silicified bog-iron deposits of Cambro-Ordovician age (abstract): Science, new ser., vol. 71, p. 544, May 23, 1930.
- 2846. Exchange of time for temperature in petroleum generation: Am. Assoc. Petroleum Geologists, Bull., vol. 14, no. 9, pp. 1227-1228, September, 1930.

White, Maynard Pressley.

- 2847. Some index Foraminifera of the Tampico embayment area of Mexico: Jour. Paleontology, vol. 3, no. 1, pp. 30-58, 2 pls., March, 1929.

White, Walter N.

- 2848. Preliminary report on the ground water supply of Mimbres Valley, N. Mex.: New Mexico, State Eng., Ninth Bienn. Rept., pp. 131-152, map [1930].

Whitlock, Herbert Percy.

- 2849. A crystallographic note on greenockite from West Paterson, N. J.: Am. Mus. Novitates no. 372, 2 pp., 2 figs., September 28, 1929.
- 2850. A study of the crystallography of the calcites of the New Jersey diabase region: Am. Mus. Nat. Hist., Bull. vol. 56, pp. 351-377, 25 figs., 1930.

Whitlock, Herbert Percy—Continued.

2851. Desert roses; groups of overlapping platelike crystals deposited by ground water in desert sand, which resemble the petals of a rose: Nat. History (Am. Mus. Nat. Hist., Jour.), vol. 30, no. 4, pp. 421-425, 6 figs., July-August, 1930.

Whitman, Alfred Russell.

2852. Diffusion in ore genesis: Econ. Geology, vol. 24, no. 3, pp. 330-335, May, 1929.

Whitnall, Harold O.

2853. The story of glacial sands and gravels: Nat. Sand and Gravel Assoc., Circular 5, 14 pp., 8 figs., Washington, D. C., January, 1930.

Whitson, Andrew Robeson.

2854. (and others). Soil survey of Bayfield County, Wis.: Wisconsin Geol. and Nat. Hist. Survey, Bull. no. 72A (Soil ser. no. 50), 44 pp., 8 figs., 5 pls., 1929.

Whittemore, John Weed.

2855. The clays of Louisiana (Monroe-Ruston area): Louisiana, Dept. Conservation, Bull. 16, 189 pp., illus., 1928.

Wickenden, R. T. D. See Cushman, 606; Johnston, 1286.

Wickham, Henry Frederick.

2856. Coleoptera from the lower Eocene (Wilcox) clays: Washington Acad. Sci., Jour., vol. 19, no. 7, pp. 148-150, 4 figs., April 4, 1929.

Wiedey, Lionel William.

2857. Revision of the Turritellas of the Vaqueros and Temblor Miocene of California (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 261, March 30, 1929.
2858. A new species of an exotic group of Carboniferous *Goniatites*: Am. Jour. Sci., 5th ser., vol. 17, pp. 321-325, 1 pl., April, 1929.
2859. New Miocene mollusks from California: Jour. Paleontology, vol. 3, no. 3, pp. 280-289, 3 pls., September, 1929.

Wieland, George Reber.

2860. The world's two greatest petrified forests: Science, new ser., vol. 69, pp. 60-63, January 18, 1929.
2861. Mesaverde cycadeoids (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 223, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 231-232, April, 1929.
2862. A Pierre dinosaur: Science, new ser., vol. 69, pp. 599-600, June 7, 1929.
2863. A new cycad from the Mariposa slates: California, Univ., Dept. Geol. Sci., vol. 18, no. 12, pp. 303-323, 26 figs., August 30, 1929.
2864. Views of higher seed plant descent since 1879: Science, new ser., vol. 70, pp. 223-228, September 6, 1929.
2865. A reef-forming phormidioid alga: Am. Jour. Sci., 5th ser., vol. 19, pp. 27-31, 3 figs., January, 1930.

Wilder, Charles C. See Hubbard, 1197.

Wilgus, W. L. See Ellsworth, 749.

Wilkerson, Albert S.

2866. A mineralogical examination of black sand from Nome Creek, Alaska: Am. Mineralogist, vol. 15, no. 2, pp. 77-79, February, 1930.

Willard, Bradford.

- 2867. Geology, its study and relationships: *Sci. Monthly*, vol. 28, no. 1, pp. 52-56, January, 1929.
- 2868. Stratigraphic aspect of Taconic disturbance: *Pan-Am. Geologist*, vol. 51, no. 2, pp. 93-96, March, 1929.
- 2869. Stratigraphic evidence for the Taconic disturbance in eastern Pennsylvania and New Jersey (abstract): *Geol. Soc. America, Bull.*, vol. 40, no. 1, p. 248, March 30, 1929.
- 2870. Some evolutionary stages of *Platystrophia* applied in correlation of certain Ordovician formations: *Jour. Paleontology*, vol. 4, no. 1, pp. 29-32, March, 1930.
- 2871. Conglomerite, a new rock term: *Science*, new ser., vol. 71, p. 438, April 25, 1930.
- 2872. (and Cleves, Arthur B.). Amphibian footprints from the Pennsylvanian of the Narragansett Basin: *Geol. Soc. America, Bull.*, vol. 41, no. 2, pp. 321-327, 3 figs., 1 pl., June 30, 1930; abstract, no. 1, p. 200, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 2, p. 155, March, 1930.
- 2873. Stream history in and about Kicking Horse Pass: *Jour. Geology*, vol. 38, no. 7, pp. 619-624, 1 fig., October-November, 1930.

Williams, Frank E. See Dodge, 687.

Williams, Howel.

- 2874. Geology of the Marysville Buttes, Calif.: *California, Univ., Dept. Geol. Sci.*, vol. 18, no. 5, pp. 103-220, 13 figs., 11 pls., map, March 27, 1929; abstract, *Geol. Soc. America, Bull.*, vol. 40, no. 1, pp. 174-175, March 30, 1929.
- 2875. The volcanic domes of Lassen Peak and vicinity, California: *Am. Jour. Sci.*, 5th ser., vol. 18, pp. 313-330, 5 figs., October, 1929; abstract, *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 156, March 31, 1930; *Pan-Am. Geologist*, vol. 51, no. 5, pp. 373-374, June, 1929.

Williams, Ira Abraham. See Berkey, 189.

Williams, James S.

- 2876. A color pattern on a new Mississippian trilobite: *Am. Jour. Sci.*, 5th ser., vol. 20, pp. 61-64, July, 1930; abstract, *Geol. Soc. America, Bull.*, vol. 41, no. 1, p. 179, March 31, 1930; *Pan-Am. Geologist*, vol. 53, no. 4, p. 302, May, 1930.
- 2877. Pelecypoda of Louisiana limestone (abstract): *Pan-Am. Geologist*, vol. 53, no. 4, p. 301, May, 1930; *Geol. Soc. America, Bull.*, vol. 41, no. 1, pp. 178-179, March 31, 1930.

Williams, R. M. See Gillson, 929.

Williams, Merton Yarwood.

- 2878. The physiography of the southwestern plains of Canada: *Roy. Soc. Canada, Trans.*, 3d ser., vol. 23, sec. 4, pp. 61-79, May, 1929.
- 2879. (and Dyer, W. S.). Geology of southern Alberta and southwestern Saskatchewan: *Canada Geol. Survey, Mem.* 163, 160 pp., 4 figs., 5 pls., 1930.
- 2880. New species of marine invertebrate fossils from the Bearpaw formation of southern Alberta: *Canada, Nat. Mus., Bull.* no. 63, pp. 1-6, 2 pls., 1930.

Williams, S. R.

2881. (and Carman, J. Ernest). Paul Franklin Morse: Ohio Acad. Sci., Proc., vol. 8, pt. 7, pp. 369-370, 1930.

Williams, T. B.

2882. The clinometer rule as part of a geologist's equipment: Canadian Min. and Met. Bull. no. 202, pp. 336-343, 8 figs., February, 1929.

Williams, Waldo. See Sellards, 2342.

Willis, Bailey.

2883. Thomas Chrowder Chamberlin: Sci. Monthly, vol. 28, no. 1, pp. 89-91, portr., January, 1929.
2884. Memorial of Thomas Chrowder Chamberlin: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 23-45, 1 pl. (portr.), March 30, 1929; Smithsonian Inst., Ann. Rept. 1929, pp. 585-594, portr. 1930 (bibliography omitted).
2885. Continental genesis: Geol. Soc. America, Bull., vol. 40, no. 1, pp. 281-336, 3 pls., March 30, 1929; synopsis, Pan-Am. Geologist, vol. 51, no. 1, pp. 73-75, February, 1929.
2886. "Dynamics is the soul of the problem" [Chamberlin's studies leading to planetesimal hypothesis]: Jour. Geology, vol. 37, no. 4, pp. 357-367, May-June, 1929.
2887. Metamorphic orogeny: Geol. Soc. America, Bull., vol. 40, no. 3, pp. 557-588, September, 1929; abstract, no. 1, pp. 103-104, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, pp. 76-77, February, 1929.

Willis, George Lee.

2888. Willard Rouse Jillson; Kentuckian, geologist, author, public servant; a biographical sketch. 211 pp., illus., Louisville, Ky., Standard Printing Co., 1930.

Willis, Robin.

2889. Preliminary correlation of the Texas and New Mexico Permian (with discussion by Roy H. Hall and Ronald K. De Ford): Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 997-1031, 8 figs. (incl. map), August, 1929.
2890. Data on Texas-New Mexico Permian: Oil and Gas Jour., vol. 28, no. 20, pp. 136, 139, 142, 145, 393, 394, 397, 398, 401, 402, 405, 406, 8 figs., October 3, 1929.
2891. Structural development and oil accumulation in Texas Permian: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 1033-1043, 3 figs., August, 1929; Oil and Gas Jour., vol. 28, no. 21, pp. 174, 257, 258, 4 figs., October 10, 1929.

Wilson, Eldred D.

2892. An occurrence of dumortierite near Quartzsite, Ariz.: Am. Mineralogist, vol. 14, no. 10, pp. 373-381, 4 figs., October, 1929.
2893. (and Butler, G. M.). Manganese ore deposit in Arizona: Arizona Bur. Mines, Bull. no. 127, 107 pp., 1 fig., February 15, 1930.

Wilson, Joseph M.

2894. Concho Bluffs of Crane, Ector, and Winkler Counties, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 13, no. 8, pp. 1069-1071, 1 fig., August, 1929.

Wilson, Morley Evans.

2895. Fluorspar deposits of Canada; Canada, Geol. Survey, Econ. Geology ser. no. 6, 97 pp., 14 figs., 4 pls., 1929.

Wilson, W. B.

2896. Geology of Glenn pool of Oklahoma: Structure of typical American oil fields, vol. 1, pp. 230-242, 5 figs., Am. Assoc. Petroleum Geologists, 1929.

Wiman, Carl.

2897. Ueber Ceratopsia aus der oberen Kreide in New Mexico: R. Soc. Sci. Upsaliensis, Nova Acta, ser. 4, vol. 7, no. 2, 19 pp., 7 pls., 1930.

Winchell, Alexander Newton.

2898. Elements of optical mineralogy; an introduction to microscopic petrography. Third edition, Part I. Principles and methods. 238 pp., 260 figs., New York, John Wiley & Sons, 1928.
2899. Camsellite and szaibelyite: Am. Mineralogist, vol. 14, no. 2, pp. 48-49, 2 figs., February, 1929.
2900. Dispersion of minerals: Am. Mineralogist, vol. 14, no. 4, pp. 125-149, April, 1929.

Wing, Monta E.

2901. The geology of Cloud and Republic Counties: Kansas, State Geol. Survey, Bull. 15, 51 pp., 2 figs., 18 pls. (incl. maps), [1930].

Winston, Mattie.

2902. Modern marine shallow-water sediments of Barataria Bay, La. (abstract): Ohio Acad. Sci., Proc., vol. 8, pt. 7, p. 408, 1930.

Withers, Spencer. See Mayfield, 1747; Miller, 1800.

Wolfard, N. E.

2903. Native road materials and highway maintenance: Oklahoma Geol. Survey, Circ. no. 20, 42 pp., 2 figs., 12 pls., October, 1929.

Wolff, John Eliot.

2904. Mount Monadnock, Vt., a syenite hill: Jour. Geology, vol. 37, no. 1, pp. 1-16, 4 figs., January-February, 1929.
2905. Dumortierite from Imperial County, Calif.: Am. Mineralogist, vol. 15, no. 5, pp. 188-193, 1 fig., May, 1930.

Wolford, John J.

2906. The stratigraphy of the Oregonia-Fort Ancient region, southwestern Ohio: Ohio Jour. Sci., vol. 30, No. 5, pp. 301-308, September, 1930.

Wood, Harry Oscar.

2907. (and Buwalda, J. P.). Horizontal displacement along the San Andreas fault in Carrizo Plain, Calif. (abstract): Pan-Am. Geologist, vol. 54, no. 1, p. 75, August, 1930.

Wood, Horace Elmer, 2d.

2908. *Prohyracodon orientale* Koch, the oldest known rhinoceros (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 221, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, p. 238, April, 1929.
2909. Erosion interval above the Lost Cabin formation at Beaver Divide, Wyo. (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 221, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, p. 239, April, 1929.
2910. Revision of the Hyrachyidae (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, p. 221, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 3, pp. 238-239, April, 1929.

Woodford, Alfred Oswald. See also Lauder milk, 1522.

Woodring, Wendell Phillips.

2911. Distribution in tropical America of *Turritellas* of the phylum of *Turritella ocoyana* (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 256-257, March 30, 1929.
2912. Ecology of the mollusks of the Bowden formation, Jamaica (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 259-260, March 30, 1929.
2913. Age of the Modelo formation of the Santa Monica Mountains, Calif. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, p. 155, March 31, 1930; Pan-Am. Geologist, vol. 51, no. 5, p. 373, June, 1929.
2914. Warm-water faunas of the so-called Pliocene of San Pedro, Calif. (abstract): Geol. Soc. America, Bull., vol. 41, no. 1, pp. 211-212, March 31, 1930; Pan-Am. Geologist, vol. 52, no. 2, pp. 156-157, September, 1929.
2915. Upper Eocene orbitoid Foraminifera from the western Santa Ynez Range, Calif., and their stratigraphic significance: San Diego Soc. Nat. Hist., Trans., vol. 6, no. 4, pp. 145-170, 5 pls., July 12, 1930.
2916. Pliocene deposits north of Simi Valley, Calif.: California Acad. Sci., Proc., 4th ser., vol. 19, no. 6, pp. 57-64, July 15, 1930.

Woodward, Herbert P.

2917. Standardization of geologic time units: Pan-Am. Geologist, vol. 51, no. 1, pp. 15-22, February, 1929.
2918. Thrust faults of the Roanoke area, Virginia (abstract): Geol. Soc. America, Bull., vol. 40, no. 1, pp. 185-186, March 30, 1929; Pan-Am. Geologist, vol. 51, no. 1, p. 71, February, 1929.
2919. Priority in stratigraphic nomenclature: Science, new ser., vol. 70, pp. 96-97, July 26, 1929.
2920. The age and nomenclature of the Rome ("Watauga") formation of the Appalachian Valley: Jour. Geology, vol. 37, no. 6, pp. 592-602, August-September, 1929.
2921. Outcrop vs. exposure: Science, new ser., vol. 70, p. 538, November 29, 1929.
2922. Major time divisions since the pre-Cambrian: Jour. Geology, vol. 38, no. 4, pp. 354-363, May-June, 1930.

Wooster, Lyman Child.

2923. Geology of Kansas and of each of the United States. 93 pp., illus., Emporia (Kansas), Gazette Print, 1930.

Wootton, Thomas Peltier.

2924. Geologic literature of New Mexico: New Mexico, State Bur. Mines, Bull. no. 5, 127 pp., Socorro, 1930.

Worcester, W. G.

2925. Saskatchewan clays of Dominion importance: Canadian Inst. Min. and Met., Trans., vol. 32, pp. 255-269, 4 figs., [1930].

Workman, L. E.

2926. Geologic interpretation of Anna City well pollution: Illinois State Acad. Sci. Trans., vol. 21, pp. 262-272, 3 figs., February, 1929.
2927. The scientific search for underground water: Illinois State Acad. Sci., Trans., vol. 22, pp. 485-491, 3 figs., April, 1930.

Wright, Frank James.

2928. Drainage modifications along the Blue Ridge (abstract): *Ohio Jour. Sci.*, vol. 29, no. 4, p. 174, July, 1929; *Ohio Acad. Sci., Proc.*, vol. 8, pt. 6, p. 311, 1929.
2929. Stream piracy near Asheville, N. C.: *Denison Univ. Bull.*, vol. 29, no. 10, *Sci. Lab., Jour.*, vol. 24, pp. 401-406, 1 fig., 1 pl., January 22, 1930.
2930. River valleys in the older Appalachians (abstract): *Ohio Acad. Sci., Proc.*, vol. 8, pt. 7, p. 403, 1930.

Wright, Frederick Eugene.

2931. The preparation of projection diagrams: *Am. Mineralogist*, vol. 14, no. 7, pp. 251-258, 3 figs., July, 1929.
2932. (and Allen, E. T.). A new organic mineral from Skaggs Springs, Sonoma County, Calif.: *Am. Mineralogist*, vol. 15, no. 5, pp. 169-173, May, 1930.

Wright, John Frank.

2933. Kissing Lake area, Manitoba: Canada, *Geol. Survey, Summ. Rept.* 1928, pt. B, pp. 73-104, 1 fig., map, 1929.
2934. Geology and copper-zinc deposits of Cold Lake area, Manitoba: Canadian *Min. and Met. Bull.*, no. 204, pp. 527-546, 6 figs., April, 1929; *Canadian Inst. Min. and Met., Trans.*, vol. 32, pp. 65-87, 6 figs. [1930].
2935. Gold, copper-nickel, and tin deposits of southeast Manitoba: Canada, *Geol. Survey, Summ. Rept.* 1929, pt. B, pp. 136-171, 7 figs., 1930.
2936. The Sherritt-Gordon copper-zinc deposit, northern Manitoba (discussion): *Econ. Geology*, vol. 25, no. 3, pp. 286-289, May, 1930.
2937. Tin, lithium, and beryllium deposits of southeast Manitoba: *Canadian Min. Jour.*, vol. 51, no. 22, pp. 514-517, May 30, 1930.
2938. Sherritt-Gordon geology [northern Manitoba]: *Canadian Min. Jour.*, vol. 51, no. 32, p. 762, August 8, 1930.

Wright, Lawrence B.

2939. Pressure zones and metal deposition: *Eng. and Min. Jour.*, vol. 129, no. 12, pp. 600-602, 5 figs., June 23, 1930. Discussion by A. I. Rodriguez, vol. 130, no. 4, p. 189, Aug. 23, 1930.

Wu, C. C. See Trask, 2668, 2669, 2671.

Wunstorff, W.

2940. *Geologische und technische Mitteilungen aus der Erdölindustrie der Vereinigten Staaten*: Preuss. geol. Landesamt., *Sitzungsber.* H. 4, pp. 110-117, 1929.

Wylie, Charles Clayton.

2941. The Paragould meteor and meteorites: *Science, new ser.*, vol. 72, pp. 66-68, July 18, 1930.

Young, A. C. See Rogers, 2183, 2184.

Zapffe, Carl.

2942. Cuyuna stratigraphy: *Lake Superior Min. Inst., Proc.*, vol. 28, pp. 99-106, 1930.

Zavoico, Basil B.

2943. Oklahoma City pool, Oklahoma: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 13, no. 10, pp. 1387-1394, 2 figs., 1 pl., October, 1929.

Zevada Baldenebro, Alfonso.

2944. Teoría en la que descansa el procedimiento electro-químico para localizar yacimientos petroleros y centros metalíferos; principios en que se funda y resultados del método: Bol. petróleo, vol. 28, no. 3, pp. 352-360, 1 pl., September, 1929.

Zevado, Manuel J. See González Cordero, 958.

Zodac, Peter.

2945. Rocks and minerals, published quarterly at Peekskill, N. Y., vols. 4 and 5, 1929 and 1930.

Zuschlag, Theodor.

2946. Mapping oil structures by the Sundberg method: Am. Inst. Min. and Met. Eng., Tech. Pub. no. 313, 16 pp., 6 figs., March, 1930.

Anonymous.

2947. A selected bibliography on anthracite, 50 pp., Anthracite Operators Conference, New York, 1929.
2948. Extracts from report on the District of Ungava or New Quebec, third ed.: Quebec, Bur. Mines, 210 pp., illus., map, 1929.
2949. Extensive manganese-bearing lands at Chamberlain, S. Dak.: Eng. and Min. Jour., vol. 127, no. 1, pp. 840-841, 2 figs., May 25, 1929.
2950. A bibliography of the published works of Thomas Chrowder Chamberlin (1843-1928): Jour. Geology, vol. 37, no. 4, pp. 380-392, May-June, 1929.
2951. Metal deposits in York-Confederate Gulch area [Montana]: Min. Jour., Phoenix, Ariz., vol. 13, no. 8, pp. 7-8, September 15, 1929.
2952. Report by Board of Commerce and Navigation, New Jersey, on the erosion and protection of the New Jersey beaches. 129 pp., illus., Trenton, N. J., 1930.
2953. Fossil species of the Grand Canyon: Science, new ser., vol. 71, pp. x-xi, March 7, 1930.
2954. Mid-Atlantic islets and geological theories: Science, new ser., vol. 71, p. xii, April 4, 1930.
2955. Obituary: Claude Ellsworth Siebenthal: Washington Acad. Sci., Jour., vol. 20, no. 10, pp. 191-192, May 19, 1930.
2956. The Idaho fossil horse: Science, new ser., vol. 72, p. xiv, July 25, 1930.
2957. The Sixteenth International Geological Congress: Science, new ser., vol. 72, pp. 312-313, September 26, 1930.
2958. Geology of the Mid-Continent oil fields: Petroleum World, London, vol. 27, no. 361, pp. 355-361, October, 1930.
2959. Meteor Crater: Science, new ser., vol. 72, p. x, October 3, 1930.
2960. Early man in Nevada: Science, new ser., vol. 72, p. xii, November 21, 1930.

The first part of the paper is devoted to a general discussion of the problem of the origin of life. It is shown that the problem is one of the most important and most difficult in the history of science. The second part of the paper is devoted to a detailed discussion of the problem of the origin of life. It is shown that the problem is one of the most important and most difficult in the history of science.

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The tenth part of the paper is devoted to a detailed discussion of the problem of the origin of life. It is shown that the problem is one of the most important and most difficult in the history of science.

INDEX

(The numbers refer to entries in the bibliography)

Acmite, fusion relations: Bowen, 259.

Addresses.

- Birds of the past: Wetmore, 2827.
- Nonmetallics, problems: Ries, 2162.
- Paleontology versus genetics: Osborn, 1955.
- Pleistocene geology of Iowa: Kay, 1319.
- Problems of glacialist: Leverett, 1555.
- Tertiary man, discovery: Osborn, 1953.
- Trend of geologic thought: Tilton, 2658.

Age of the earth. See Earth, age.

Airplane photographs in geologic mapping: English, 764.

Alabama.

Economic geology.

- Baxite deposits: Jones, 1306.
- Building limestones, Russellville district: Jones, 1304.
- Gold deposits: Adams, 5.
- Graphite: Jones, 1307.
- Lignite: Barksdale, 113.
- Mineral production, 1926: Barksdale, 114; 1927: Barksdale, 115; 1928: Barksdale, 116.
- Molding sands: Adams, 3.
- Ochers: Barksdale, 117.
- Oil and gas: Semmes, 2351.
- Possible salt deposits near Jackson fault: Barksdale, 112.
- Tuscaloosa white clays, origin: Adams, 6.
- Wattsville Basin of Coosa coal field: Jones, 1305.

Historical geology.

- Wattsville Basin of Coosa coal fields: Jones, 1305.
- Western Alabama: Barksdale, 113.

Paleontology.

- Footprints, coal measures: Aldrich, 27.
- Leda, Eocene, Black Bluff: Gardner, 901.

Telephidae: Ulrich, 2697.

Physiographic geology.

- Coastal Plain streams: Adams, 2.
- Physical divisions of northern Alabama: Johnston, 1287.

Alabandite, occurrence and relations: Hewett, 1140.

Alaska.

Petroleum rocks: Stadnichenko, 2460.

Areas described.

Aniakchak district: Knappen, 1448.

Alaska—Continued.

Areas described—Continued.

- Chakachamna-Stony region: Capps, 441.
- Chandalar-Sheenjek district: Mertie, 1781.
- Eagle-Circle district: Mertie, 1784.
- Hyder area, southeastern Alaska: Buddington, 363.
- Mount Spurr region: Capps, 440.
- Nizina River, upper: Moffit, 1813.
- Northwestern Alaska: Smith, 2431, 2434.
- Skwentna region: Capps, 439.
- Southeastern Alaska: Buddington, 362.

Economic geology.

- Fortymile district: Mertie, 1783.
- Geophysical surveying at Kennecott mines: Bateman, 150.
- Gold resources: Smith, 2436.
- Hyder area, southeastern Alaska: Buddington, 363.
- Kennecott ore minerals, colloidal origin: Lasky, 1520.
- Mineral industry, 1927: Smith, 2432; 1928: Smith, 2433; 1929: Smith, 2435.
- Molybdenite deposit, Shakan: Buddington, 365.
- Northwestern Alaska: Smith, 2434.
- Tin: Patty, 1998.

Historical geology.

- Ordovician, Silurian and Devonian: Kirk, 1436.
- Pre-Cambrian: Mertie, 1782.
- Upper Cretaceous plant-bearing beds: Martin, 1709.

Paleontology.

- Frozen, fauna: Frick, 883.
- Plants in petroleum "mother rocks": White, 2840.
- Upper Cretaceous floras: Hollick, 1180.

Petrology.

- Black sand, Nome Creek: Wilkerson, 2866.

Physical geology.

- Faulting, Kennecott: Lasky, 1518.
- Glacier Bay: Cooper, 565.
- Mountain building: Mertie, 1785.

Physiographic geology.

- Glacier Bay: Romer, 2188.

Alberta.

- Athabasca and Lesser Slave districts:
Rutherford, 2255.
Brûlé Mines coal area: MacKay, 1662.
Geological investigations in 1928:
Allan, 30.
Peace Hills area: Rutherford, 2255.
Report Geological Survey 1929: Allan,
31.
Southern Alberta: Williams, 2879.
Spray water power project, Rocky
Mountain National Park: Allan,
29.

Economic geology.

- Bituminous sands: Clark, 494, 495.
northern Alberta: Ellis, 748.
East Coulee coal area: Kidd, 1416.
Gypsum, Peace River: Cameron, 420.
Highwood - Jumpingpound anticline:
Hume, 1207.
Jasper Park coal fields: MacKay,
1663.
Limestones: Goudge, 966.
Oil and gas: Madgwick, 1690.
Oil fields: Craig, 573.
Ribstone-Blackfoot anticline: Hume,
1208.
Salt and gypsum: Allan, 32.
Turner Valley gas field, structure:
Goodman, 959.
Turner Valley oil field: Elliot, 743;
Hume, 1207.

Historical geology.

- Cretaceous: Dannenberg, 632.
Foothill region, sections: Evans, 772.
Highwood - Jumpingpound anticline:
Hume, 1207.
Jasper Park: Kindie, 1421.
coal fields: MacKay, 1663.
geologic history: Kindie, 1419.
Paleozoic: Raymond, 2098.
Mesozoic, Blairmore district: Mc-
Learn, 1671.
Ordovician, base: Raymond, 2099.
Peace River and Grande Prairie dis-
tricts: Rutherford, 2257.
Peace River country: Rutherford,
2258.
Rocky Mountains section, 51st paral-
lel: Warren, 2762.
Source rocks of oil: Sur, 2558.
Wapiti River basin: Evans, 773.

Paleontology.

- Allison flora, Blairmore district:
Berry, 210.
Ammonites, Cretaceous: Warren, 2765.
Ammonoidea, Blairmore: Buckman,
361.
Anchiceratops, Edmonton beds:
Sternberg, 2495.
Anodontosaurus, Edmonton beds:
Sternberg, 2494.
Aspideretes, Paskapoo formation:
Russell, 2244.
Bearpaw invertebrates: Williams, 2880.

Alberta—Continued.

Paleontology—Continued.

- Blairmore, upper, flora: Berry, 209.
Cretaceous invertebrates: McLearn,
1670.
Dinosaur collecting: Kindie, 1423.
Eodelphis cutleri, Belly River forma-
tion: Simpson, 2394.
Gastropoda, Cretaceous and Tertiary:
Russell, 2241.
Hoplopria westoni, Bearpaw shale:
Rathbun, 2090.
Jasper Park: Kindie, 1422.
Kootenay and lower Blairmore floras:
Berry, 208.
Mesozoic faunas: McLearn, 1674.
Multituberculata, Tertiary: Granger,
987.
Nonmarine Mollusca: Dyer, 715.
Ozarkian, Jasper Park: Kindie, 1418.
Paleocene vertebrates: Russell, 2239.
Peace River region: McLearn, 1674.
Plants, Cypress Hills: Berry, 215.
Plesiosaurs, fresh-water: Russell, 2243.
Smoky River and Dunvegan forma-
tions: Warren, 2764.
Stylomyleodon and Kindeleia: Russell,
2240.
Upper Cretaceous dinosaur faunas:
Russell, 2242.

Physical geology.

- Moyie-Lenla overthrust fault: Kirk-
ham, 1445.
Sedimentation, Lake Cavell: Kindie,
1426.

Physiographic geology.

- Cavell glacier, retreat: Perry, 2018.
Kicking Horse Pass, stream history:
Willard, 2873.
Southern Alberta: Williams, 2878.

Underground water.

- Oil-field waters: Campbell, 434.
Peace River and Grande Prairie dis-
tricts: Rutherford, 2257.
Peace River country: Rutherford, 2258.

Algal oolites: Bradley, 281.

Algae.

- Belt series, Glacier National Park:
Fenton, 803.
Colorado, Green River formation:
Bradley, 282.
Pacific coast marine formations: Nel-
son, 1883.

Pre-Cambrian, Northwest Territories:
Rutherford, 2256.

Algae reefs: Bradley, 277.

Algonkian. See Pre-Cambrian.

Alleghany district, California: Ferguson,
810.

Amber: Farrington, 789.

Ammonites. See Cephalopoda.

Amphibia.

- Footprints, coal measures, Alabama:
Aldrich, 27.

Narragansett Basin: Willard, 2872.

Amphibia—Continued.

- Pennsylvanian: Romer, 2186.
 Triassic, Rocky Mountain region: Branson, 297.
 Urodele, Pliocene, Kansas: Adams, 10.
 Amygdaloids and cavity fillings: Morris, 1854.
 Amygdules and pseudo-amygdules: Morris, 1855.
 Analcite beds, Green River formation: Bradley, 279.
 Ancestral Rocky Mountains: Ver Wiebe, 2736.
 Anhydrite, Nova Scotia: Flynn, 842.
 Anisotropism in metallic minerals: Sampson, 2262.
 Anomalies of vertical intensity: Somers, 2447.
 Anorthosite, Adirondack Mountains: Miller, 1804.
 Anosma of Flagstaff volcanic fields: Colton, 536.
 Anosma or "squeeze-ups": Colton, 537.
 Anthozoa.

- Caryophyllia, California: Quayle, 2068.
 Dendroseris, Trinidad: Gregory, 993.
 Devonian, Ohio: Stewart, 2504.
 Greenland, northern, Ordovician: Troedsson, 2676.
 Hindeastraea, Cretaceous, Texas: Hoffmeister, 1176.
 Paleofavosites, mural pores: Twenhofel, 2687.
 Texas, Glen Rose formation: Wells, 2808.
 Trinidad: Gregory, 993.
 Anthracite.
 Bibliography: Anon., 2947.
 Pennsylvania, constitution: Turner, 2686.

Panther Valley: LeVan, 1550.

Antillean region, geologic history: Schuchert, 2316.

Antilles. See West Indies.

Antimony: Schrader, 2313.

Idaho, Lava Creek district: Anderson, 46.

Archean. See Pre-Cambrian.

Arctic regions.

Geologic investigations: Foerste, 843; Krueger, 1479.

Historical geology.

- Cambrian: Resser, 2141.
 Cretaceous: Reeside, 2124.
 Devonian: Kindle, 1421.
 Ordovician and Silurian: Foerste, 844.
 Triassic and Jurassic: Stanton, 2463.

Paleontology.

- Floras: Berry, 201.
 Graptolites: Ruedemann, 2231.
 Arizona.

Economic geology.

- Alabandite, occurrence and relations: Hewett, 1140.
 Asbestos: Butler, 395.

Arizona—Continued.

Economic geology—Continued.

- Boxwork siderite: Eckel, 731; Trischka, 2675.
 Pre-Cambrian greenstone complex, Jerome quadrangle: Lausen, 1525.
 Tonto sandstone: Keyes, 1404.
Mineralogy.
 Dumortierite, Yuma County: Wilson, 2892.
 Flagstaff meteorite: Brady, 286.
 Lechatellierite, Meteor Crater: Rogers, 2179.
 Marcasite in Twin Buttes ores: Weber, 2784.
 Monazite, western Arizona: Heineman, 1117.
 Prehistoric meteorite: Brady, 285.
 Psittacinite, Higgins mine, Bisbee: Taber, 2585.
 Pyrite and wolframite, relations: Guild, 1016.
 Rickardite, Warren: Crawford, 577.
 Winona meteorite: Heineman, 1116.

Paleontology.

- Fossil floras, Grand Canyon: White, 2838.
 Fresh-water shells, Winona, Coconino County: Colton, 535.
 Grand Canyon: Anon., 2953; Hermit shale flora: White, 2841.
 Pleistocene Mollusca, Hopi Buttes: Reagan, 2102.

Physical geology.

- Anosma of Flagstaff volcanic fields: Colton, 536.
 Anosma or "squeeze-ups": Colton, 537.
 Alteration of schist and porphyry by fire: Leonard, 1548.
 Colorado Plateau, ore deposits: Butler, 393.
 Copper deposits: Tenney, 2609.
 Diatomite: Trischka, 2674.
 Dumortierite, Yuma County: Wilson, 2892.
 Lost Vulture mine, Maricopa County: Thompson, 2638.
 Manganese deposits: Wilson, 2893.
 Marcasite in Twin Buttes ores: Weber, 2784.
 Nonmetallics, Yavapai County: Hansen, 1058.
 Quicksilver deposits: Schuette, 2326.
 United Verde mine, Jerome: Hansen, 1059.

Historical geology.

- Aubreyan limestones of Grand Canyon: Keyes, 1403.
 Cambrian, southeastern Arizona: Stoyanow, 2548.
 Chinle fossil horizons: Camp, 422.
 Cretaceous section, northeastern Arizona: Reeside, 2122.

Arizona—Continued.

Historical geology—Continued.

Devonian: Keyes, 1414; Stoyanow, 2549.

Grand Canyon: White, 2841, 2842.

Greenstone complex, Jerome quadrangle: Lindgren, 1569.

Hermit shale, Grand Canyon, deposition and age: White, 2843.

McElmo formation: Mook, 1827.

Permian, northern Arizona: Baker, 81, 82.

Colossal Cave: Keyes, 1397.

Earth fissure, southern Arizona: Leonard, 1546.

Polygonal cracking in granite: Leonard, 1547.

Triassic bentonite, Painted Desert: Allen, 38.

Physiographic geology.

Galluro Mountains: Davis, 642.

Grand Canyon, educational features: White, 2839.

Meteor Crater: Fairchild, 785, 787; Skerrett, 2410; Anon., 2959.

Peacock Range: Davis, 645.

Physiographic provinces: Keyes, 1371.

Arkansas.

Arkansas Geological Survey, activities: Branner, 294.

Areas described.

De Queen and Caddo Gap quadrangles: Miser, 1808.

Paleozoic area: Cronels, 591.

Southwestern Arkansas: Dane, 631.

Economic geology.

Bauxite deposits, origin: Stearn, 2476.

Bentonite, southern Arkansas: Branner, 293; Burchard, 377.

Diamond fields: Branner, 292.

Geomagnetic survey of bauxite region: Stearn, 2476.

Irma oil field, Nevada County: Teas, 2605.

Metallic minerals of Arkansas: Branner, 290.

Petroleum and natural gas resources: Branner, 289.

Stephens oil field, Columbia and Ouachita Counties: Spooner, 2458.

Sulphide ores, origin: Emmons, 761.

Historical geology.

Brownstown formation, correlation: Israelsky, 1224.

Brownstone marl, age: Stephenson, 2492.

Diamond fields: Branner, 292.

Fayetteville shale: Cronels, 594.

Geologic map: Branner, 291.

Hale Mountain section, northwestern Arkansas: Giles, 918.

Igneous rocks, central Arkansas: Cronels, 590, 592.

Mid-Continent oil-field sediments: Cheney, 479.

Arkansas—Continued.

Historical geology—Continued.

Mississippian and Morrow formations, comparative faunal chart: Roth, 2207.

Ouachita Mountains, structure: Miser, 1809.

St. Peter and older Ordovician sandstones: Giles, 917.

Southwestern Arkansas: Rankin, 2084.

Upper Cretaceous, southwestern Arkansas: Dane, 631.

Volcanic deposits: Ross, 2194.

Mineralogy.

Magnet Cove: Haltom, 1039.

Paragould meteorite: Wylie, 2941.

Paleontology.

Boone, middle, fauna, Batesville: Girty, 940.

Carboniferous invertebrates: Girty, 941.

Fayetteville fauna: Cronels, 593, 594.

Hypoparia and Opisthoparia, St. Clair limestone: Thomas, 2636.

Mississippian and Morrow formations, comparative faunal chart: Roth, 2207.

Mississippian and Pennsylvanian Ostracoda: Harlton, 1070.

Ostracoda, Upper Cretaceous: Israelsky, 1225.

Proparia, St. Clair limestone: Thomas, 2637.

Petrology.

Igneous rocks, central Arkansas: Cronels, 590, 592.

Physical geology.

Faulting, southwestern Arkansas: Rankin, 2084.

Physiographic geology.

Natural mounds: Melton, 1763.

Arroyo running in the desert: Brown 334.

Arsenic.

Alabama: Adams, 5.

Michigan native copper deposits: Broderick, 319.

Artesia oil field, Eddy County, N. Mex.: Davis, 636.

Artesian pressure, origin: Russell, 2253.

Artesian waters and wells. See Underground water.

Arthrodira: Stetson, 2501.

Arthropoda, Burgess shale: Hutchinson, 1217.

Articulata. See also Arthropoda.

Florida, Eocene crab: Rathbun, 2086.

Asbestos.

Arizona: Butler, 395.

California, Trinity County: Lauder-milk, 1522.

Mexico: Flores, 840; Garcia, 900.

Quebec: Starks-Field, 2468.

Asphalt. See also Bitumens: Bituminous rocks and sands; Grahamite.

Mexico, Puebla: Muñoz Lumbier, 1873.

Associations, meetings.

- American Association for the Advancement of Science, Section E: Mather, 1718; New York, 1928: Mansfield, 1696, 1698.
- American Association of Petroleum Geologists, fourteenth annual meeting: Johnson, 1276.
history: Powers, 2054.
- Geological Society of America, forty-first meeting, New York, December, 1928: Berkey, 186.
42d annual meeting, Washington, 1929: Berkey, 190.
Cordilleran section, 27th annual meeting, Berkeley, 1928: Chaney, 469; 28th annual meeting, Berkeley, April, 1929: Chaney, 470.
- International Geological Congress, Sixteenth: Anon., 2957.
- Mineralogical Society of America, proceedings, New York, 1928: Van Horn, 2710.
ninth annual meeting, New York City: Van Horn, 2709.
tenth annual meeting, Washington: Van Horn, 2711.
- Paleontological Society, 20th annual meeting, New York City, December, 1928: Bassler, 144.
21st annual meeting, Washington, assoc. 1929: Bassler, 146.
- Seismological Society of America, Eastern section; Washington meeting, 1930: Seismol. Soc. Am., 2340.
- Society of Economic Paleontologists and Mineralogists. Fort Worth, Texas, 1929: Plummer, 2029.
- Asterolea, ophiuroid species, Pennsylvania, Illinois and Indiana: Weller, 2802.
- Aves.
Birds of the past: Wetmore, 2827.
California, Rancho La Brea: Stock, 2519.
Temblor formation, Bakersfield: Wetmore, 2830.
Eocene age of "Cretaceous" birds: Wetmore, 2829.
Florida, Pleistocene: Wetmore, 2828.
Goose, Pliocene, Nevada: Burt, 385.
Passerine birds, Rancho La Brea, California: Miller, 1795.
Rancho La Brea bird, lesion: Moodie, 1820.
- Bahamas, Great Bahama lagoon: Black, 227.
- Barite.
California: Bradley, 274, 275.
Missouri: Weigel, 2790.
Potosi and Edgehill quadrangles: Dake, 623.
- Barytes. See Barite.
- Base-level: Johnson, 1272.
- Batholiths. See also Intrusions.
depth: Lane, 1502.
near Minnesota-Ontario boundary: Grout, 1005.
Ontario, Birch Lake batholith: Tolman, 2660.
French River area: Quirke, 2071.
Two-granite batholiths in pre-Cambrian: Moore, 1838.
- Batrachia. See Amphibia.
- Bauxite: Dovalina, 700.
Alabama: Jones, 1306.
Arkansas: Stearn, 2476.
Georgia, Coastal Plain: Smith, 2437.
Mexico: Dovalina, 701.
- Beach cusps. See Shore lines.
- Beach sand, composition: Hamaker, 1040.
- Beach markings, Wichita Mountains: Evans, 774.
- Beaches. See Shore lines; Terraces.
- Bellevue oil field, Bossier Parish, La.: Teas, 2606.
- Bentonite: O'Harra, 1936.
Arkansas, Oklahoma, and Texas (parts): Ross, 2194.
southern: Branner, 293.
Geology: Davis, 635.
Pennsylvania: Bonline, 252.
South Dakota, Black Hills: Conolly, 542.
Triassic bentonite, Painted Desert: Allen, 38.
- Bermuda, geology: Swinnerton, 2575.
Caves: Swinnerton, 2573.
Changes in base-level indicated by caves: Swinnerton, 2574.
Pleistocene formations: Sayles, 2289.
- Beryllium, Manitoba, southeastern: Wright, 2937.
- Bibliography.
Anthracite: Anon., 2947.
Bibliographies for paleontology: McGuire, 1660.
Bownocker, J. A., writings: Stauffer, 2470.
Brigham, A. P., writings: Dodge, 687.
California, Yosemite Valley: Matthes, 1731.
Callixylon, Devonian: Arnold, 65.
Chamberlin, T. C., writings: Willis, 2884; Anon., 2950.
Color patterns in Paleozoic fossils: Foerste, 851.
Colorado, Front Range: Lovering, 1611.
Golden area: Johnson, 1280.
Sangre de Cristo Mountains: Johnson, 1274.
Cope, E. D., writings: Osborn, 1952.
Dean, Bashford, writings: Gregory, 997.
Diller, J. S., writings: Collier, 523.
Dinichthys and Macropetalichthys: Stetson, 2501.

Bibliography—Continued.

- Dresbach formation, Minnesota: Peterson, 2020.
- Fish otoliths: Campbell, 431.
- Fluvial deposits: Trowbridge, 2678.
- Footprints, Mississippian and Pennsylvanian: Aldrich, 27.
- Foraminifera, Cushman, 606.
- Great Slave Lake: Bell, 175.
- Greensand: Shreve, 2380.
- Illinois: Ill. G. S., 1220.
- Jillson, W. R., writings: Jillson, 1265; Willis, 2888.
- Keweenaw olivine diabases: Moore, 1832.
- Maryland, Baltimore County: Berry, 202.
- Merrill, G. P., writings: Farrington, 793.
- Mesozoic Mammalia: Simpson, 2385.
- Michigan, copper region: Butler, 391.
- Mounds on Columbia River Plateau, origin: Waters, 2773.
- Nason, F. L., writings: Newland, 1903.
- Nevada, Spring Mountains: Glock, 946.
- New Mexico, geologic literature: Wootton, 2924.
- Newsom, J. F., writings: Blackwelder, 238.
- North Carolina, hiddenite: Palache, 1973.
- Nova Scotia: Malcolm, 1691.
- Oklahoma, Wichita Mountains: Hoffman, 1174.
- Osborn, writings: Osborn, 1950.
- Petroleum: Britton, 316.
- Phosphoria formation: Branson, 295.
- Pleistocene glaciations: Atkies, 59.
- Potash: Berliner, 191.
- Reservoir and dam sites, geology: Bryan, 344.
- Rice, W. N., writings: Britton, 317; Westgate, 2823.
- Robinson, H. H., writings: Bowman, 265.
- Rudistids, southern Mexico: Palmer, 1981.
- Sand movement, beaches, etc.: Haferkorn, 1029.
- Sedimentation, chemical studies: Steiger, 2486.
- Seismology: Hodgson, 1170, 1171.
- Sloan, Earle, writings: Vaughan, 2720.
- Vermont, Paradoxides beds: Howell, 1189.
- Taconic Mountains, peneplains: Pond, 2043.
- Big Badlands, South Dakota: O'Harra, 1939.
- Big Lake oil pool, Reagan County, Tex.: Hennen, 1128.
- Biography.
- Agassiz, Louis: Pegrum, 2004.
- Binney, Edwin, jr: Heald, 1098.
- Bownocker, J. A.: Stauffer, 2470.

Biography—Continued.

- Brigham, A. P.: Dodge, 687.
- Chamberlin, T. C.: Alden, 22; Leith, 1544; Longwell, 1594; MacMillan, 1675; Moulton, 1859; Penrose, 2009; Schuchert, 2318, 2319; Willis, 2883, 2884, 2886.
- Cope, E. D.: Keyes, 1398; Osborn, 1951.
- Crosby, W. O.: Lane, 1501.
- Dean, Bashford: Gregory, 997; Osborn, 1944.
- Diller, J. S.: Collier, 523.
- Gilbert, G. K.: Penck, 2007.
- Higgins, D. F.: Plummer, 2030.
- Jenison, H. A. C.: White, 2844.
- Jillson, W. R.: Willis, 2888.
- Kemp, J. F.: Emerson, 753.
- Matthew, W. D.: Gregory, 1000; Schuchert, 2325.
- Merrill, G. P.: Benjamin, 183, 184; Farrington, 793.
- Merrill, L. B.: Palache, 1972.
- Miller, A. M.: Jillson, 1256, 1257.
- Morse, P. F.: Williams, 2881.
- Moore, P. N.: Jillson, 1257.
- Nason, F. L.: Newland, 1903.
- Newsom, J. F.: Blackwelder, 238.
- Norwood, C. J.: Jillson, 1255.
- Osborn, H. F.: Osborn, 1950.
- Patton, H. B.: Lane, 1497.
- Rice, W. N.: Britton, 317; Longwell, 1593; Westgate, 2822, 2823.
- Robinson, H. H.: Bowman, 265.
- Sieenthal, C. E.: Anon., 2955.
- Sloan, Earle: Vaughan, 2720.
- Springer, Frank: Keyes, 1354.
- Weller, Stuart: Jillson, 1255.
- Birds. See Aves.
- Bituminous rocks and sands. See also Oil shale.
- Alberta: Clark, 494, 495; Ellis, 748.
- Utah, Vernal: Spieker, 2455.
- Blastoidea.
- Chouteau limestone: Peck, 2000.
- Utah, Brazier limestones: Peck, 2001.
- Borax.
- California, Death Valley: Boyd, 267, 268; Foshag, 862.
- Kramer district: Schaller, 2295.
- Bore-hole surveying: McLaughlin, 1668.
- Borings.
- British Columbia: Maddox, 1684.
- Canada, eastern: Maddox, 1686, 1688.
- prairie provinces: Maddox, 1685.
- Crooked-hole problems in Gulf coast district: Murphy, 1876.
- Deepest well: Sellards, 2342.
- Iowa: Norton, 1926.
- Montana, plains adjacent to Highwood Mountains: Reeves, 2128.
- Nova Scotia, Springhill: McCall, 1641.
- Orientation of cores: Macready, 1683.
- Texas, Big Lake pool, Reagan County: Hennen, 1128.

Borings—Continued.

Texas—Continued.

Reagan County, University well:
Sellards, 2344.

Botany, fossil. See Paleobotany.

Boulders, striated, origin: Blackwelder, 242.

Brachiopoda.

Argyrotheca wegemanni, Oligocene,
Mexico: Cole, 514.

Arkansas and Kansas, Carboniferous:
Girty, 941.

Atrypa: Fenton, 802.

Cedar Valley stage: Fenton, 802.

Traverse group: Fenton, 802.

Carboniferous, Texas: Girty, 942.

Color patterns: Foerste, 851.

Cranaenella, synonym of *Cranaena*:
Fenton, 800.

Dalmanella, Silurian, Pennsylvania:
Barnsley, 119.

Greenland, northern, Ordovician:
Troedsson, 2676.

New names for homonyms: Schuchert,
2317.

Nova Scotia, Windsor area, Mississippian:
Bell, 181.

Oklahoma, micropaleontology, Wetumka, Wewoka, and Holdenville
formations: Warthin, 2767.

Ordovician, habits: Sardeson, 2274.

Phosphoria formation: Branson, 295.

Pionodema and like formations:
Cooper, 563, 564.

Platystrophia, evolutionary stages:
Willard, 2870.

Productidae of basal Mississippian,
Missouri: Branson, 301.

Rafinesquina incurvata: Kay, 1321.

Shaler on Ohio Valley brachiopods:
Jackson, 1226.

Spirifer, orthogenetic evolution: Fenton,
799.

Strophomena filitexta Hall: Fenton,
801.

Bradford oil field, Pennsylvania, and New
York: Newby, 1897.

Branchiopoda.

Burgess shale fossils: Hutchinson,
1217.

British Columbia.

Borings: Maddox, 1684.

Areas described.

Alice Arm district: Hanson, 1061.

Big Bend area: Gunning, 1019.

Bear River and Stewart map areas:
Hanson, 1060.

Britannia Beach area: James, 1236.

Clearwater Lake area: Davis, 637.

Finlay River district: Dolmage, 691.

Gun Creek area: Dolmage, 690.

Iskut River area: Kerr, 1348.

Kootenay district: Walker, 2748.

Lardeau map area: Walker, 2747.

Nickel Plate Mountain, Similkameen
district: Bostock, 255.

British Columbia—Continued.

Areas described—Continued.

Owen Lake area: Lang, 1504.

Quatsino-Nimkish area, Vancouver
Island: Gunning, 1020.

Slocan and Upper Arrow Lakes area,
Kootenay district: Cairnes, 411.

Stikine River area: Kerr, 1345.

Taku River district: Kerr, 1347.

Topley area: Hanson, 1062.

Economic geology.

Alice Arm district: Hanson, 1063.

Buck Flats district: Lang, 1505.

Copper Mountain ores, origin: Dol-
mage, 693.

Coquihalla region, serpentine belt:
Cairnes, 413.

Finlay River district: Dolmage, 691.

Geophysical surveys in southern Bri-
tish Columbia: O'Neill, 1940.

Kootenay district, Upper Arrow Lake,
Big Ledge property: Cairnes, 412.

Lardeau map area: Gunning, 1018.

Mining industry, 1928: Galloway,
898; 1929: Galloway, 899.

Nimkish Lake copper deposits, Van-
couver Island: Gunning, 1021.

Northern British Columbia: Kerr,
1346.

Northwestern British Columbia: Kerr,
1349.

Oil possibilities, Okanagan Valley:
Cairnes, 414.

Rock Candy fluorspar deposit: Dol-
mage, 689.

Salmo area: Walker, 2749.

Snowflake tin silver vein: Dolmage,
692.

Vancouver Island, northern: Gunning,
1022.

Historical geology.

Coast Range: Crickmay, 587.

Cretaceous: Dannenberg, 632.

Jurassic, Ashcroft: Crickmay, 585.

Mesozoic: Crickmay, 579.

Nimkish Lake region, Vancouver
Island: Gunning, 1021.

Pleistocene, Vancouver: Crickmay,
582.

Rocky Mountains section, 51st paral-
lel: Warren, 2762.

St. Eugene silt, Kootenay Valley, age:
Berry, 205.

Skidegate Inlet, Queen Charlotte
Islands: McLearn, 1669.

Vancouver Island, northern: Gunning,
1022.

Mineralogy.

Texada Island, Marble Bay mine:
Walker, 2750.

Paleontology.

Burgess shale: Hutchinson, 1217;
Ruedemann, 2236.

Cambrian Crustacea: Resser, 2140.

British Columbia—Continued.

Paleontology—Continued.

Graptolite, Chushina formation: Ruedemann, 2237.

Harrison Lake area: Crickmay, 583.

Jurassic, Ashcroft: Crickmay, 585.

Mesozoic faunas: McLearn, 1674.

Skidegate Inlet, Queen Charlotte Islands: McLearn, 1669.

Physical geology.

Coast Range, connection with Cascade Range, Washington: Crickmay, 587.

Physiographic geology.

Kicking Horse Pass, stream history: Willard, 2873.

Bryozoa.

Aulopora: Fenton, 808.

Fresh-water bryozoans, primitive characters: Twitchell, 2691.

Greenland, northern, Ordovician: Troedsson, 2676.

Oklahoma, micropaleontology, Wetumka, Wewoka, and Holdenville formations: Warthin, 2767.

Texas, Graham formation: Moore, 1842.

Pennsylvanian: Moore, 1849.

Trepostomata, structure and relations: Twitchell, 2693.

Urnatella: Twitchell, 2692.

Building stone. See also Granite; Limestone; Sandstone; Stone.

Alabama, Russellville district: Jones, 1304.

Idaho, Salmon River valley: Behre, 166.

Maryland, mineral resources: Mathews, 1723.

Burbank oil field, Osage County, Okla.: Sands, 2267.

By-passing and discontinuous deposition of sediments: Eaton, 727.

Cabin Creek oil field, West Virginia: Wasson, 2771.

Caddo oil field, Caddo Parish, La.: Fletcher, 833.

Caliche as a fault indicator: Cuyler, 619.

California.

Aerial mapping: Ebel, 742.

Geological survey: Bradley, 276; Jenkins, 1242, 1245, 1247.

progress: Jenkins, 1246.

Lafayette Dam, geologic conditions: Louderback, 1604.

Mulholland Dam, Hollywood: Berkey, 187.

Radioactivity measurements: Engel, 762.

San Gabriel Dam, Los Angeles County: Berkey 189.

Study of geology by airplane: Tieje, 2651.

Areas described.

Death Valley: Lee, 1529.

California—Continued.

Areas described—Continued.

Mohave Desert region: Thompson, 2639.

Economic geology.

Asbestos, Trinity County: Lauder milk, 1522.

Barite: Bradley, 274, 275.

Buttonwillow gas field: Musser, 1881.

Elastic-wave surveys: Rieber, 2158.

Elk Hills oil field, Kern County: Pemberton, 2005.

Engels copper deposits: Knopf, 1460.

Geothermal conditions in oil-producing areas: Carlson, 443.

Gold, Weaverville quadrangle: Erich, 766.

Gold quartz veins, Alleghany district: Ferguson, 810, 811.

Kettleman Hills oil fields: Beal, 158; McCollough, 1647; Musser, 1880.

Long Beach oil field, Los Angeles County: Roberts, 2164.

McKittrick oil field: English, 763.

Miargyrite silver ores, Randsburg district: Shannon, 2354.

Mineral paint materials: Symons, 2579.

Mineral production 1928: Symons, 2578; 1929: Symons, 2580.

Mother Lode belt: Knopf, 1459.

Mother Lode gold ore: Hulin, 1205.

Natural gas: Wernicke, 2821.

Oil-field temperatures, Los Angeles Basin: Carlson, 442.

Oil fields near Whittier fault: Norris, 1924.

Oil shale, Wheeler Ridge: Hoots, 1181.

Panamint silver district: Mac Murphy, 1677.

Quicksilver deposits: Schuette, 2326.

Coso Range, Inyo County: Warner, 2761.

Saline deposits, Death Valley: Boyd, 267, 268.

San Joaquin Valley, southern border: Hoots, 1182.

Santa Barbara Mesa oil field: Chase, 476.

Santa Fe Springs oil field: Hendrickson, 1126.

Santa Maria oil fields, Santa Barbara County: Collom, 533.

Vein quartz, Alleghany district: Ferguson, 811.

Ventura Avenue oil field, Ventura County: Hertel, 1133.

Zinc, foothill belt: Farrel, 788.

Historical geology.

Adelaida quadrangle: Stanton, 2465.

Algal limestone, southern California: Gillan, 924.

Alleghany district: Ferguson, 810.

Coalinga district: Reed, 2111.

Coast Range north of San Francisco: Weaver, 2780.

California—Continued.

Historical geology—Continued.

- Dead Man Island: Crickmay, 578, 581.
 Death Valley: Blackwelder, 241.
 Devonian: Stauffer, 2471.
 Domengine and Markeley formations: Weaver, 2782.
 Fernando group, Ventura County: Pressler, 2057; Waterfall, 2772.
 Frazier Mountain: Buwalda, 402.
 Geologic map: Smith, 2426.
 Horsetown beds, age: Anderson, 54.
 Indio Hills: Buwalda, 400.
 Intrusive rocks, Klamath Mountains: Hinds, 1153.
 Ione formation: Allen, 36; Redding district: Russell, 2246.
 Kettleman Hills wells: Schenk, 2299.
 Klamath Mountains: Hinds, 1160; igneous geology: Hinds, 1159.
 Kreyenhagen shales: Anderson, 53; Jenkins, 1244; Fresno County: Von Estorff, 2744.
 Lone Hill, geologic history: Rogers, 2180.
 Lower Pliocene, Puente Hills: Stewart, 2509.
 McLure shale, Coalinga region: Henny, 1130.
 Marine Pleistocene, San Diego County: Stephens, 2488.
 Markeley formation, Eocene age: Bailey, 76.
 Marysville Buttes: Williams, 2874.
 Modelo formation, age: Hudson, 1200.
 Mokelumne area: Stearns, 2483.
 Mother Lode belt: Knopf, 1459.
 Mount Diablo area: Clark, 491.
 Mount Jura: Crickmay, 586.
 Mount Pinos quadrangle: Gazin, 904.
 Nipomo quadrangle: Taliaferro, 2587.
 Panamint Range, Inyo County: Mac Murphy, 1677.
 Pleistocene, classification: Hill, 1147.
 Pliocene, San Pedro: Clark, 487; Woodring, 2914.
 Simi Valley: Woodring, 2916.
 Potrero Hills and Vacaville region, Solano County: Bailey, 77.
 Rancho La Brea: Stock, 2519.
 San Andreas rift, Redlands: Cumming, 603.
 San Gabriel Mountains: Hill, 1146; southwestern: Miller, 1806.
 San Joaquin Valley, southern border: Hoots, 1182.
 San Pedro Hills, calcareous beds: Reed, 2114.
 San Ramon Basin: Clark, 489.
 Santa Ana Mountains: Moore, 1830; Post, 2048.
 Santa Cruz area: Rode, 2174.
 Santa Monica Mountains, faunas: Woodring, 2913.

California—Continued.

Historical geology—Continued.

- Sespe deposits, Ventura County: Stock, 2517.
 Sespe formation: Reed, 2109.
 Sharktooth Hill, Kern County: Hanna, 1049.
 Sierra Nevada, eastern escarpment: Mayo, 1749.
 southern, section: Miller, 1805.
 Soledad quadrangle: Nickell, 1909.
 Tejon quadrangle: Clements, 498.
 Turretella zones, Santa Ana Mountains: Moore, 1829.
 Valle Grande: Clark, 488.
 Ventura Basin: Eaton, 727.
 White Mountain quadrangle: Anderson, 55.
Mineralogy.
 Borate minerals, Kramer district: Schaller, 2295.
 Death Valley: Foshag, 862.
 Curtisite, Skaggs Springs, Sonoma County: Wright, 2932.
 Dumortierite, Imperial County: Wolff, 2905.
 Riverside County: Mac Murphy, 1676.
 Fossil pearls, Chico formation, Shasta County: Russell, 2245.
 Miargyrite, Randsburg district: Shannon, 2354.
 Mother Lode belt: Knopf, 1459.
 Periclase, Crestmore: Rogers, 2178.
 Probertite, Kern County: Eakle, 722.
Paleontology.
 Algae and orbitoids, Santa Ynez Range: Nelson, 1884.
 Bear, Tertiary, Eden: Frick, 884.
 Birds, Temblor formation, Bakersfield: Wetmore, 2830.
 Calyptogena (pelecypod), Dead Man Island: Crickmay, 580.
 Capromeryx minor, McKittrick beds: Furlong, 891.
 Caryophyllia: Quayle, 2068.
 Cetothere, southern California: Kellogg, 1336.
 Cretaceous Foraminifera, Coalinga: Cushman, 611.
 Dead Man Island: Crickmay, 581.
 Decapod crustaceans: Rathbun, 2087.
 Devonian: Stauffer, 2471.
 Diatoms, Cantua shale: Hanna, 1051.
 Etchegoin formation: Hanna, 1042.
 Discocyclus: Schenck, 2297.
 Elephant remains, Santa Rosa Island: Stock, 2514.
 Endemism in California Coast Range flora: Mason, 1713.
 Eocene Foraminifera, Santa Ynez Range: Woodring, 2915.
 Fernando group, Ventura County: Pressler, 2057; Waterfall, 2772.

California—Continued.

Paleontology—Continued.

Foraminifera, Cantua shale: Church, 484.

Pliocene, Ventura County: Stewart, 2508.

Santa Catalina Island: Church, 482.

Gabb's Cretaceous and Tertiary type lamellibranchs: Stewart, 2507.

Kern River mammals: Stock, 2515.

Kyphopyxa: Church, 483.

Lithodermium cornigerum: Hanna, 1045.

Mammalia, Mint Canyon formation: Maxson, 1746.

Pleistocene, first interglacial stage: Hay, 1094.

Mastodon skeleton near San Francisco Bay: Blackwelder, 228.

Mastodons: Frick, 885.

Meliosma, Miocene: Berry, 200.

Miocene, echinoid: Clark, 493.

mollusks: Wiedey, 2859.

oysters: Tleje, 2652.

Sorecidæ: Stirton, 2513.

Mytilus loeli: Grant, 989.

New names for west American Mollusca: Hertlein, 1135.

Oreodonts, Sespe deposits, Ventura County: Stock, 2517.

Passerine birds, Rancho La Brea: Miller, 1795.

Pecten, San Diego Pliocene: Hertlein, 1134.

Pliocene, San Pedro: Woodring, 2914.

Simi Valley: Woodring, 2916.

Pliomastodon, Etchegoin formation, Kettleman Hills: Matthew, 1741.

Rancho La Brea: Stock, 2519.

bird, lesion: Moodie, 1820.

weathered mammalian remains: Stock, 2516.

Rhododendron, Surprise Valley: Read, 2100.

Rocella, silicoflagellate, Miocene, Hanna, 1053.

Rodents and lagomorphs, Barstow beds, San Bernardino County: Hall, 1034.

Rouxia: Dallas, 1044.

Silicoflagellates, Cantua shale: Hanna, 1050.

Tapir, Santa Barbara County, Stirton, 2511.

Tertiary, Foraminifera, Humboldt County: Cushman, 613.

vertebrates, Apache Canyon, Ventura County: Gazin, 903.

Turritellas, Miocene, revision: Wiedey, 2857.

Zamites, Mariposa slates: Wieland, 2863.

Petrology.

Analcite diabase: Taliaferro, 2588.

California—Continued.

Petrology—Continued.

Quartz basalt eruptions, Lassen Park: Finch, 821.

Recent sands: Reed, 2112.

Yosemite region: Calkins, 415.

Physical geology.

Anomalies of vertical intensity: Somers, 2446.

Bathymetric and orogenic movements: Gillson, 928.

Earth movements, central coast region: Louderback, 1603.

Earthquake, November, 1927: Byerly, 406.

November 28, 1929: Byerly, 408.

registration, Berkeley and Lick Observatory: Byerly, 404, 405; Stechschulte, 2484, 2485.

Sierra Nevada, 1927: Blackwelder, 229.

Fault blocks, southern California: Hill, 1149.

Fault patterns indicate type of displacement: Russell, 2247.

Frazier Mountain: Buwalda, 402.

Movements on Haywards rift: Buwalda, 399.

Opal stalactites and stalagmites, northern California: Anderson, 52.

Quartz basalt eruptions, Lassen Park: Finch, 821.

Rockies, structure: Collet, 521.

St. Francis dam: Hill, 1145.

San Andreas fault, Carrizo Plain, displacement along: Wood, 2907.

San Gabriel Mountains: Hill, 1146.

San Joaquin Valley, east side, structural features: Fox, 866.

Sand-blast effects in Sierra Nevada: Blackwelder, 235.

Sandstone dikes (intrucast) through shales: Jenkins, 1243.

Santa Cruz earthquakes, October 1926: Mitchell, 1811.

Sierra Nevada: Cloos, 501.

Subsequent faulting, Great Basin: Hulin, 1206.

Valle Grande, tectonics: Clark, 488.

Physiographic geology.

Ben Lomond: Rode, 2175.

Devils Postpile: Matthes, 1732.

Glacial history of east side of Sierra Nevada: Blackwelder, 230.

Glacial land forms in Sierra Nevada: Jones, 1308.

Lassen Peak volcanic domes: Williams, 2875.

Moraines of Convict Lake glaciers: Blackwelder, 233.

Multiple glaciation, Yosemite region: Matthes, 1729, 1730.

Palisade glacier, Sierra Nevada: Von Engeln, 2743.

Peninsular Range: Sauer, 2283.

California—Continued.

Physiographic geology—Continued.

Santa Monica Mountains, elevated shore lines: Davis, 648.

Sierra Nevada: Matthes, 1732.

Valle Grande: Clark, 488.

Yosemite Valley, geologic history: Matthes, 1731.

Underground water.

Mokelumne area: Stearns, 2483.

Cambrian. See also Paleontology, Cambrian.

Alaska, Eagle-Circle district: Mertie, 1784.

Alberta, Jasper Park: Kindle, 1422; Raymond, 2098.

Arctic regions: Resser, 2141.

Arizona, southeastern: Stoyanow, 2548.

Arkansas, De Queen and Caddo Gap quadrangles: Miser, 1808.

Colorado, Alma mining district: Singewald, 2406.

Front Range: Lovering, 1610.

Ouray district: Burbank, 376.

Dresbach formation, Minnesota: Peterson, 2020.

General: Keyes, 1379.

Greenland: Koch, 1466.

east: Poulsen, 2049.

northeast: Kulling, 1481.

Idaho, Portneuf quadrangle: Mansfield, 1695.

Illinois, Alexis quadrangle: Wanless, 2756.

northern: Bevan, 222.

Massachusetts, Boston Basin, eastern part: Billings, 224.

Missouri, Eminence and Cardareva quadrangles: Bridge, 312.

Ozark region: Cordy, 566; McQueen, 1682.

Potosi and Edgehill quadrangles: Dake, 623.

Montana, New World district: Lovering, 1608.

Rocky Mountain front: Bevan, 223.

Sweetgrass arch: Romine, 2189.

Nevada, Spring Mountains: Glock, 946; Nolan, 1921.

New England: Brown, 326.

New York, capital district (Albany and vicinity): Ruedemann, 2234.

Oklahoma, Johnston and Murray Counties: Melton, 1765.

Wichita Mountains: Hoffman, 1174.

Pennsylvania, Fairfield and Gettysburg quadrangles: Stose, 2538.

Lancaster quadrangle: Jonas, 1292.

McCalls Ferry-Quarryville district: Knopf, 1463.

Rocky Mountain section, 51st parallel: Warren, 2762.

Rome ("Watauga") formation, Appalachian Valley: Woodward, 2920.

Cambrian—Continued.

South Dakota, Black Hills: Connolly, 542.

Utah, Gold Hill quadrangle: Nolan, 1923.

Vermont, Bridgewater and Plymouth Townships: Perry, 2017.

Ferrisburg: Foyles, 872.

Paradoxides beds: Howell, 1189.

Reading, Cavendish, Baltimore, and Chester: Richardson, 2150.

Wisconsin, Glover Bluff: Ekern, 740.

Wyoming: Resser, 2139.

Carbon County: Lovering, 1609.

Canada (general). See also names of provinces.

Borings, eastern Canada: Maddox, 1688.

Prairie provinces: Maddox, 1685, 1687.

Department of mines report: Canada Dept. Mines, 437; 1927-28: Camsell, 435; 1928-29: Camsell, 436.

Geological Survey report: Collins, 528, 529.

history: Collins, 530.

Great Slave Lake: Bell, 175.

Economic geology.

Coals, classification: Stansfield, 2462.

Fluorspar deposits: Wilson, 2895.

Gypsum: Cole, 509, 512.

Mica: Spence, 2449.

Mineral resources: Moore, 1831.

Moulding sands, eastern Canada: Freeman, 879.

Peat bogs, southeastern Canada: Auer, 71.

Petroleum: Redfield, 2105.

Prospecting in Canada: Canada G. S., 438.

Salt deposits: Cole, 510.

Zinc and lead deposits: Alcock, 21.

Historical geology.

Huronian, disappearance: Collins, 532.

Keweenawan olivine diabases: Moore, 1832.

Mineralogy.

Detrital minerals in sediments: Fraser, 876.

Paleontology.

Index to paleontology 1917-26: Nicolas, 1910.

Mastodons and mammoths, occurrence: Sternberg, 2496.

Seeds from peat bogs, southeastern Canada: McAtee, 1640.

Petrology.

Keweenawan olivine diabases: Moore, 1832.

Rapakivi granite, Great Slave Lake: Furse, 892.

Two-granite batholiths in pre-Cambrian: Moore, 1838.

Canada—Continued.

Physiographic geology.

- Canadian shield, depression and uplift:
Cooke, 556.
- Frozen ground, northern Canada:
Johnston, 1285.
- Labrador Peninsula, mature valleys:
Cooke, 556.
- Wisconsin glaciation, extent: Coleman, 520.
- Canadian shield, depression and uplift:
Cooke, 556.
- Canal Zone. See Panama Canal Zone.
- Cape Breton Island, Nova Scotia: Eastern Gulf Oil Co., 725.
- Carbon ratios and oil gravities in Rocky Mountain region: Dobbin, 686.
- Carboniferous. See also Paleontology, Carboniferous.
- Alabama, Wattsville Basin: Jones, 1305.
- Alaska, Chandalar-Sheenjek district: Mertie, 1781.
- Eagle-Circle district: Mertie, 1784.
- Nizina River, upper: Moffit, 1813.
- northwestern: Smith, 2434.
- southeastern: Buddington, 362.
- Alberta: Sur, 2558.
- Jasper Park: Kindle, 1422; Raymond, 2098.
- Arkansas, De Queen and Caddo Gap quadrangles: Miser, 1808.
- Hale Mountain section: Giles, 918.
- Paleozoic area: Croneis, 591.
- Bethany limestone: Keyes, 1392.
- British Columbia, Iskut River area: Kerr, 1348.
- Lardeau map area: Walker, 2747.
- California, Alleghany district: Ferguson, 810.
- Mother Lode belt: Knopf, 1459.
- Cape Breton Island: Eastern Gulf Oil Co., 725.
- Capitan limestone, New Mexico and Texas: Lloyd, 1577.
- Chester, western Kentucky: Butts, 396.
- Coal seams, Illinois, correlation with European horizons: Noé, 1920.
- Colorado, Alma mining district: Singewald, 2406.
- Front Range: Lovering, 1611.
- Golden area: Johnson, 1280.
- Ouray district: Burbank, 376.
- Sangre de Cristo Mountains: Johnson, 1274.
- Cyclical sedimentation of Pennsylvanian: Weller, 2801.
- Devono-Mississippian boundary: Swartz, 2570.
- Environment of Pennsylvanian life: Moore, 1843.
- General: Keyes, 1396.

Carboniferous—Continued.

- Greenland: Koch, 1466.
- east: Koch, 1465; marine Permian: Rosenkrantz, 2191, 2193.
- northeast: Backlund, 73; Kulling, 1481.
- Hermit shale, Grand Canyon, deposition and age: White, 2843.
- Idaho, Lava Creek district: Anderson, 46.
- Orofino region: Anderson, 50.
- Portneuf quadrangle: Mansfield, 1695.
- Wood River region: Umpleby, 2700.
- Illinois: Bement, 182.
- Alexis quadrangle: Wanless, 2756.
- Saline and Gallatin Counties: Henbest, 1119.
- Indiana, Harrodsburg limestone: Stockdale, 2522.
- Siosi field: Logan, 1587.
- southern, Borden group: Stockdale, 2523.
- West Franklin formation: Shrock, 2382.
- Iowa, Kinderhook group: Loudon, 1605.
- Kansas: McClellan, 1643.
- Cowley County: Bass, 143.
- Kentucky, Dawson Springs quadrangle: Sutton, 2559.
- Luta limestone, Permian, Oklahoma and Kansas: Boos, 254.
- Marmaton and Cherokee formations, Mid-Continent region: Roth, 2212.
- Massachusetts, Boston Basin, eastern part: Billings, 224.
- Mid-Continent oil-field sediments: Cheney, 479.
- Mid-Continent region studies: Moore, 1841.
- Mid-Continent region, Pennsylvanian: Condra, 539.
- Mexico, Sonora: Keller, 1330.
- Mississippi: Morse, 1857.
- Missouri, Eminence and Cardareva quadrangles: Bridge, 312.
- Ozark region: Cordry, 566.
- Pennsylvanian outlier, St. Louis: Knight, 1451.
- Potosi and Edgehill quadrangles: Dake, 623.
- Montana, Carbon, Big Horn, Yellowstone, and Stillwater Counties: Knappen, 1449.
- Kevin-Sunburst oil field: Collier, 522.
- New World district: Lovering, 1608.
- Rocky Mountain front: Bevan, 223.
- Sweetgrass arch: Romine, 2189.
- Nevada, Spring Mountains: Glock, 946.
- New Mexico, southeastern, Permian: Crandall, 576.
- Nova Scotia, Horton-Windsor district: Bell, 180, 181.
- Ohio, Monongahela series: Stout, 2542.

Carboniferous—Continued.

- Oklahoma: McClellan, 1643.
 Anadarko Basin: Freie, 882.
 Ardmore Basin, Pennsylvanian: Tomlinson, 2662.
 Cherokee and Adair Counties: Cram, 575.
 dolomite region: Suffel, 2555.
 Haskell, Latimer, Leflore, and Sequoyah Counties: Stone, 2529.
 Hughes County: Boyle, 272.
 Johnston and Murray Counties: Melton, 1765.
 Lincoln County: Radler, 2076.
 Mayes, Delaware, and Ottawa Counties: Ireland, 1222.
 Mississippian: Roth, 2207.
 northwestern, Permian: Clifton, 499.
 Okfuskee County: Boyle, 271.
 Oklahoma City oil field: Charles, 475.
 Tulsa County: Cloud, 504.
 Wichita Mountains: Hoffman, 1174.
 Pennsylvania, Monongahela series: Ashley, 67.
 New Castle quadrangle: DeWolf, 675.
 Pittsburgh quadrangle: Johnson, 1281.
 southwestern: Robinson, 2172.
 Pennsylvanian, Texas and Oklahoma: Moore, 1845.
 overlap: Levorsen, 1561.
 sedimentation cycles, Mid-Continent region: Moore, 1848.
 Permian: Baker, 84, 85; Keyes, 1372.
 correlation, Utah, Arizona, New Mexico, and Colorado: Baker, 82.
 taxonomic analysis of term: Keyes, 1408.
 Texas and New Mexico: Blanchard, 248; Willis, 2889, 2890.
 Phosphoria formation: Branson, 295.
 Riley limestone: Gould, 979.
 Rocky Mountain section, 51st parallel: Warren, 2762.
 Sedimentary cycles in Pennsylvanian strata: Savage, 2288.
 South Dakota, Black Hills: Connolly, 542.
 Minnelusa, Black Hills: Dillé, 681.
 Tennessee, central, black shale series: Pohl, 2041.
 Chattanooga shale: Swartz, 2569.
 Mississippian: Pohl, 2037.
 Texas, Double Mountain series: Keyes, 1378.
 Glass Mountains and Delaware Mountains: Keyte, 1415.
 Hendrick field, Winkler County: Ackers, 1.
 north central: Cheney, 478.
 Permian: Baker, 84; Willis, 2891.
 eastern side of west Texas basin: Lloyd, 1576

67933°—31°—14

Carboniferous—Continued.

- Texas—Continued.
 Reagan County, University well: Sellards, 2344.
 Stonewall County: Patton, 1996.
 trans-Pecos: King, 1428, 1431, 1432.
 western: Sellards, 2347; Permian basin: Cartwright, 457; Crandall, 576.
 Utah, Gold Hill quadrangle: Nolan, 1923.
 San Rafael Swell: Gilluly, 931.
 Virginia, Chattanooga shale: Swartz, 2569.
 West Virginia, Dunkard series: Core, 567.
 Monongahela series: Reger, 2133.
 Morgantown to Cascade: Tilton, 2655.
 Pocahontas County: Price, 2060.
 Wyoming, Carbon County: Dobbin, 682; Lovering, 1609.
 Fountain and Casper formations: Knight, 1457.
 Rock Creek oil field: Dobbin, 683.

Cartography.

- Airplane photographs: English, 764.
 Bentonite beds in mapping structure: Rankin, 2085.
 Long shots with alidade: Hillis, 1150.
 Types of subsurface structural contouring: Rettger, 2143.
 Cataclysmal geology: Berry, 195.
 Cavernous rock surfaces of desert: Blackwelder, 236.

Caves.

- Bermuda: Swinnerton, 2573.
 Cavern formation: Swinnerton, 2576.
 Colossal Cave, Arizona: Keyes, 1397.
 Indiana, Wyandotte, Marengo, and Lost River caverns: Malott, 1692.
 Limestone caverns, origin: Davis, 646.
 Mammoth Cave: Lobeck, 1579.
 Nature and formation: Moneymaker, 1816.
 Origin of caverns: Davis, 647.
 Pennsylvania: Stone, 2533.
 Tennessee: Pohl, 2040.
 Central America. See Costa Rica, Guatemala, etc.
 Cephalopoda. See also Mollusca.
 Actinoceras, Minnesota: Sarsen, 2279.
 Actinoceroids: Foerste, 855.
 Alberta, ammonites, Cretaceous: Warren, 2765.
 Bearpaw formation: Williams, 2880.
 Blairemore, Ammonoidea: Buckman, 361.
 Apparatus for reproducing suture lines of ammonites: Lupper, 1631.
 Aturia, western North America: Schenck, 2300.

Cephalopoda—Continued.

- British Columbia, Jurassic: McLearn, 1674.
 Skidegate Inlet, Queen Charlotte Islands, Jurassic Ammonoidea: McLearn, 1869.
 Cameroceras: Sardeson, 2280.
 Color patterns: Foerste, 851.
 Eumorphoceras, Carboniferous, Iowa: Wiedey, 2858.
 Greenland, Ordovician: Troedsson, 2677.
 Manitoba, Red River formation: Foerste, 849.
 Missouri, Ozark region, Cambrian and Ordovician: Ulrich, 2699.
 Nephriticerina: Foerste, 852.
 Ontario, Moose River Basin, Devonian: Foerste, 848.
 Ordovician north-central States: Foerste, 850.
 Port Byron: Foerste, 853.
 Silurian: Foerste, 853.
 Texas Permian ammonoid fauna: Miller, 1794; Smith, 2427.
 Taylor formation: Adkins, 12.
 Triassic, Utah, Fort Douglas area: Mathews, 1719.
 Cetacea. See Mammalia.
 Chakachamna-Stony region, Alaska: Capps, 441.
 Chandalar-Sheenjek district, Alaska: Mertie, 1781.
 Changes of level. See also Beaches; Shore lines; Terraces.
 Bathygenetic and orogenetic movements: Gillson, 928.
 Marine terraces in nonglaciated regions: Antevs, 57.
 Massachusetts, Quaternary: Hörner, 1173.
 Sea-level change near New York: Johnson, 1273; Lane, 1500.
 Swinging sea level of the ice age: Daly, 628.
 Washington, Olympic Peninsula, recent: Reagan, 2103.
 Chelonia. See Reptilia.
 Chert, Ohio, Devonian: Westgate, 2825.
 Chert and flint: Tarr, 2595.
 Chromite.
 Composition: Fisher, 827.
 Crystallization: Ross, 2196; Sampson, 2263; Singewald, 2403.
 Cuba, Camaguey: Allende, 39.
 Ontario, Obonga Lake area: Graham, 980.
 Origin: Fisher, 826, 828; Keep, 1327.
 Clark Fork district, Idaho: Anderson, 48.
 Classification.
 Coal: Fieldner, 816, 817.
 Canadian: Stansfield, 2462.
 Genetic classification: Keyes, 1359.
 Glacial deposits: Flint, 835.

Classification—Continued.

- Oil fields, tectonic classifications: Ver Wiebe, 2733.
 Pre-Cambrian rocks: Lawson, 1528.
 Rocks, genetic classification: Chadwick, 463.
 Sand: Tuck, 2684.
 Clay. See also Fire clay.
 General: Montgomery, 1818; Smith, 2437.
 Georgia, Coastal Plain: Smith, 2437.
 Indiana: Logan, 1588.
 Kaolin minerals: Ross, 2198.
 Kentucky, Jackson Purchase region: Roberts, 2170.
 Louisiana, clays, Monroe-Ruston area: Whittemore, 2855.
 Maine, post-Pleistocene: Perkins, 2013.
 Missouri, Perry area: McQueen, 1680.
 Ohio, refractory clays: Stout, 2543.
 Ontario: Montgomery, 1818.
 Mattagami and Missinaibi Rivers: Montgomery, 1817.
 Saskatchewan: Worcester, 2925.
 southern: McLearn, 1673.
 Tuscaloosa white clays, origin: Adams, 6.
 Clay galls, origin: Burt, 384.
 Clays associated with oil-bearing strata: Taylor, 2598.
 Clearwater Lake area, British Columbia: Davis, 637.
 Climate, geologic. See Paleoclimatology.
 Climatic cycles: Douglass, 699.
 Coal. See also Lignite.
 Alabama, Wattsville Basin: Jones, 1305.
 Alaska, Aniakchak district: Knappen, 1448.
 northwestern: Smith, 2434.
 Alberta, Brûlé Mines area: MacKay, 1662.
 East Coulee area: Kidd, 1416.
 Jasper Park coal fields: MacKay, 1663.
 southern: Williams, 2879.
 Classification: Campbell, 429; Fieldner, 816, 817; Canadian: Stansfield, 2462.
 Colorado, Meeker quadrangle: Hancock, 1041.
 Constitution: Demorest, 670; Fieldner, 816; Thiessen, 2622.
 Cuba, Camaguey: Bruscantini, 342.
 Distribution: Giles, 920.
 General: Thom, 2626.
 Igneous metamorphism of coal beds: McFarlane, 1659.
 Illinois: Bement, 182.
 Alexis quadrangle: Wanless, 2756.
 Saline and Gallatin Counties: Henbest, 1119.
 Iowa: Lees, 1533.
 Kansas: Moore, 1840.
 analyses: U. S. Bur. Mines, 2702.

Coal—Continued.

- Kentucky, western: Jillson, 1259.
 Maryland: Fieldner, 818; Mathews, 1724.
 Missouri, Perry area: McQueen, 1680.
 Monongahela series coals, microstructure: Thiessen, 2623.
 Montana, Carbon, Big Horn, Yellowstone, and Stillwater Counties: Knappen, 1449.
 Forsyth coal field: Dobbin, 684.
 Ohio: Bownocker, 266.
 coal resources: Stout, 2544.
 coal supply: Ray, 2091.
 Oklahoma: Moose, 1850.
 Pennsylvania, anthracite, constitution: Turner, 2686.
 New Castle quadrangle: DeWolf, 675.
 Pittsburgh quadrangle: Johnson, 1281.
 southwestern: Robinson, 2172.
 Post-Carboniferous coals: Stansfield, 2461.
 Recorder of incipient rock metamorphism: Campbell, 430.
 Research, terminology: Thiessen, 2621.
 Saskatchewan, coal reserves: Hastings, 1079.
 southern: McLearn, 1673.
 South Dakota: Searight, 2337.
 Black Hills: Connolly, 542; O'Harra, 1937.
 West Virginia, Pocahontas County: Price, 2060.
 Wyoming, Carbon County: Dobbin, 682.
 Rock Springs field, Sweetwater County: Swann, 2561.
 Coffeyville oil field, Montgomery County, Kans.: Foster, 864.
- Collections.
 U. S. National Museum, report 1929: Merrill, 1778; 1930, Bassler, 147.
- Color markings on fossils.
 Cretaceous pelecypod with color markings: Reeside, 2127.
 Insecta, Permian: Drevermann, 706.
 patterns in Paleozoic fossils: Foerste, 851.
 Trilobites, Mississippian: Williams, 2876.
- Colorado.
Areas described.
 Golden area: Johnson, 1280.
Economic geology.
 Bonanza mining district, Saguache County: Burbank, 375.
 Caribou, Boulder County, magnetite deposits: Henderson, 1121.
 Climax molybdenum district: Butler, 394.
 Colorado Plateau, ore deposits: Butler, 393.
 Creede district: Larsen, 1512.

Colorado—Continued.

Economic geology—Continued.

- Florence oil field, Fremont County: De Ford, 662.
 Localization of ore, Front Range: Lovering, 1613.
 Magnetometer investigation of gold placer deposits near Golden: Heiland, 1111.
 Meeker quadrangle, Moffat and Rio Blanco Counties: Hancock, 1041.
 Mineralization at Leadville: Behre, 169.
 Mosquito Range and Leadville district: Behre, 167.
 Northwestern Colorado, oil structures: Heaton, 1101.
 Pseudo-eutectic textures, Mount Sopris: Schwartz, 2332.
 Vermilion Creek gas area: Nightingale, 1911.
 Yampa coal field, Routt County: McParlane, 1659.

Historical geology.

- Alma mining district: Singewald, 2406.
 Benton paleogeography, eastern Colorado: Johnson, 1277.
 Bentonite beds in mapping structure: Rankin, 2085.
 Bonanza mining district, Saguache County: Burbank, 375.
 Cretaceous, Vermilion Creek, Moffat County: Reeside, 2126.
 Eastern Colorado: Rankin, 2083.
 Front Range, geologic history: Lovering, 1610.
 Granby anticline, Grand County: Lovering, 1612.
 Harding sandstone: Kirk, 1440.
 Lykins formation, Garden Park: Schoewe, 2311.
 Marmaton and Cherokee formations, Mid-Continent region: Roth, 2212.
 Meeker quadrangle, Moffat and Rio Blanco Counties: Hancock, 1041.
 Mosquito Range and Leadville district: Behre, 167.
 Ouray district: Burbank, 376.
 Permian correlation, southwestern Colorado: Baker, 82.
 Phosphoria formation: Branson, 295.
 Sangre de Cristo conglomerates, origin: Johnson, 1275.
 Sangre de Cristo Mountains: Johnson, 1274.
 San Juan Mountains, volcanic history: Larsen, 1515.
 Unconformity in Colorado group: Johnson, 1278.
 Varves and climate of Green River epoch: Bradley, 280.
 Vermilion Creek gas area: Nightingale, 1911.
- Mineralogy.*
 Estes Park "meteorite": Van Valkenburgh, 2716.

Colorado—Continued.

Paleontology.

- Benton fauna, eastern Colorado: Johnson, 1279.
 Conodonts, Ordovician: Kirk, 1441.
 Cretaceous, pelecypod with color markings: Reeside, 2127.
 Vermilion Creek, Moffat County: Reeside, 2126.
 Denver flora: Knowlton, 1464.
 Fresh-water algae, Green River formation: Bradley, 282.
 Green River flora: Brown, 330.
 McCoy formation: Roth, 2213.
 Mammoth and Bison: Cook, 548.
 Multituberculata, Tertiary: Granger, 987.
 Pliocene rhinoceroses: Cook, 549.
 Tertiary plants, De Beque: Hollick, 1179.
 Triassic Amphibia: Branson, 297.
 Upper Cretaceous dinosaur faunas: Russell, 2242.
 Vertebrates associated with human artifacts: Hay, 1093.
- Physical geology.*
 Algae reefs and oolites, Green River formation: Bradley, 277.
 Analcite beds, Green River formation: Bradley, 279.
 Collapsed dome, Bonanza mining district: Burbank, 374.
- Physiographic geology.*
 Colorado Front Range, Pleistocene history: Lovering, 1611.
 Stream piracy, Dakota hogback: Schoewe, 2309.
 Colorado Plateau, ore deposits: Butler, 393.
 Compaction and oil migration: Athy, 70.
 Concretions.

- Calcareous concretions, near Lexington, Va.: Stow, 2546.
 Centripetal concretions: Brown, 335.
 General: Reed, 2113; Tarr, 2595.
 Conglomerite: Willard, 2871.
 Congresses. *See* Associations.

Connecticut.

- State Survey, thirteenth biennial report: Britton, 317.

Economic geology.

- Hodges nickel prospect, Torrington: Agar, 16.

Historical geology.

- Becket gneiss, subdivisions: Agar, 14.
 Pomperaug Basin: Meinzer, 1756.
 Stiles clay pit section: Brown, 331.
 Triassic fossils: Thorpe, 2649.

Mineralogy.

- Manganotantalite, Portland: Foye, 868.

Paleontology.

- New Milford marl deposits: Cooper, 561.
 North Branford Triassic field: Thorpe, 2649.
 Triassic fossils: Thorpe, 2649.

Connecticut—Continued.

Petrology.

- Becket gneiss, subdivisions: Agar, 14.

Physical geology.

- Volcanic vent, Durham: Foye, 870.

Physiographic geology.

- Glacial geology: Flint, 836.
 Shore line: Sharp, 2355.
 Stiles clay pit section: Brown, 331.

Underground water.

- Pomperaug Basin, ground water: Meinzer, 1756.

Conodonts.

- Colorado, Ordovician: Kirk, 1441.
 Minnesota, Decorah shale: Stauffer, 2472.
 Ordovician: Shideler, 2373.
 Continental drifting: Longfellow, 1590;
 Van der Gracht, 2703.
 Continental fragmentation: Barrell, 120.
 Continental genesis: Willis, 2885.
 Copley oil pool, West Virginia: Reger, 2132.
 Copper.

- Alabama: Adams, 5.

- Alaska, southeastern: Buddington, 362.

- Arizona: Tenney, 2609.

- United Verde mine, Jerome: Hansen, 1059.

- Bornite-chalcocite intergrowth: Schwartz, 2327.

- British Columbia, Bear River and Stewart map areas: Hanson, 1060.

- Britannia Beach area: James, 1236.

- Copper Mountain: Dolmage, 693.

- Lardeau map area: Gunning, 1018.

- Vancouver Island, Nimpkish Lake: Gunning, 1021.

- California, Engels deposits: Knopf, 1460.

- Covellite-chalcocite relationships: Bate-man, 149.

- Cuba, Pinar del Rio: Van der Veer, 2707.

- Discovery of ore bodies: Joralemon, 1309.

- Erratics: Crook, 596.

- Geophysical exploration: Broderick, 318.

- Idaho, Clark Fork district: Anderson, 48.

- northern: Anderson, 49.

- Orofino region: Anderson, 50.

- porphyry deposits: Bell, 179.

- south-central, mining districts: Ross, 2202.

- Iron and copper sulphides, hydrothermal experiments on: Foreman, 858.

- Limonite types from bornite and tetra-hedrite: Blanchard, 247.

- Manitoba, Cold Lake area: Wright, 2934.

- Kississing Lake area: Wright, 2933.

- Sherritt Gordon deposit: Bruce, 337, 338.

- southeastern: Wright, 2935.

Copper—Continued.

- Michigan: Broderick, 320; Butler, 391.
magnetic field work: Seaman, 2336.
zoning in deposits: Hoffman, 1175.
- Mexico, Lower California, Boleo deposit: Touwaide, 2664.
- Missouri, Eminence and Cardareva quadrangles: Bridge, 312.
- Montana, New World district: Lovering, 1608.
- Native copper deposits, Michigan: Broderick, 319.
- Nevada, mining districts: Ferguson, 809.
- New Brunswick: Alcock, 20; Low, 1615.
- New Mexico, Guadalupe County, sandstone deposit: Stauber, 2469.
- North Carolina: Bryson, 356.
- Nova Scotia: Messervey, 1787.
Cape Breton, Coxheath mine: Beaton, 160.
- Northwest Territories, Coronation Gulf: Burwash, 389.
- Ontario, Boston-Skead area: Bell, 178.
- Cochrane and Timiskaming districts: Gledhill, 944.
- Groundhog River area: Graham, 981.
- Lower Shebandowan Lake: Watson, 2778.
- north shore of Lake Huron: Moore, 1836.
- Sudbury Basin area: Burrows, 381.
- Woman River district: Bannerman, 108.
- Oregon, porphyry deposits: Bell, 179.
- Pitch ore: Guild, 1015.
- Quebec, Amulet mine: Cooke, 558.
- Rouyn, Aldermac mine: Alderson, 23; Cooke, 559.
- western: Cooke, 555, 559.
- Schistose sulphide ores, texture and origin: Newhouse, 1902.
- South Dakota, Black Hills: Connolly, 542.
- Tennessee, Ducktown: McNaughton, 1678.
- Coprolites.
Ground sloth coprolite, Dona Ana County, N. Mex.: Eames, 723.
- Corals. See Anthozoa.
- Coral islands.
Elevated fringing coral reefs, erosion: Hoffmeister, 1177.
- Correlation.
Alaska, Cretaceous rocks: Martin, 1709.
- By heavy mineral concentrates: Graham, 984.
- California, Miocene: Hanna, 1049.
- Chamberlin's philosophy of correlation: Schuchert, 2319.
- Clalborne, Texas and Louisiana: Ellis, 746.
- Coastal terraces: Cooke, 554.

Correlation—Continued.

- Cretaceous and Tertiary: Osborn, 1942.
- Criteria for Pleistocene correlation: Leverett, 1558.
- Devonian: Pohl, 2033, 2036, 2039.
- General: Keyes, 1376.
- Glacial epochs, western United States: Blackwelder, 239.
- Homonymy and bentonitic correlation: Keyes, 1365.
- Jurassic: Baker, 83.
- Marker horizons: Newcombe, 1898.
- Methods of correlation: Foerste, 854.
- Mississippian and Morrow formations, Oklahoma and Arkansas: Roth, 2207.
- Mohawkian sediments, Kansas, correlatives: Kay, 1322.
- Ordovician: Ulrich, 2697.
- Pennsylvanian: Weller, 2801.
Texas and Oklahoma: Moore, 1845.
- Pennsylvanian-Permian, Glass Mountains and Delaware Mountains, Texas: Keyte, 1415.
- Permian: Baker, 84.
eastern side of west Texas basin: Lloyd, 1576.
- Texas and New Mexico: Willis, 2889.
- Utah, Arizona, New Mexico, and Colorado: Baker, 82.
- Platystrophia, evolutionary stages: Willard, 2870.
- Pre-Cambrian rocks: Lawson, 1528.
- Rocky Mountain region red beds: Branson, 296; Reeside, 2123.
- Subsurface correlation, west Texas Permian Basin: Cartwright, 456.
- Texas, Upper Cretaceous: Stephenson, 2493.
- Triassic: Camp, 423.
- Vermont, west-central: Foyles, 873.
- Tables.
Alaska: Smith, 2434.
- Alberta, foothill Cretaceous: MacKay, 1663.
- Clalborne, Texas and Louisiana: Ellis, 746.
- Devonian: Pohl, 2039.
- Ordovician: Ulrich, 2697.
- Region between Baltimore and Hudson River: Knopf, 1463.
- Rocky Mountain region red beds: Reeside, 2123.
- Texas, Tertiary: Wendlandt, 2813.
- Upper Cretaceous: Stephenson, 2493.
- Vermont, west-central: Foyles, 873.
- Cretaceous. See also Paleontology, Cretaceous.
- Alaska, Aniakchak district: Knappen, 1448.
- Eagle-Circle district: Mertie, 1784.
- Nizina River, upper: Moffit, 1813.
- northwestern: Smith, 2431.

Cretaceous—Continued.

Alaska—Continued.

- southeastern: Buddington, 362.
Upper Cretaceous: Martin, 1709.
Alberta, foothill region: Evans, 772.
Highwood-Jumpspound anticline: Hume, 1207.
Jasper Park: Kindle, 1422; coal fields: MacKay, 1663.
Mesozoic, Blairmore district: McLearn, 1671.
Peace River and Grande Prairie districts: Rutherford, 2257.
southern: Williams, 2879.
Wapiti River Basin: Evans, 773.
Arctic regions: Reeside, 2124.
Arizona, northeastern: Reeside, 2122.
Arkansas, De Queen and Caddo Gap quadrangles: Miser, 1808.
southwestern: Dane, 631.
Stephens oil field, Columbia and Ouachita Counties: Spooner, 2458.
Brownstown formation, correlation: Israelsky, 1224.
California, Marysville Buttes: Williams, 2874.
Potrero Hills and Vacaville region, Solano County: Bailey, 77.
Canada, western: Dannenberg, 632.
Colorado, eastern: Rankin, 2083.
Front Range: Lovering, 1611.
Golden area: Johnson, 1280.
Grand County, Granby anticline: Lovering, 1612.
Meeker quadrangle: Hancock, 1041.
northwestern: Heaton, 1101.
Ouray district: Burbank, 376.
Vermillion Creek, Moffat County: Reeside, 2126.
Vermillion Creek area: Nightingale, 1911.
Dakota stage, type section: Tester, 2616.
Fox Hills-Lance contact: Dobbin, 685.
General: Keyes, 1362, 1396.
Greenland: Koch 1466.
Disko region: Krueger, 1480.
east: Koch, 1465.
Idaho, Portneuf quadrangle: Mansfield, 1695.
Iowa: Keyes, 1410.
Kansas, Cloud County: Wing, 2901.
Mitchell County: Landes, 1489.
Osborne County: Landes, 1489.
Republic County: Wing, 2901.
Smoky Hill chalk: Russell, 2251.
Kentucky, Trigg, Lyon, and Livingston Counties: Roberts, 2167.
Louisiana, Bellevue field, Bossier Parish: Teas, 2606.
Cotton Valley oil field: Ross, 2205.
Pine Island field, Caddo Parish: Crider, 589.
Manitoba Kirk, 1442.

Cretaceous—Continued.

- Maryland, Baltimore County: Berry, 203.
Mexico, Sonora: Keller, 1330; central: Flores, 838.
Tuxpan-Misantla region: Hisazumi, 1162.
Mississippi embayment: Lamar, 1487.
Montana, Carbon, Big Horn, Yellowstone, and Stillwater Counties: Knappen, 1449.
Forsyth coal field: Dobbin, 684.
Kevin-Sunburst oil field: Collier, 522.
plains adjacent to Highwood Mountains: Reeves, 2128.
Rocky Mountain front: Bevan, 223.
Rosebud County: Renick, 2137.
Sweetgrass arch: Romine, 2189.
Yellowstone and Treasure Counties: Hall, 1036.
Mowry shale, origin: Rubey, 2223.
North Dakota, Edgeley and La Moure quadrangles: Hard, 1064.
Oklahoma, Benton formation: Gould, 968.
Bokchito formation, Love County: Redfield, 2107.
Johnston and Murray Counties: Melton, 1765.
Love and Marshall Counties: Bulard, 369.
Oregon, central: Packard, 1965.
Recent literature, western America: Adkins, 13.
Rocky Mountain section, 51st parallel: Warren, 2762.
Saskatchewan, central: Warren, 2763.
southwestern: Williams, 2879.
South Dakota, Black Hills: Connolly, 542.
Texas: Alexander, 28.
Concho Bluffs, Crane, Ector, and Winkler Counties: Wilson, 2894.
Georgetown formation: Cuyler, 617.
Gulf Coast salt domes: Morrison, 1856.
Larremore area, Caldwell County: Weeks, 2785.
Rio Grande embayment: Getzen-daner, 912.
Salt Flat oil field, Caldwell County: McCollum, 1648.
Stonewall County: Patton, 1996.
Trinity division: Hill, 1148.
Upper Cretaceous: Stephenson, 2493.
Trinidad, Lizard Springs: Jarvis, 1237.
Lizard Springs anticline: Skelton, 2409.
Utah, San Rafael Swell: Gilluly, 931.
Wyoming, Carbon County: Dobbin, 682; Lovering, 1609.
Rock Creek oil field: Dobbin, 683.
Vermillion Creek area: Nightingale, 1911.

- Crinerville oil field, Carter County, Okla.: Powers, 2053.
- Crinoidea. See also Echinodermata.
- Cryphiocrinus: Kirk, 1435.
- Larviform crinoids, Pennsylvanian: Weller, 2800.
- Lichenocrinus: Faber, 780.
- Black River formations: Fenton, 807.
- Mariacrinus Hall: Kirk, 1437.
- Pagecrinus: Kirk, 1434.
- Pellecrinus: Kirk, 1433.
- Platycrinus, Pennsylvanian, western Indiana: Weller, 2804.
- Trachelocrinus, Upper Cambrian, Montana: Ulrich, 2695.
- Trophocrinus, Sycamore limestone, Oklahoma: Kirk, 1439.
- Vasocrinus: Kirk, 1433.
- Cromwell oil field, Seminole and Okfuskee Counties, Okla.: Langworthy, 1510.
- Crustacea. See also Cirripedia; Ostracoda; Trilobita.
- Calianassa, Cretaceous, South Dakota: Rathbun, 2089.
- California, decapod crustaceans: Rathbun, 2087.
- Cambrian: Resser, 2140.
- Hoploparia westoni, Alberta, Bearpaw shale: Rathbun, 2090.
- Mexico, decapod crustaceans: Rathbun, 2088.
- Crystallography.
- Boracite, structure: Gruner, 1009.
- Calcites, diabase region, New Jersey: Whitlock, 2850.
- Calcium sulphate, crystal forms: Ramsdell, 2080.
- Crystal structure types: Gruner, 1010.
- Crystallographic constants in the triclinic system: Parsons, 1990.
- Standardizing names of crystal forms: Wherry, 2833.
- Stibnite and orpiment, Manhattan, Nev.: Palache, 1975.
- Cuba. See also West Indies.
- Economic geology.*
- Coal deposit, Camaguey: Bruscantini, 342.
- Chromite, Camaguey: Allende, 39.
- Copper ore, Pinar del Rio: Van der Veer, 2707.
- Petroleum possibilities, Jovellanos anticlinal: Ageton, 17.
- Historical geology.*
- General: Morales, 1851.
- Jovellanos anticlinal: Ageton, 17.
- Physiographic geology.*
- General: Raisz, 2079.
- Cushing oil and gas field, Creek County, Okla.; Weirich, 2793.
- Cusps. See also Shore lines.
- Illinois, Evanston, lake shore: Needham, 1882.
- Cycads. See Paleobotany.
- Dakota stage, type section: Tester, 2616.
- Dams: Jelliff, 1241.
- Death Valley: Lee, 1529.
- Definitions.
- Deuteric: Gillson, 927; Osborne, 1957; Sederholm, 2339.
- Deflation in deserts: Blackwelder, 240.
- Delaware Extension oil pool, Nowata County, Okla.: Lewis, 1562.
- Deltas.
- Mississippi delta: Trowbridge, 2680.
- Density anomalies, northern Great Plains: Melton, 1762.
- Denudation. See Erosion.
- Depew area, Creek County, Okla.: Martin, 1712.
- Deposition. See Sedimentation.
- Deposition of ores. See Ore deposits, origin.
- Devonian. See also Paleontology, Devonian.
- Alaska: Kirk, 1436.
- Chandalar-Sheenjek district: Mertie, 1781.
- Eagle-Circle district: Mertie, 1784.
- Northwestern: Smith, 2434.
- southeastern: Buddington, 362.
- Alberta: Sur, 2558.
- Jasper Park: Kindle, 1422; Raymond, 2098.
- Arctic regions: Kindle, 1421.
- Arizona: Keyes, 1414; Stoyanow, 2549.
- Arkansas, De Queen and Caddo Gap quadrangles: Miser, 1808.
- Paleozoic area: Croneis, 591.
- California: Stauffer, 2471.
- Chemung formation of Iowa and western New York: Tester, 2617.
- Colorado, Front Range: Lovering, 1611.
- Ouray district: Burbank, 376.
- Correlation: Pohl, 2033.
- Devono-Mississippian boundary: Swartz, 2570.
- Greenland: Koch, 1466.
- east: Koch, 1465; Orvin, 1941.
- northeast: Backlund, 73; Kulling, 1481.
- Hamilton group, New York: Cooper, 562.
- Helderberg group, Pennsylvania-Virginia: Swartz, 2565.
- West Virginia and Virginia: Swartz, 2566.
- Idaho, Portneuf quadrangle: Mansfield, 1695.
- Illinois, Alexis quadrangle: Wanless, 2756.
- Iowa, Rockford formation: Keyes, 1363.
- Kentucky: Savage, 2285.
- Michigan, salt-bearing rocks: Newcombe, 1900.
- Traverse group: Pohl, 2036.
- Mississippi: Morse, 1857.
- Mississippi Basin: Pohl, 2039.
- Montana, New World district: Lovering, 1608.
- Rocky Mountain front: Bevan, 223.
- Sweetgrass arch: Romine, 2189.

Devonian—Continued.

- Nevada, Spring Mountains: Glock, 946.
 New Albany shale, age: Savage, 2287.
 New York, capital district (Albany and vicinity): Ruedemann, 2234.
 central, Portage sedimentation: Sheldon, 2362.
 Manlius-Helderberg series: Smith, 2417.
 Ohio, Hillsboro sandstone: Carman, 446, 447.
 Oklahoma, Cherokee and Adair Counties: Cram, 575.
 Johnston and Murray Counties: Melton, 1765.
 Wichita Mountains: Hoffman, 1174.
 Ontario, Albany River: Dyer, 719.
 Moose River Basin: Dyer, 714.
 Quebec, Escuminac Bay: Kindle, 1424.
 Gaspé, Berry Mountain area: Jones, 1294.
 Percé; Schuchert, 2324.
 Rocky Mountain section, 51st parallel: Warren, 2762.
 Tennessee, black shale: Pohl, 2041.
 central: Pohl, 2038.
 Texas, Reagan County, Big Lake oil field: Lowman, 1617.
 western: Darton, 633.
 Utah, Gold Hill quadrangle: Nolan, 1923.
 West Virginia, Pocahontas County: Price, 2060.
 Tygart Valley: Tilton, 2656.
 Diamonds.
 Arkansas: Branner, 292.
 Diaspore, Missouri: McQueen, 1681.
 Diatomaceae. See also Diatomaceous earth.
 Behring sea: Hanna, 1043.
 California, Etchegoin formation: Hanna, 1042.
 Lithodesmium cornigerum: Hanna, 1045.
 Omphalothea, growth: Hanna, 1046.
 Porosity, lack of: Hanna, 1048.
 Rouxia: Dallas, 1044.
 Diatomaceous earth. See also Diatomaceae.
 General: Calvert, 419.
 Oregon, eastern: Smith, 2438.
 Diatomite: Eardley-Wilmot, 724.
 Arizona: Trischka, 2674.
 Differential compacting: Nevin, 1893.
 Dinosauria. See Reptilia.
 Dip needle in exploration: Stearn, 2474.
 Dislocations. See Faulting.
 Distribution. See Geographic distribution.
 Divining rod: Gregory, 992.
 Dolomite, polysynthetic twinning: Rogers, 2177.
 Dolomitization: Murray, 1879.
 Dominica: Maury, 1743.
 Drainage alignment in western Great Plains: Russell, 2250.

Drainage changes.

- Illinois, Beaver Creek, Boone County: Ekblaw, 738.
 New York, upper Hudson, interglacial valley: Stoller, 2527.
 Niagara region: Taylor, 2600.
 North Carolina, Blue Ridge: Wright, 2928.
 Ohio, northeastern: Coffey, 508.
 Toledo region: Carman, 448.
 Wooster area: Ver Steeg, 2729.
 Ohio Valley, upper: Leverett, 1557.
 Quebec, St. Maurice Valley: Crosby, 602.
 Vermont: Eggleston, 737.
 Dreikanter, Wyoming and Montana: Delo, 615.
 Drift deposits. See Glacial geology; Ice ages (ancient).
 Drumlins.
 New York: Fairchild, 786.
 south of Lake Ontario: Slater, 2411.
 Dumortierite, Arizona, Yuma County: Wilson, 2892.
 Dunes.
 Lake Michigan: Scott, 2334.
 Dynamic geology. See Physical geology.
 Eagle-Circle district, Alaska: Mertie, 1784.
 Earth.
 Age: Hevesy, 1138; Lane, 1494.
 radioactive mineral, computing age: Kovarik, 1473.
 sodium accumulation method: Lane, 1496.
 Continental genesis: Willis, 2885.
 Crust, electrical exploration: Schlumberger, 2301.
 outer earth shells, elasticity: Daly, 626.
 stress conditions within lithosphere: Hobbs, 1166.
 zones of weakness: Bowie, 261.
 Deformation: Quirke, 2070.
 Evolution: Gutenberg, 1025.
 planetesimal hypothesis, development: MacMillan, 1675; and meteoritic agglomeration: Keyes, 1357.
 Interior: Adams, 9.
 discontinuities in earth: Daly, 628, 630.
 Rigidity: Daly, 627.
 Temperature: Van Orstrand, 2713.
 geotherms: Lane, 1503.
 gradients: Lane, 1498; Permian basin, Texas: Lang, 1506, 1507.
 internal temperature of crust: Gentry, 907.
 irregularities of isogeothermal surfaces: Thom, 2628.
 measurements in deep wells in Texas: Hawtof, 1089.
 method of measuring temperatures in deep wells: Van Orstrand, 2714.

Earth—Continued.

Temperature—Continued.

oil fields: Heald, 1099; California, Los Angeles Basin: Carlson, 442, 443; Oklahoma: McCutchin, 1652, 1653.

Earth for Sam: Reed, 2115.

Earth movements. See Changes of level; Landslides.

Earthquakes. See also Seismology.

Acadian - Newfoundland earthquakes: Johnstone, 1289; McIntosh, 1661.

California, November 4, 1927: Byerly, 406.

November 28, 1929: Byerly, 408.

registration, Berkeley and Lick Observatory: Byerly, 404, 405; Stechschulte, 2484, 2485.

Santa Cruz earthquakes, October, 1926: Mitchell, 1811.

Sierra Nevada: Blackwelder, 229.

General: Heck, 1106; Jaggar, 1230. Grand Banks earthquake: Hodgson, 1172; Keith, 1328.

Hawaii, Hualalai earthquakes, 1929: Jaggar, 1234.

Maine: Perkins, 2012.

Man-made earthquakes: Sellards, 2346.

Mexico, Puebla and Oaxaca: Muñoz, 1872.

Mississippi Valley earthquake problem: Macelwane, 1655.

New Madrid: Pusey, 2064.

Southern Appalachian, November 2, 1928: Neumann, 1887.

Tidal factor in earthquake causation: Allen, 34.

United States, 1928: Heck, 1103.

Echinodermata. See also Asteroidea; Blastoidea; Crinoidea; Cystoidea; Echinoidea; Invertebrates (general).

Report on fossil echinoderms, Museum of Comparative Zoology: Jackson, 1227, 1228.

Echinoidea. See also Echinodermata.

California, Miocene: Clark, 493.

Trinidad: Jeannet, 1239.

Wyoming, Ancylocidaris, Sundance formation: Miller, 1792.

Economic geology (general). For areal see under the various States. See also Ore deposits, origin, and the particular products.

Colorado Plateau, ore deposits: Butler, 393.

Cycles in metal production: Hewett, 1139.

Deuteric, use of term: Gillson, 927; Osborne, 1957; Sederholm, 2339.

Electrical prospecting for ore: Lundberg, 1626, 1627.

Eötvös torsion balance method of mapping geologic structure: Barton, 128.

Economic geology (general)—Continued.

Geologic advance, review: Vogt, 2740.

Geophysical exploration for ores: Mason, 1714; Rogers, 2176.

Geophysical methods of prospecting: Barton, 133.

Gold-bearing quartz, northern Ontario and Quebec: Bain, 80.

Leached outcrops, northern Manitoba: Gwilliam, 1027.

Limonite, cellular structure: Boswell, 256.

Localization of ore, Front Range, Colo: Lovering, 1613.

Mining geology in 1929: Colony, 534.

Nevada, mining districts: Ferguson, 809.

Nonmetallic mineral products: Bayley, 157.

Nonmetallics, problems: Ries, 2162.

Ore, definition: Fermor, 812.

Ore deposition, structural control: Porter, 2045.

Ore deposits of southern Rocky Mountain region, relation to Colorado Plateau: Tenney, 2610.

Ore hunting: Locke, 1583.

Ore shoots, extension: Schmitt, 2302.

Outlook for new ore reserves: Locke, 1582.

Petrographic microscope in ore finding: Smith, 2430.

Sampling and coring in prospecting metalliferous deposits: George, 908.

Search for mineral deposits: Ebbutt, 730.

Seismic mapping of geologic structure: Barton, 130.

Seismic prospecting: Heiland, 1113.

Textbook: Tarr, 2594.

Torsion balance, application: Weinzierl, 2791.

corrections, graphic method: Heiland, 1108.

Educational. See also Textbooks.

Laboratory manual of historical geology: Mather, 1715.

Motion pictures for classroom instruction: Mather, 1716.

Elastic-wave exploration, adaptation to unconsolidated structures: Rieber, 2156.

El Dorado oil field, Butler County, Kans: Reeves, 2131.

Electrical prospecting, applied to foundation problems: Crosby, 600.

for oil structure: Sundberg, 2557.

for ore: Lundberg, 1626.

Questa, N. Mex: Sundberg, 2556.

Elk Basin oil and gas field, Wyoming and Montana: Barttram, 140.

Elk Hills oil field, Kern County, Calif: Pemberton, 2005.

- Elevation and subsidence. See Changes of level.
- Emery, New York, Peekskill: Gillson, 930.
- Engineering geology.
- Dam sites, geology: Wentworth, 2815.
- Tennessee and Cumberland River Basins: Fisher, 825.
- Dams and reservoirs, geology: Glenn, 945.
- Geologic data in hydraulic projects: Matthes, 1734.
- Geologic examination of sites for dams: Bryan, 346.
- Geologist in engineering projects: Berkey, 188.
- Importance: Ries, 2160.
- Minor geologic details: Terzaghi, 2615.
- Mulholland Dam, Hollywood, Calif: Berkey, 187.
- Reservoir and dam sites: Bryan, 344.
- Reservoir ground-water conditions: Meinzer, 1758.
- Reservoirs in basalt: Stearns, 2481.
- San Gabriel Dam, Los Angeles County, Calif: Berkey, 189.
- Enrichment. See Ore deposits, origin.
- Eocene. See Tertiary.
- Eötös torsion balance, cartographic correction: Heiland, 1112.
- interpretation: Barton, 129.
- method of mapping geologic structure: Barton, 128.
- Tri-State zinc and lead district: George, 909.
- Eolian action. See Wind work.
- Erosion. See also Glacial erosion; Sedimentation.
- Beach markings, Wichita Mountains: Evans, 774.
- Colorado River region: Leiter, 1543.
- Differential erosion: Breeze, 306.
- Florida, Everglade keys: Small, 2415.
- General: Ramser, 2082; Reeds, 2119.
- Limestone caverns, origin: Davis, 646.
- New Jersey, beaches: Anon., 2952.
- Planational terms: Glock, 951.
- Southwest: Bryan, 343.
- Texas, Austin region: Taylor, 2603.
- Wisconsin, southeastern, shore recession: Ball, 103.
- Erratic boulders, Oklahoma, Johns Valley boulders: Gould, 969.
- Eruptive rocks. See Igneous and volcanic rocks.
- Evolution.
- General: Bradley, 273; Fenton, 805; Matthew, 1737; Shimer, 2377; Thom, 2625.
- Geologic history of mankind: Mather, 1717.
- Our face: Gregory, 994.
- Seed plant descent: Wieland, 2864.
- Excursions.
- New England intercollegiate: Foye, 869, 871.
- Experimental investigations.
- Acmite, fusion relations: Bowen, 259.
- Biochemical reduction of sulphate waters: Thiel, 2619.
- Differential compacting: Nevin, 1893.
- Earth deformation: Quirke, 2070.
- Folding: Mitchell, 1812.
- Freezing soils: Taber, 2584.
- Hydrothermal oxidation and leaching: Gruner, 1014.
- Iron and copper sulphides, hydrothermal experiments on: Foreman, 858.
- Laboratory experimentation: Moses, 1858.
- Limestone as a reservoir rock: Howard, 1187.
- Radium in granites: Piggot, 2024.
- Red-bed bleaching: Keller, 1329.
- Salt-dome problem: Van Tuyl, 2715.
- Salt domes: Link, 1573; formation: Escher, 769.
- Soil-freezing experiments: Taber, 2582.
- Structural relations of beds separated by converging strata: Ireland, 1221.
- Structure investigation: Stone, 2528.
- Varve deposition: Fraser, 877.
- Facetation on Great Basin mountains: Keyes, 1355.
- Fairport oil field, Russell County, Kans: Allan, 33.
- Faulting.
- Alaska, Kennecott: Lasky, 1518.
- Arkansas, southwestern: Rankin, 2084.
- Caliche as a fault indicator: Cuyler, 619.
- California, San Gabriel Mountains: Hill, 1146.
- Colorado, Sangre de Cristo Mountains: Johnson, 1274.
- En échelon fault belts: Clark, 492.
- En échelon faulting: Link, 1571.
- Oklahoma, origin: Sherrill, 2367.
- Galiuro Mountains, Ariz.: Davis, 642.
- General: Reid, 2135.
- Idaho, Whitebird: Kirkham, 1444.
- Keystone faults: Crosby, 601.
- Lake Champlain region, normal faulting: Quinn, 2069.
- Massachusetts, Boston Basin, eastern part: Billings, 224.
- Montana, plains adjacent to Highwood Mountains: Reeves, 2128.
- Moyie-Lenja overthrust fault: Kirkham, 1445.
- Nevada, Sheep Range, faulted fans: Longwell, 1598.
- Tonopah district: Nolan, 1922.
- Oklahoma, en échelon faults: Sherrill, 2366.
- north-central: Nevin, 1894.
- Oregon, southern: Fuller, 888.

Faulting—Continued.

- Texas, trans-Pecos, overthrusting:
Baker, 87.
Transverse fractures: Lasky, 1519.
- Feldspar.
Adirondack feldspar: Barth, 125.
New Hampshire, Gilsun area: Megathlin, 1752.
New York, Dekalb Junction: Shaub, 2358.
Pennsylvania, southeastern: Stone, 2534.
Festoon cross lamination: Knight, 1458.
Finlay River district, British Columbia: Dolmage, 691.
Fiords, Greenland, northeast: Backlund, 73.
Fire clay.

- Missouri: McQueen, 1681.
Ontario, Mattagami and Missinaibi Rivers: Montgomery, 1817.
Pennsylvania: Leighton, 1537.
Saskatchewan, southern: Hutt, 1218, 1219.
Fishes. See Pisces.
Fissures. See Faulting.
Florence oil field, Fremont County, Colo.: De Ford, 662.
Florida.

- State geologist, report, 1927–28: Gunter, 1023.

Economic geology.

- Mineral production, 1927: Gunter, 1024.

Historical geology.

- General: Cooke, 551.
Geologic map: Cooke, 552.

Paleontology.

- Ancient man: Gidley, 913–915.
Choctawhatchee formation, gastropods and scaphopods: Mansfield, 1704.
Eocene crab: Rathbun, 2086.
Foraminifera: Cushman, 606.
Choctawhatchee formation: Cushman, 612.
Marianna limestone: Cole, 517.
Holmesina, extinct armadillo: Simpson, 2395.
Land mammals: Simpson, 2386.
Mammalia, Pleistocene: Simpson, 2393.
first interglacial stage: Hay, 1094.
Pinellas County: Simpson, 2392.
Parelephas floridanus: Osborn, 1956.
Pleistocene avifauna: Wetmore, 2828.
Snapper, Marianna limestone: Gregory, 996.
Teleost fish, Oligocene: Gregory, 999.
Termite pellets, Seminole formation: Light, 1566.
Toothed whale: Kellogg, 1335.
Tortoise, Pliocene: Wark, 2760.
Trachemys sculpta: Gilmore, 936.
Vertebrates: Simpson, 2390.

Physical geology.

- Erosion on Everglade keys: Small, 2415.

Fluorspar.

- British Columbia, Rock Candy deposit: Dolmage, 689.
Canada: Wilson, 2895.
Kentucky: Jillson, 1264.
Ontario, Madoc district: Wilson, 2895.

Folding.

- General: Reid, 2135.

Footprints.

- Alabama, coal measures: Aldrich, 27.
Amphibia, Pennsylvanian, Narragansett Basin: Willard, 2872.
Connecticut, North Branford Triassic field: Thorpe, 2649.
Dinosaurs: Swann, 2562.
Texas, Clear Fork Valley: Moodie, 1824.
red beds: Moodie, 1821, 1825.
Webbed-foot markings, Pennsylvanian, Wyoming: Branson, 305.

Foraminifera.

- Actinosiphon, Mexico: Vaughan, 2721.
Alberta, Turner Valley gas field: Goodman, 959.
Bibliography: Cushman, 606.
California, Cretaceous, Coalinga: Cushman, 611.
Humboldt County, Tertiary: Cushman, 613.
Santa Catalina Island: Church, 482.
Santa Ynez Range, Eocene: Woodring, 2915.
Ventura County: Stewart, 2508.
Claiborne on coastal domes: Weinzierl, 2792.
Colorado, McCoy formation: Roth, 2213.
Contributions from Cushman Laboratory: Cushman, 606.
Cyclosiphon and Lepidocyclina: Vaughan, 2719.
Discocyclina, California: Schenk, 2297.
Eocene, Mexico: Vaughan, 2717.
Endothyranella, Carboniferous: Galloway, 897.
Florida, Choctawhatchee formation: Cushman, 612.
Marianna limestone: Cole, 517.
Fusulinid genera: Dunbar, 708.
General: Cushman, 606; Gould, 974; Vaughan, 2724, 2727.
Jamaica, Miocene, Buff Bay: Cushman, 616.
Tertiary: Vaughan, 2723.
Kypophyxa, California: Church, 483.
Mexico, Meson formation: Cole, 515.
Tampico embayment area: White, 2847.
Mississippi, Oligocene: Howe, 1188.
New genera since 1928: Cushman, 615.
Oklahoma, Atoka formation: Galloway, 896.
micropaleontology, Wetumka, We-woka, and Holdenville formations: Warthin, 2767.

Foraminifera—Continued.

- Orbitocyclina, Mexico and Louisiana: Vaughan, 2722.
 Ordovician and Silurian, Oklahoma: Moreman, 1853.
 Pegidia: Cushman, 607.
 Polyplepina, Lepidocyclina, and Orbitocyclina: Vaughan, 2718.
 Pseudorbitoides, Jamaica: Vaughan, 2721.
 South Dakota, Cretaceous: Anderson, 56.
 Tennessee, Ripley formation, Coon Creek: Berry, 218.
 Texas and Louisiana Gulf coast: Kornfeld, 1472.
 Texas, Claiborne: Cole, 513.
 greensands: Cushman, 610, 614.
 Trinidad, Lizard Springs, Cretaceous: Jarvis, 1237.
 Variability: Cushman, 609.
 Wall structure and phylogeny: Gallo-way, 895.
 Wyoming, Niobrara, and Benton formations: Carman, 449.
 Forest fires, geologic importance: Crickmay, 584.
 Formations. See Geologic formations.
 Fortymile district, Alaska; Mertie, 1783.
 Fossil forests. See Petrified forests.
 Fossils. See Paleontology.
 Frost heaving: Taber, 2583, 2584.
 Fusulinid genera: Dunbar, 708.
 Galena, incipient oxidation: Anderson, 51.
 Gallium in zinc minerals: Papish, 1984.
 Garber oil field, Garfield County, Okla.: Gish, 943.
 Gas. See Natural gas.
 Gastropoda. See also Mollusca.
 Alberta, Cretaceous and Tertiary: Russell, 2241.
 Carboniferous Bellerophons: Weller, 2799.
 Euphemus, Pennsylvanian, Illinois: Weller, 2803.
 Florida, Choctawhatchee formation: Mansfield, 1704.
 Galeodea, Oligocene, Washington: Tegland, 2608.
 Greenland, northern, Ordovician: Troedsson, 2676.
 Missouri, Ozark region, Cambrian and Ordovician: Ulrich, 2699.
 Mitrospira, Ordovician: Kirk, 1438.
 Natica as a radicle: Mathews, 1720.
 Trophosyon: Gale, 894.
 Turritellas, tropical America: Woodring, 2911.
 Yvania, Illinois: Weller, 2798.
 Zygopleuroid gastropods: Knight, 1453.

Geochemistry.

- Copper deposits, Michigan: Wells, 2809.
 Hypogene ore deposits and electrode potentials: Butler, 392.

Geochemistry—Continued.

- Iron and copper sulphides, hydrothermal experiments on: Foreman, 858.
 Limestone, precipitation by submarine volcanic action: Kania, 1313.
 Salinity of water of Chesapeake Bay: Wells, 2810.
 Solvent effects of organic acids on oxides of iron: Harrar, 1073.
 Geographic distribution.
 East Indian and equatorial American faunas in Eocene time: Berry, 220.
 Ordovician and Silurian faunas: Foerste, 846.
 Tertiary marine faunas, Pacific coast: Clark, 490.
 Geologic climate. See Paleoclimatology.
 Geologic formations, table. See also Correlation.
 Alabama, western: Barksdale, 113.
 Alberta, foothill region: Evans, 772.
 Hightwood-Jumpingpound anticline: Hume, 1207.
 Jasper Park coal fields: MacKay, 1663.
 Peace River and Grande Prairie districts: Rutherford, 2257.
 southern: Williams, 2879.
 Arkansas, Paleozoic area: Croneis, 591.
 British Columbia, Britannia Beach area: James, 1236.
 Clearwater Lake area: Davis, 637.
 Lardas map area: Walker, 2747.
 Similkameen district, Nickel Plate Mountain: Bostock, 255.
 Colorado, Ouray district: Burbank, 376.
 Vermilion Creek area: Nightingale, 1911.
 Deep wells: Norton, 1926.
 Florida: Cooke, 551.
 Georgia, Coastal Plain: Smith, 2437.
 Illinois, Alexis quadrangle: Wanless, 2756.
 Indiana: Keyes, 1396.
 Kansas, Cowley County: Bass, 143.
 Kentucky, Dawson Springs quadrangle: Sutton, 2559.
 Louisiana, Caddo field, Caddo Parish: Fletcher, 833.
 Homer field, Claiborne Parish: Spooner, 2457.
 Maryland, Baltimore County: Knopf, 1462.
 Michigan, copper region: Butler, 391.
 Montana, plains adjacent to Hightwood Mountains: Reeves, 2128.
 southeastern: Rubey, 2224.
 Yellowstone and Treasure Counties: Hall, 1036.
 Nevada, Spring Mountain Range: Glock, 946.
 New York, capital district (Albany and vicinity): Ruedemann, 2234.
 Nova Scotia, Horton-Windsor district: Bell, 180.

Geologic formations—Continued.

- Ontario, Lower Shebandowan Lake: Watson, 2778.
 Moose River Basin: Dyer, 714.
 Woman, Narrow, and Confederation Lakes: Bruce, 336.
 Ouachita Mountain region, Arkansas and Oklahoma: Miser, 1808.
 Pennsylvania, Lancaster quadrangle: Jonas, 1292.
 Pre-Cambrian rocks: Lawson, 1528.
 Quebec, Chibougamau, McKenzie Township: Retty, 2144.
 Obatogamau River area, Abitibi Territory: Tolman, 2661.
 Tennessee, northeast-middle: Lusk, 1636.
 Utah, San Rafael Swell: Gilluly, 931.
 West Virginia: Tilton, 2658.
 Wyoming, Carbon County: Lovering, 1609.
 northeastern: Rubey, 2224.
 Rock Creek oil field: Dobbin, 683.
 Vermilion Creek area: Nightingale, 1911.
- Geologic history. See also Paleoclimatology; Paleogeography.
- Alaska, Eagle-Circle district: Mertie, 1784; northwestern: Smith, 2434.
 Alberta, Jasper Park: Kindle, 1419.
 Jasper Park coal fields: MacKay, 1663.
 Ancestral Rocky Mountains: Ver Wiebe, 2736.
 Antillean region: Schuchert, 2316.
 Arkansas, De Queen and Caddo Gap quadrangles: Miser, 1808.
 California, Alleghany district: Ferguson, 810.
 Bakersfield region: Fox, 866.
 central coast region: Louderback, 1603.
 Indio Hills: Buwalda, 400.
 Mohave Desert region: Thompson, 2639.
 San Gabriel Mountains: Hill, 1146.
 Yosemite Valley: Matthes, 1731.
 Colorado, Front Range: Lovering, 1610.
 Golden area: Johnson, 1280.
 Sangre de Cristo Mountains: Johnson, 1274.
 San Juan Mountain: Burbank, 376; volcanic history: Larsen, 1515.
 Cuba: Morales, 1851.
 Greenland: Koch, 1466.
 Hawaii, Kau District: Stearns, 2482.
 Idaho, Clark Fork district: Anderson, 48.
 Lava Creek district: Anderson, 46.
 Portneuf quadrangle: Mansfield, 1695.
 Wood River region: Umpleby, 2700.

Geologic history—Continued.

- Illinois, Alexis quadrangle: Wanless, 2756.
 Chicago: Nichols, 1908.
 Macomb region: Savage, 2286.
 Paleozoic: Leighton, 1542.
 Illustration by actual materials: Crook, 597.
 Kentucky, Cretaceous, Trigg, Lyon, and Livingston Counties: Roberts, 2167.
 Dawson Springs quadrangle: Sutton, 2559.
 Louisiana, Caddo field, Caddo Parish: Fletcher, 833.
 Maine, Mount Desert Island: Raisz, 2078.
 Maryland, Baltimore County: Knopf, 1462.
 Mesozoic conglomerates, northern Rocky Mountains: Bevan, 221.
 Mexico, Parral area, Chihuahua: Schmitt, 2303.
 Mid-Continent oil field: Cheney, 479.
 Mississippi Valley, lower, Berry, 212.
 Missouri, Eminence and Cardareva quadrangles: Bridge, 312.
 Potosi and Edgehill quadrangles: Dake, 623.
 Molokini, Hawaiian Islands: Palmer, 1978.
 Montana, New World district: Lovering, 1608.
 Rocky Mountain front: Bevan, 223.
 Nashville dome: Mehl, 1753.
 Nevada, Spring Mountains: Glock, 946.
 New York, capital district (Albany and vicinity): Ruedemann, 2234.
 North Dakota, Edgeley and La Moure quadrangles: Hard, 1064.
 Nova Scotia, gold fields: Malcolm, 1691.
 Horton-Windsor district: Bell, 180.
 Oahu: Palmer, 1979.
 Oklahoma, Anadarko Basin: Frele, 882.
 Crinerville field, Carter County: Powers, 2053.
 Cushing oil and gas field: Weirich, 2793.
 Hewitt field, Carter County: Burton, 386.
 Kay County: Clark, 496.
 Mayes, Delaware, and Ottawa Counties: Ireland, 1222.
 Wichita Mountains: Hoffman, 1174.
 Ontario, nickel field, southwest part: Moore, 1837.
 Pennsylvania, Fairfield and Gettysburg quadrangles: Stose, 2538.
 McCalls Ferry-Quarryville district: Knopf, 1463.
 Permian, Texas-New Mexico: Willis, 2890.
 Sedimentary cycles in Pennsylvanian strata: Savage, 2288.

Geologic history—Continued.

- South Dakota, Black Hills: Connolly, 542; northern, Cenozoic history: Fillman, 819.
- Vermont, Bridgewater and Plymouth Townships: Perry, 2017.
- West Virginia, Pocahontas County: Price, 2060.
- Wisconsin, Gogebic iron range: Aldrich, 24.
- Vilas County, glacial: Thwaites, 2650.
- Wyoming, Fountain formation: Knight, 1457.
- Laramie Mountains: Fowler, 865.
- Yellowstone Canyon, history: Jones, 1297, 1298, 1299.

Geologic maps.

- Alaska, Aniakchak district: Knappen, 1448.
- Chakachamna-Stony region: Capps, 441.
- Chandalar-Sheenjek district: Mertie, 1781.
- Eagle-Circle district: Mertie, 1784.
- Hyder area: Buddington, 363.
- lower Yukon River: Martin, 1709.
- Mount Spurr region: Capps, 440.
- Nizina River, upper: Moffit, 1813.
- northwestern: Smith, 2434.
- Skwentna region: Capps, 439.
- southeastern: Buddington, 362.
- Alberta, Brûlé Mines coal area: MacKay, 1662.
- Edmonton to Ponoka district: Rutherford, 2255.
- Jasper Park coal fields: MacKay, 1663.
- Peace River and Grande Prairie districts: Rutherford, 2257.
- Arizona, Jerome quadrangle, pre-Cambrian greenstone complex: Lausen, 1525.
- Arkansas: Branner, 291.
- De Queen and Caddo Gap quadrangles: Miser, 1808.
- Irma oil field, Nevada County: Teas, 2605.
- Pike County, Murfreesboro area: Miser, 1808.
- southwestern: Dane, 631.
- Arkansas, Oklahoma, and Texas (parts): Ross, 2194.
- British Columbia, Bear River and Stewart map areas: Hanson, 1060.
- Big Bend area: Gunning, 1019.
- Britannia Beach area: James, 1236.
- Gun Creek area, Lillooet district: Dolmage, 690.
- Kootenay district: Walker, 2748.
- Lardeau map area: Walker, 2747.
- Similkameen district, Nickel Plate Mountain: Bostock, 255.

Geologic maps—Continued.

British Columbia—Continued.

- Slocan and Arrow Lakes area, Kootenay district: Cairnes, 411.
- Topley area: Hanson, 1062.
- Vancouver Island, Quatsino-Nimpkish area: Gunning, 1020.
- California: Smith, 2426.
- Allegany district: Ferguson, 810.
- Lassen Peak and vicinity: Williams, 2875.
- Mohave Desert region: Thompson, 2639.
- Mokelumne area: Stearns, 2483.
- Mother Lode belt: Knopf, 1459.
- Panamint silver district: MacMurphy, 1677.
- Potrero Hills and Vacaville region, Solano County: Bailey, 77.
- San Gabriel Mountains: Hill, 1146.
- San Joaquin Valley, southern border: Hoots, 1182.
- Santa Ana region: Post, 2048.
- Valle Grande (parts): Clark, 488.
- Yosemite region: Calkins, 415.
- Canada: Moore, 1831.
- Coast Range, British Columbia, and Cascade Range, Washington: Crickmay, 587.
- Colorado, Front Range: Lovering, 1613.
- Grand County, Granby anticline: Lovering, 1612.
- Meeker quadrangle: Hancock, 1041.
- Ouray district: Burbank, 376.
- Saguache County, Bonanza mining district: Burbank, 375.
- Colorado Plateau: Butler, 393.
- Connecticut, northwestern: Agar, 14.
- Pomperaug Basin: Meinzer, 1756.
- Florida: Cooke, 551, 552.
- Georgia, Coastal Plain (part): Smith, 2437.
- Greenland, Disko region: Krueger, 1480.
- east: Koch, 1465; Orvin, 1941.
- Hawaii, Kau District: Stearns, 2482.
- Idaho, Clark Fork district: Anderson, 48.
- Hailey quadrangle: Umpleby, 2700.
- Lava Creek district: Anderson, 46.
- Mineral Hill district, Blaine County: Umpleby, 2700.
- Orofino region: Anderson, 50.
- Portneuf quadrangle: Mansfield, 1695.
- Railroad Ridge area: Ross, 2199.
- south-central, mining districts: Ross, 2202.
- Illinois, Alexis quadrangle: Wanless, 2756.
- Indiana: Logan, 1588.
- Iowa: Lees, 1532.
- drift sheets: Kay, 1317; Lees, 1532.

Geologic maps—Continued.

- Kansas: Moore, 1846; surface features: Moore, 1847.
 Cloud County: Wing, 2901.
 Cowley County: Bass, 143.
 Mitchell County: Landes, 1489.
 Osborne County: Landes, 1489.
 Republic County: Wing, 2901.
 Kansas and Oklahoma, pre-Mississippian rocks: McClellan, 1643.
 Kauai, Hawaiian Islands: Hinds, 1158.
 Kentucky: Jillson, 1254.
 Barren County, oil and gas map: Ky. G. S., 1343.
 Bath County: Miller, 1796.
 Boyle County: Miller, 1797.
 Bracken County: Dunn, 710.
 Bullitt County: Miller, 1798.
 Calloway County: Roberts, 2168.
 Carroll County: Shideler, 2369.
 Crittenden County: Weller, 2805.
 Edmonson County: Weller, 2797.
 Estill County: Freeman, 881.
 Fleming County: Miller, 1799.
 Hardin County, northern: Sutton, 2560.
 Harrison County: Dunn, 711.
 Jessamine County: McFarlan, 1656.
 Johnson County: Ky. G. S., 1344; Miller, 1800.
 McCracken County: Roberts, 2169.
 McLean County: Robinson, 2173.
 Meade County, oil and gas map: Briggs, 313.
 Montgomery County: McFarlan, 1657.
 Morehead quadrangle: Crabb, 572.
 Nelson County: Shideler, 2370.
 Oldham County: Miller, 1801.
 Powell County: Miller, 1802.
 Pulaski County: Mayfield, 1747.
 Simpson County: Miller, 1803.
 Spencer County: Shideler, 2371.
 Trimble County: Shideler, 2372.
 Lake Superior region, glacial lakes: Leverett, 1552.
 surficial deposits: Leverett, 1552.
 Manitoba, Kissinging Lake area: Wright, 2933.
 Maryland, Baltimore County: Mathews, 1722.
 Massachusetts, Boston Basin, eastern part: Billings, 224.
 Mexico: Muñoz Lumbier, 1875.
 Guerrero: Santillán, 2270.
 Michigan, copper region: Butler, 391.
 Perch Lake quadrangle: Leverett, 1552.
 Minnesota, Kekequabic Lake area: Stark, 2466.
 Mississippi embayment: Dane, 631.
 Missouri, Eminence and Cardareva quadrangles: Bridge, 312.
 Potosi and Edgehill quadrangles: Dake, 623.

Geologic maps—Continued.

- Missouri—Continued.
 Ralls County, Perry area: McQueen, 1680.
 Montana, Carbon, Big Horn, Yellowstone, and Stillwater Counties: Knappen, 1449.
 Forsyth coal field: Dobbin, 684.
 New World district: Lovering, 1608.
 Rainy Creek district: Pardee, 1987.
 Rosebud County: Renick, 2137.
 Yellowstone and Treasure Counties: Hall, 1036.
 Nevada, Spring Mountains: Glock, 946; Nolan, 1921.
 Tonopah district, block diagram: Nolan, 1922.
 New Mexico, southeastern, and Texas, southwestern: Blanchard, 248.
 New York, capital district (Albany and vicinity): Ruedemann, 2234.
 Gloversville, Broadalbin, Fonda, and Amsterdam quadrangles, glacial: Brigham, 314.
 Thirteenth Lake quadrangle: Miller, 1804.
 North Dakota, Edgeley and La Moure quadrangles: Hard, 1064.
 Nova Scotia: Malcolm, 1691.
 Horton-Windsor district: Bell, 180.
 Ohio, coal fields: Bownocker, 266.
 Oklahoma, Ardmore Basin: Tomlinson, 2662.
 Cherokee and Adair Counties: Cram, 575.
 dolomite region: Suffel, 2555.
 Haskell, Latimer, Leflore, and Sequoyah Counties: Stone, 2529.
 Love and Marshall Counties: Bullard, 369.
 Mayes, Delaware, and Ottawa Counties: Ireland, 1222.
 Okfuskee County: Boyle, 271.
 Tulsa County: Cloud, 504.
 Wichita Mountains: Hoffman, 1174.
 Ontario, Beardmore-Nezah gold area: Langford, 1508.
 Boston Creek area: Bell, 178.
 Cartier-Stralak area: Osborne, 1959.
 Favourable Lake-Sandy Lake, Patricia: Hurst, 1214.
 Fort Hope gold area, Patricia: Burwash, 387.
 Lower Shebandowan Lake: Watson, 2778.
 Moose River Basin; District of Cochrane: Dyer, 714.
 Oba area, District of Algoma: Maynard, 1748.
 Sapawe Lake area: Hawley, 1086.
 Savant Lake gold area: Moore, 1833.
 Sudbury Basin area: Burrows, 381.
 Sudbury district, Ridout sheet: Emmons, 756; Woman River sheet: Emmons, 756.

Geologic maps—Continued.

Ontario—Continued.

Thunder Bay district, Dorion and
McTavish Townships: Hawley,
1087.

Woman and Narrow Lakes gold
area: Bruce, 336.

Oregon, McKenzie Valley: Stearns,
2480.

Malheur County (part): Renick,
2138.

Ouachita Mountains, Oklahoma and
Arkansas: Miser, 1809.

Pennsylvania, coal fields: Sisler, 2408.
Fairfield and Gettysburg quadrangles:
Stose, 2538.

McCall's Ferry-Quarryville district:
Knopf, 1463.

New Castle quadrangle: DeWolf, 675.
Pittsburgh quadrangle: Johnson,
1281.

Pleistocene glaciations: Antevs, 59.
Quebec, Beaupré to Saguenay River:

Faessler, 782.
Bousquet-Cadillac gold area, Abitibi
district: Bell, 177.

Chibougamau, McKenzie Township:
Retty, 2144.

Gaspé Berry Mountain area: Jones,
1294.

Gaspé oil-bearing fields: Parks, 1989.
New Quebec (Ungava): Anon., 2948.

Saguenay County, north shore:
Faessler, 783.

St. Lawrence lowland: DeMille, 669.
Saskatchewan-Manitoba, Reindeer Lake
area: Stockwell, 2525.

South Dakota, northwestern: Searight,
2337.

Texas, Luling oil field: Brucks, 541.
northeastern: Wendlandt, 2813.
north-central: Cheney, 478.

Rio Grande embayment: Getzen-
danner, 912.

Stonewall County: Patton, 1996.
Triassic, Chinle formation: Camp, 423.

United States, physiographic divisions:
Fenneman, 794.

Utah, Deep Creek Reservation: Reagan,
2104.

San Rafael Swell: Gilluly, 931.
Vermont, Ferrisburg: Foyles, 872.

Mount Monadnock: Wolff, 2904.
Reading, Cavendish, Baltimore, and
Chester: Richardson, 2150.

West Virginia, Pocahontas County:
Price, 2060.

Wisconsin, Gogebic iron range; Al-
drich, 24.

Wyoming, Carbon County: Dobbin,
682; Bradley Peak area: Lovering,
1609.

oil and gas fields: Richardson, 2151.
Rock Creek oil field: Dobbin, 683.

Geologic surveys. See Surveys.

Geologic time.

Geochronology based on solar radia-
tion: De Geer, 663.

Geomorphology, bearing on time ques-
tion: Matthes, 1733.

Geon: Woodward, 2917.

Isotopes and geologic time: Piggot,
2025.

Subdivision: Chadwick, 464.

Varved glacial clays, geological chro-
nometer: Antevs, 63.

Geology from original sources: Agar, 15.

Geomagnetics applied to exploration:
Stearn, 2473.

Geomorphogeny. See also Physiographic
geology.

Continental genesis: Willis, 2885.

Mid-Atlantic ridge, origin: Washing-
ton, 2769.

Geomorphology. See also Physiographic
geology.

Continental nuclei: Longwell, 1595.

Oscillation theory of diastrophism:
Longwell, 1599.

Permanence of continents and oceans,
paleontological evidence: Ray-
mond, 2096.

Western North America: Penck, 2006.

Geon: Woodward, 2917.

Geophysical exploration: Broderick, 318.

Geophysical prospecting: DeMille, 668;
Heiland, 1109; Henderson, 1125;
Jakosky, 1235.

Absorption of electromagnetic induc-
tion and radiation by rocks: Eve,
778.

Abstracts: Lee, 1530.

Applications of potential methods:
Leonardon, 1549.

Choice of geophysical methods: Rieber,
2157.

Colorado, Caribou, geophysical investi-
gations: Heiland, 1114.

Control of surveys with magnetometer
or torsion balance: Barton, 131.

Dip needle in exploration: Stearn,
2474.

Earth-resistivity measurements in Lake
Superior copper country: Hotch-
kiss, 1186.

Elastic-wave exploration, adaptation
to unconsolidated structures: Rie-
ber, 2156.

Elastic-wave surveys, California: Rie-
ber, 2158.

Electric and electromagnetic prospect-
ing for oil: Jenny, 1248.

Electrical exploration of earth's crust:
Schlumberger, 2301.

Electrical prospecting, applied to foun-
dation problems: Crosby, 600.

at Questa, N. Mex: Sundberg, 2556.
for ore: Lundberg, 1626.

for ore and oil: Lundberg, 1630.

Electrical resistance method: Tagg,
2586.

Geophysical prospecting—Continued.

- Eötvös torsion balance, cartographic correction: Heiland, 1112.
 in Tri-State zinc and lead district: George, 909.
 interpretation: Barton, 129.
 method of mapping geologic structure: Barton, 128.
 Geologic conditions shown by magnetic intensity: Aldrich, 25.
 Geomagnetic exploration with Hotchkiss superdip: Stearn, 2478.
 Geomagnetism applied to exploration: Stearn, 2473.
 Geophysical exploration for ores: Mason, 1714; Rogers, 2176.
 Geophysical surveys, results: McLaughlin, 1667.
 Horizontal field balance: Heiland, 1110.
 In 1929: McLaughlin, 1666.
 Kentucky, Allen County, oil sands: Lee, 1531.
 Magnetic method: Lundberg, 1629.
 Magnetic surveyings: Slichter, 2414.
 Magnetic susceptibility and magnetite content of sands and shales: Collingwood, 525.
 Magnetometer investigation, gold placer deposits near Golden, Colo.: Heiland, 1111.
 Louisiana, Caddo-Shreveport uplift: Barret, 122; Collingwood, 524.
 Texas, Little Fry Pan area: Liddle, 1565.
 Magnetometers: Heiland, 1110.
 Mapping oil structures by the Sundberg method: Zuschlag, 2946.
 Methods of prospecting: Barton, 133.
 Micromagnetometer: Rieber, 2155.
 Petroleum in 1929, review of: Barton, 135.
 Petroleum prospecting: Barton, 132.
 Present status of methods: Lundberg, 1627.
 Radiore process: Guilford, 1017.
 Seismic mapping of geologic structure: Barton, 130.
 Seismic propagation paths: Ewing, 779.
 Seismic prospecting: Heiland, 1113.
 Surface potential method: Weaver, 2783.
 Torsion balance, application: Weinzierl, 2791.
 corrections, graphic method: Heiland, 1108.
 Esperson salt dome, Liberty County, Tex.: Barton, 136.
 Wave-front diagrams in seismic interpretation: Thornburgh, 2648.

Geophysics.

- Deformation and temperature: Nutting, 1928.

Geophysics—Continued.

- Geophysical Laboratory, report: Day, 652, 654.
 Georgia.
Economic geology.
 Kaolin, Coastal Plain: Smith, 2437.
 Natural resources: Harper, 1072.
 Tuscaloosa white clays, origin: Adams, 6.
Historical geology.
 Coastal Plain: Smith, 2437.
 Pine Mountain quartzites: Adams, 4.
 Geotherms: Lane, 1503.
 Germanium: Papish, 1982.
 Gilsonite.
 Utah, Uinta Basin: Bristol, 315.
 Glacial geology. See also Glacial lakes; Quaternary.
 California, Sierra Nevada, multiple glaciation: Matthes, 1730.
 Yosemite Valley: Matthes, 1731.
 Chamberlin's contributions: Alden, 22.
 Classification of glacial deposits: Flint, 835.
 Climatic zones and periods of glaciation: Hobbs, 1165.
 Connecticut: Flint, 836.
 Stiles clay pit section: Brown, 331.
 General: Kay, 1318; Keyes, 1356, 1360, 1386, 1387, 1412; Leverett, 1555; MacClintock, 1646; Whitnall, 2853.
 Glacial and interglacial stages, relative length: Leverett, 1559.
 Glacial epochs, western United States, correlation: Blackwelder, 239.
 Glacial sand and gravel: Whitnall, 2853.
 Glacial stages in North America: Sardeson, 2776.
 Glacial theory: Pegrum, 2004.
 Glaciations of North America: Sardeson, 2281.
 of Northern Hemisphere: Leverett, 1554.
 Ice-sheet stagnation, New England: Flint, 834.
 Idaho, early Pleistocene glaciation: Ross, 2199.
 Illinoian till, Delaware Valley: Leverett, 1556.
 Illinois, Nebraskan till, Fulton County: Wanless, 2757.
 southern, physiographic divisions: MacClintock, 1644; pre-Illinoian: MacClintock, 1645.
 weathered zones of drift sheets: Leighton, 1539.
 Winchester, tills: Bell, 173.
 Interglacial deposit, central New York: Von Engel, 2741.
 Iowa: Kay, 1318; Keyes, 1358.
 Aftonian and Yarmouth interglacial horizons: Kay, 1315.
 post-Illinoian, pre-Iowan loess, significance: Kay, 1316.
 pre-Illinoian Pleistocene: Kay, 1317.

Glacial geology—Continued.

- Iowan glacial epoch: Keyes, 1413.
 Iowan loess and Iowan till: Sardeson, 2775.
 Kansas, drift deposits: Schoewe, 2306.
 eastern, drift border: Schoewe, 2310.
 glacial erratics: Schoewe, 2307.
 ice invasion south of Kansas River: Schoewe, 2308.
 Kentucky, Pleistocene: Leverett, 1551.
 Loveland loess, stratigraphic position: Leverett, 1553.
 Maine, Mount Desert Island: Raisz, 2078.
 Manitoba, ice, recession: Antevs, 62.
 Maps of Pleistocene glaciations: Antevs, 59, 60; Reeds, 2120.
 Massachusetts, Nashua Valley, glacial deposits, origin: Brown, 333.
 Minnesota: Thiel, 2620.
 Multiple glaciation, Yosemite region: Matthes, 1729.
 New York, capital district: Cook, 550.
 central, interglacial deposit: Von Engeln, 2741.
 Mohawk Valley, lower: Brigham, 314.
 upper Hudson, interglacial valley: Stoller, 2527.
 North Dakota, Edgeley and La Moure quadrangles: Hard, 1064.
 Ohio, Clinton County: Austin, 72.
 Peorian interglacial interval, duration: Cable, 409.
 Pleistocene, Northern Hemisphere: Leverett, 1554.
 Pleistocene glaciation, cause: Longfellow, 1591.
 Problems of glacialists: Leverett, 1555.
 Sediments: Leighton, 1540.
 Sierra Nevada, east side: Blackwelder, 230.
 Stagnation and dissipation of last ice sheet: Flint, 834.
 Swinging sea level of ice age: Daly, 628.
 Varve correlations: Antevs, 58.
 Varve deposition: Fraser, 877.
 Varved sediments: Antevs, 61, 63; Reeds, 2118; Sayles, 2290.
 Varves, long-range correlation: Coleman, 519.
 Varves and solar-radiation weather: Reeds, 2117, 2118.
 Weathered zones: Leighton, 1538.
 West Virginia: Tilton, 2657.
 Wisconsin, Vilas County: Thwaites, 2650.
 Wisconsin glaciation, extent: Coleman, 520.
 Wisconsin ice tongue, Delaware Valley, Pa.: Ward, 2758.
 Glacial lakes. See also Beaches; Shore lines; Terraces.
 Lake Superior region: Leverett, 1552.
 Saskatchewan, Regina: Johnston, 1286.
- Glacial period. See Glacial geology.
 Glaciers.
 Alaska, Glacier Bay: Cooper, 565.
 California, Sierra Nevada, Palisade Glacier: Von Engeln, 2743.
 Greenland, northwestern: Hendry, 1127.
 Hoarfrost and glacial growth: Ahlman, 18.
 Glauconite.
 Michigan, Hermansville formation: Bergquist, 185.
 Glenn oil pool, Oklahoma: Wilson, 2896.
 Gold.
 Alabama: Adams, 5.
 Alaska: Smith, 2436.
 Eagle-Circle district: Mertie, 1784.
 Fortymile district: Mertie, 1783.
 Hyder area: Buddington, 363.
 northwestern: Smith, 2434.
 southeastern: Buddington, 362.
 Arizona, Maricopa County, Lost Venture mine: Thompson, 2638.
 British Columbia, Bear River and Stewart map areas: Hanson, 1060.
 Lardeau map area: Gunning, 1018.
 Similkameen district, Nickel Plate Mountain: Bostock, 255.
 California, Alleghany district: Ferguson, 810.
 Mother Lode: Hulin, 1205; Knopf, 1459.
 Colorado, Ouray district: Burbank, 376.
 Idaho, Clark Fork district: Anderson, 48.
 Orofino region: Anderson, 50.
 south-central, mining districts: Ross, 2202.
 Wood River region: Umpleby, 2700.
 Manitoba, southeastern: Wright, 2935.
 Nevada, mining districts: Ferguson, 809.
 Nova Scotia: Malcolm, 1691; Messervy, 1786.
 Gold River area: Davison, 650.
 Ontario, Beardmore-Nezah area: Langford, 1508, 1509.
 Boston-Skead area: Bell, 178.
 Caviar Lake gold area: Burwash, 388.
 Cochrane and Timiskaming districts: Gledhill, 944.
 Favourable Lake-Sandy Lake, Patricia: Hurst, 1214.
 Fort Hope gold area, Patricia: Burwash, 387.
 Groundhog River area: Graham, 981.
 Lake Savant area: Moore, 1833.
 Michipicoten River area: Weeks, 2786.
 north shore of Lake Huron: Moore, 1836.
 northern: Bain, 80.
 Pickle Lake-Crow River area: Hurst, 1212, 1213.

Gold—Continued.**Ontario—Continued.**

Rainy River district: Hawley, 1086.
Thunder Bay district, Huronian
mine: Watson, 2777.

Woman, Narrow, and Confederation
Lakes: Bruce, 336.

Woman River district: Bannerman,
108.

Pressure zones and ore deposition:
Wright, 2939.

Quebec, Bousquet-Cadillac gold area,
Abitibi district: Bell, 177.

northern: Bain, 80.

western: Cooke, 555.

South Dakota, Black Hills: Connolly,
542.

Keystone district: Connolly, 540.

Washington, black sand: Pardee,
1986.

Golden area, Colorado: Johnson, 1280.

Grand Canyon. See Arizona.

Granite, polygonal cracking: Leonard,
1547.

Graphite.

Alabama: Jones, 1307.

Quebec, Louisa: Bain, 79.

Graptolitoidea.

Arctic regions: Ruedemann, 2231.

British Columbia, Chushina forma-
tion: Ruedemann, 2237.

General: Ruedemann, 2230.

Maine, Brownville: Smith, 2418.

Restoration: Ruedemann, 2230.

Grass Creek dome, Hot Springs County,
Wyo.: Harrison, 1075.

Gravel.

General: Thoenen, 2624.

New York: Nevin, 1896.

Virginia, Coastal Plain: Wentworth,
2817.

Greenland.

Dusén Fiord, east Greenland: Koch,
1467.

Eastern Greenland: Koch, 1468.

Igaliko Fiord, land east of: Oedum,
1934.

Western Greenland, Disco region:
Krueger, 1480.

Historical geology.

Cambro-Ordovician, east Greenland:
Poulsen, 2049.

East Greenland: Koch, 1465.

Koch's investigations: Schuchert,
2322.

Marine Permian, east Greenland:
Rosenkrantz, 2191.

Northeast Greenland: Backlund, 73;
Kulling, 1481.

Paleozoic and Mesozoic, east coast:
Rosenkrantz, 2193.

Scoresby Sound: Pedersen, 2002.

Stratigraphy: Koch, 1466.

Upper Devonian, eastern Greenland:
Orvin, 1941.

Greenland—Continued.**Mineralogy.**

Atacamite: Ray, 2094.

Savik meteoric iron, Cape York:
Boeggild, 249.

Paleontology.

Devonian fish remains, eastern Green-
land: Heintz, 1118.

Ordovician, Cephalopoda: Troedsson,
2677.

northern Greenland: Troedsson,
2676.

Petrology.

Beach sands, Holsteinsborg district:
Stewart, 2502.

Mineral composition of sands: Mar-
tens, 1708.

Northern Greenland: Callisen, 417.

Western Greenland, Disko region:
Krueger, 1480.

Physical geology.

Block faulting, southwestern Green-
land: Belknap, 171.

Physiographic geology.

Northeast Greenland: Backlund, 73.

Northwest Greenland: Hendry, 1127.

Sand dunes: Belknap, 170.

Steppe district, southwestern Green-
land: Hobbs, 1167.

Green River epoch, varves and climate:
Bradley, 280.

Greensand. See Glauconite.

Ground water. See Underground water.

Guadalupan reef theory: Keyes, 1368.

Guatemala.**Paleontology.**

Upper Cretaceous: Stephenson, 2491.

Physical geology.

Santa Maria, eruption: Termer, 2612.

Physiographic geology.

Santa Maria: Kaiser, 1312.

Gypsum.

Alberta: Allan, 32.

Peace River: Cameron, 420.

Canada: Cole, 509, 512.

General: Dovalina, 702.

New Brunswick, hydration factors:
Bailey, 75.

New York: Newland, 1904.

Nova Scotia, Horton-Windsor district:
Bell, 180.

hydration factors: Bailey, 75.

Origin: Dovalina, 703.

South Dakota, Black Hills: Connolly,
542.

Hawaiian Islands.

Hawaiian volcanoes and islands:
Hinds, 1154.

Areas described.

Kau District, Hawaii: Stearns, 2482.

Kauai and Niihau: Hinds, 1155, 1158.

Historical geology.

Molokini: Palmer, 1978.

Oahu, geologic history: Palmer, 1979.

Hawaiian Islands—Continued.

Petrology.

- Lavas and soils: Hinds, 1156.
 Pacificite: Barth, 124.
 Pyroclastic rock types: Wentworth, 2818.

Physical geology.

- Fossil lava tube: Palmer, 1977.
 Halemauau: Jaggar, 1231.
 Hualalai earthquakes, 1929: Jaggar, 1234.
 Kilauea: Jaggar, 1231.
 rainfalls with volcanic eruptions: Finch, 820.
 Rock weathering: Palmer, 1980.
 Tilt records, Hawaiian Volcano Observatory: Jaggar, 1233.

Physiographic geology.

- Pearl Harbor, Oahu, origin: Pollock, 2042.

- Wave-cut platforms: Hinds, 1157.

Underground water.

- Ground water: Meinzer, 1759.

Heavy mineral work in Mid-Continent region: Edson, 734.

Helderberg group, West Virginia and Virginia: Swartz, 2566.

Helium, Texas, Amarillo fold: Ruedemann, 2227.

Hendrick oil field, Winkler County, Tex.: Ackers, 1.

Hewitt oil field, Carter County, Okla.: Burton, 386.

Hillsboro sandstone: Carman, 447.

Historical (stratigraphic) geology. For areal see names of States. See also the different systems; Correlation; Geologic formations, tables.

- Correlation: Keyes, 1376; by heavy mineral concentrates: Graham, 984.

Ecologic bases for stratigraphic divisions: Fenton, 798.

Fish otoliths as stratigraphic markers: Campbell, 431.

General: Berry, 195; Keyes, 1396; Somers, 2447; Wooster, 2923.

Permian, taxonomic analysis of term: Keyes, 1408.

Plants, use in identifying formations: Cuyler, 618.

Pre-Cambrian: Keyes, 1388; in drill holes, Great Plains: Keyes, 1352.

Priority in stratigraphic nomenclature: Woodward, 2919.

Residues, insoluble, as a guide in stratigraphic studies: McQueen, 1682.

Sedimentary cycles in Pennsylvania strata: Savage, 2288.

Southern Rocky Mountain region: Tenney, 2610.

Stratigraphic nomenclature: Stanton, 2464.

History. See also Surveys.

Canada, Geological Survey: Collins, 530.

History—Continued.

Chicago, University, department of geology: Penrose, 2009.

Geology and geography at Harvard: Davis, 649.

Mineralogical Society, first ten years: Kraus, 1476.

Mineralogy at Harvard: Palache, 1970.

Petroleum geology: Howell, 1192.

West Virginia University, department of geology: Tilton, 2654.

Holothuroidea, Kansas, Carboniferous: Hanna, 1052.

Homer oil field, Claiborne Parish, La.: Spooner, 2457.

Hornblende, changes at 800° C.: Barnes, 118.

Huronian. See Pre-Cambrian.

Huronian problems: Lawson, 1527.

Hot springs. See Thermal waters.

Ice age. See Glacial geology.

Ice ages (ancient).

Climatic zones and periods of glaciation: Hobbs, 1165.

Massachusetts, Permo-Carboniferous varves at Squantum: Sayles, 2290.

Idaho.

Areas described.

Clark Fork district: Anderson, 48.

Lava Creek district: Anderson, 46.

Orofino region: Anderson, 50.

Portneuf quadrangle: Mansfield, 1695.

Economic geology.

Building stones, Salmon River Valley: Behre, 166.

Metal mining, graphic history: Ross, 2201.

Mining history: Ross, 2200.

Mining industry, report for 1928: Campbell, 432; 1929: Campbell, 433.

Ore deposition sequence, northern Idaho: Anderson, 49.

Ore deposits, south-central Idaho: Ross, 2203.

Orofino region: Anderson, 50.

Porphyry copper deposits: Bell, 179.

South-central Idaho mining districts: Ross, 2202.

Wood River region: Umpleby, 2700.

Historical geology.

Latah formation: Kirkham, 1443.

Phosphoria formation: Branson, 295.

South-central Idaho mining districts: Ross, 2202.

Wood River region: Umpleby, 2700.

Paleontology.

Cercis idahoensis, Miocene: Berry, 214.

Gordonia, Miocene: Berry, 211.

Latah flora: Berry, 204.

Physical geology.

Blackfoot Mountains, structure: Mansfield, 1700.

Contact metamorphism, Pend Oreille district: Gillson, 926.

Faults near Whitebird: Kirkham, 1444.

Idaho—Continued.

Physical geology—Continued.

Moyie-Lenia overthrust fault: Kirkham, 1445.

Physiographic geology.

Craters of the Moon: Stearns, 2479.

Cretaceous and Tertiary planation, northern Idaho: Anderson, 47.

Early Pleistocene glaciation: Ross, 2199.

Erosion surfaces: Kirkham, 1446; Ross, 2204.

Pleistocene, early, glaciation: Ross, 2199.

Igneous and volcanic rocks. See also Intrusions; Magmas; Petrology.

Alaska, Chakachamna-Stony region: Capps, 441.

Chandalar-Sheenjek district: Mertie, 1781.

Eagle-Circle district: Mertie, 1784.

Hyder area: Buddington, 363.

Mount Spurr region: Capps, 440.

northwestern: Smith, 2431.

southeastern: Buddington, 362.

Arkansas, central: Cronise, 590, 592.

De Queen and Caddo Gap quadrangles: Miser, 1808.

Oklahoma, and Texas (parts): Ross, 2194.

Batholiths near Minnesota-Ontario boundary: Grout, 1005.

British Columbia, Bear River and Stewart map areas: Hanson, 1060.

Britannia Beach area: James, 1236.

Clearwater Lake area: Davis, 637.

Owen Lake area: Lang, 1504.

Similkameen district, Nickel Plate Mountain: Bostock, 255.

Vancouver Island, Quatsino-Nimpkish area: Gunning, 1020.

California, Alleghany district: Ferguson, 810.

Marysville Buttes: Williams, 2874.

Mother Lode belt: Knopf, 1459.

quartz basalt eruptions, Lassen Park: Finch, 821.

Yosemite region: Calkins, 415.

Canada, Great Slave Lake, Rapakivi granite: Furze, 892.

two-granite batholiths in pre-Cambrian: Moore, 1838.

Colorado, Alma mining district: Singewald, 2406.

Golden area: Johnson, 1280.

Ouray district: Burbank, 376.

Saguache County, Bonanza mining district: Burbank, 375.

San Juan Mountains volcanic history: Larsen, 1515.

Connecticut, northwestern: Agar, 14.

Greenland: Koch, 1466.

Disko region: Krueger, 1480.

Igaliko Fiord, land east of: Oedum, 1934.

northern: Callisen, 417.

Igneous and volcanic rocks—Continued.

Hawaii: Hinds, 1156.

Kau district: Stearns, 2482.

Kauai and Niihau: Hinds, 1158.

Idaho, Clark Fork district: Anderson, 48.

Lava Creek district: Anderson, 46.

Orofino region: Anderson, 50.

Portneuf quadrangle: Mansfield, 1695.

Wood River region: Umpleby, 2700.

Jamaica, Kingston district: Matley, 1726.

Maine, Mount Kineo: Smith, 2420.

rhyolite: Smith, 2421.

Manitoba, Kissinging Lake area: Wright, 2933.

northern, Kisseynew gneiss: Bruce, 339.

Maryland, Baltimore County: Knopf, 1462.

Mexico, Parral area, Chihuahua: Schmitt, 2303.

Sonora, central: Flores, 838.

Tuxpan-Misantla region: Hisazumi, 1162.

Michigan, copper region: Butler, 391.

Minnesota, eastern Mesabi range: Richarz, 2153.

northeastern, Snowbank stock: Sanders, 2266.

Saganaga granite: Grout, 1004.

Missouri, alnoite pipe near Avon: Singewald, 2404.

Eminence and Cardareva quadrangles: Bridge, 312.

Potosi and Edgehill quadrangles: Dake, 623.

Montana, alkaline stock near Libby: Larsen, 1513.

New World district: Lovering, 1608.

plains adjacent to Highwood Mountains: Reeves, 2128.

Rainy Creek district: Pardee, 1987.

Nevada, Pioche district: Gillson, 925.

Tonopah district: Nolan, 1922.

New York, Adirondack anorthosite: Balk, 100.

Adirondacks, granite phacoliths: Buddington, 364.

Nova Scotia, Cape Spencer Triassic flow: Lund, 1625.

Oklahoma, Wichita Mountains: Hoffman, 1174.

Ontario, Birch Lake batholith: Tolman, 2660.

Cochrane and Timiskaming districts: Gledhill, 944.

French River area: Quirke, 2071.

Minnesota granite: Grout, 1004.

pillow lavas, origin: Moore, 1839.

Sudbury district, Woman River and Ridout areas: Emmons, 756.

Oregon, Malheur County: Renick, 2138.

Igneous and volcanic rocks—Continued.

Pennsylvania, Fairfield and Gettysburg quadrangles: Stose, 2538.

Lancaster quadrangle: Jonas, 1292.

McCalls Ferry-Quarryville district: Knopf, 1463.

Pribilof Island: Washington, 2770.

Quebec, Chibougamau, McKenzie Township: Retty, 2144.

Lake Dufault compound laccolith: Cooke, 557.

Obatogamau River area, Abitibi Territory: Tolman, 2661.

Saskatchewan, southern: McLearn, 1672.

Saskatchewan-Manitoba, Reindeer Lake area: Stockwell, 2525.

Vermont, Mount Monadnock: Wolff, 2904.

Reading, Cavendish, Baltimore, and Chester: Richardson, 2150.

Washington, Cornucopia porphyry dike: Goodspeed, 960.

Wyoming, Laramie Mountains: Fowler, 865.

Igneous intrusions. See Intrusions.

Illinois.

Publications on geology of Illinois: Ill. G. S., 1220.

State Geological Survey, quarter-century: Cheney, 480.

Areas described.

Alexis quadrangle: Wanless, 2756.

Rock River country: Rolfe, 2185.

Economic geology.

Centralia and Martinsville oil fields: Moulton, 1860.

Coal: Bement, 182.
constitution: Thiessen, 2622.

Saline and Gallatin Counties: Henbest, 1119.

Darmstadt anticline, St. Clair County: Bell, 174.

Dupo oil field: Bell, 172.

Limestone resources, Pontiac-Fairbury region: Lamar, 1484.

Petroleum: Croneis, 595; development, 1928; Moulton, 1861.

Sulphate reduction in oil-well waters: Bastin, 148.

Historical geology.

Cambrian, northern Illinois: Bevan, 222.

Coal seams, correlation with European horizons: Noé, 1920.

Chicago, geologic history: Nichols, 1908.

Chicago shale: Taylor, 2597.

Cretaceous and Tertiary, southern Illinois: Lamar, 1487.

Darmstadt anticline, St. Clair County: Bell, 174.

Dupo oil field: Bell, 172.

Macomb region, geologic history: Savage, 2286.

Paleozoic history: Leighton, 1542.

Illinois—Continued.

Historical geology—Continued.

Pennsylvanian, western Illinois: Weller, 2801.

Profiles of weathering of drift: Leighton, 1541.

Renault, anticlinal areas: Moulton, 1862.

Mineralogy.

Copper erratics: Crook, 596.

Tilden meteorites: Crook, 599.

Paleontology.

Carboniferous Bellerophons: Weller, 2799.

Castoroides ohioensis: Baker, 96.

Coal measure plants: Hoskins, 1183.

Euphemus, Pennsylvanian, Greene County: Weller, 2803.

Larviform crinoids, Pennsylvanian: Weller, 2800.

Ophiuroid species, Pennsylvanian: Weller, 2802.

Pleistocene aquatic mollusks: Baker, 95.

Pleistocene Mollusca, Fulton County: Baker, 93.

Port Byron cephalopods: Foerste, 853.

Yvania: Weller, 2798.

Physical geology.

Beach pebble abrasion and transportation: Landon, 1492.

Cap au Grès faulted flexure: Rubey, 2225.

Cusps on lake shore at Evanston: Needham, 1882.

Rock falls north of Savanna: Ekblaw, 739.

Physiographic geology.

Beaver Creek, Boone County, glacial origin: Ekblaw, 738.

Cusps on lake shore at Evanston: Needham, 1882.

Nebraskan till, Fulton County: Wanless, 2757.

Physiographic divisions, southern Illinois: MacClintock, 1644.

Pre-Illinoian drift, southern Illinois: MacClintock, 1645.

Weathered zones: Leighton, 1538, 1539.

Winchester, tills: Bell, 173.

Underground water.

Anna City: Workman, 2926.

Ground waters, idiosyncracies: Gerber, 910.

Underground water supplies, scientific search for: Workman, 2927.

Indiana.

Monroe and Lawrence Counties: Bushnell, 390.

Pisolites, polyhedral: Schrock, 2383.

Report of division of geology: Logan, 1586.

Economic geology.

Ceramic materials: Logan, 1588.

Foundry sands: Logan, 1589.

Indiana—Continued.

Economic geology—Continued.

Francisco oil fields, southwestern Indiana: Moulton, 1860.

Indiana oolitic limestone: Loughlin, 1607.

Petroleum, Siosi field: Logan, 1587.

Tri-County oil field, southwestern Indiana: Esarey, 768.

surface and subsurface structure: Wanenmacher, 2755.

Historical geology.

Borden rocks, southern Indiana: Stockdale, 2523, 2524.

Harrodsburg limestone: Stockdale, 2522.

Siosi field, Vigo County: Logan, 1587.

Trenton limestone, upper surface: Logan, 1585.

West Franklin formation: Shrock, 2382.

Mineralogy.

Fibrous marcasite in calcite, Logansport: Smith, 2422.

Paleontology.

Callixylon, New Albany shale: Arnold, 64.

Cephalopoda: Foerste, 850.

Larviform crinoids, Pennsylvanian: Weller, 2800.

Lichenocrinus: Faber, 780.

Ophiuroid species, Pennsylvanian: Weller, 2802.

Pagecrinus: Kirk, 1434.

Platycrinus, Pennsylvanian, western Indiana: Weller, 2804.

Vertebrates, geologic history: Moodie, 1819.

Physical geology.

Differential erosion: Breeze, 306.

Physiographic geology.

Bloomington quadrangle: Addington, 11.

Klinter, upper Wabash Valley: Shrock, 2381.

Wabash Valley: Malott, 1693.

Wyandotte, Marengo, and Lost River Caverns: Malott, 1692.

Insecta.

Ant (Eoponera), Wilcox clay, Tennessee: Carpenter, 451.

Ants of North America: Carpenter, 452.

Coleoptera, Wilcox clays: Wickham, 2856.

Color in Permian insects: Drevermann, 706.

Kansas, Permian: Carpenter, 453.

Termite pellets, Seminole formation, Florida: Light, 1566.

Interglacial periods. See Glacial geology.

Intrusions. See also Dikes: Igneous and volcanic rocks; Laccoliths; Magmas.

California, Mother Lode belt: Knopf, 1459.

Intrusions—Continued.

Ontario, Maisenville Township: Derby, 671.

Invertebrates (general). See also the classes of invertebrates.

Alberta, Cretaceous: McLearn, 1670.

Jasper Park, Ozarkian: Kindle, 1418.

Arkansas, middle Boone fauna: Girty, 940.

British Columbia, Ashcroft, Jurassic: Crickmay, 585.

California, Devonian: Stauffer, 2471.

Colorado, McCoy formation: Roth, 2213.

Descriptions: Roy, 2221.

Devono-Carboniferous, New York and Pennsylvania: Caster, 461.

Jamaica, Blue Mountains: Trechmann, 2673.

Luta limestone, Permian, Oklahoma and Kansas: Boos, 254.

Michigan, Pennsylvanian faunas: Kelly, 1338.

Museum of Comparative Zoology, report: Raymond, 2097.

Phosphoria formation: Branson, 295.

Recent literature, western Mesozoic: Adkins, 13.

Silica shale, Ohio, Lucas County: Stewart, 2505.

West Virginia, chert beds, Pocahontas County: Price, 2058.

Ione formation, California: Allen, 36.

Iowa.

General: Keyes, 1391.

Economic geology.

Burlington limestone, composition: Knight, 1456.

Coal: Lees, 1533.

Historical geology.

Cretaceous: Keyes, 1410; northwestern Iowa: Tester, 2618.

Coal measures unconformities: Keyes, 1351.

Dakota stage, type section: Tester, 2616.

Davenport: Putnam, 2065.

Decorah formation: Kay, 1323.

Dodge gypsum, age: Keyes, 1402.

General: Thomas, 2633.

Kinderhook group: Loudon, 1605.

Maquoketa series: Keyes, 1399.

Pleistocene geology: Kay, 1319.

pre-Illinoian: Kay, 1317.

Rockford formation: Keyes, 1363.

Silurian, eastern Iowa: Rowser, 2219.

Western Iowa syncline, age: Keyes, 1353.

Mineralogy.

Meteorites in Coe College collection: Dillé, 680.

Paleontology.

Atrypa, Cedar Valley stage: Fenton, 802.

Decorah formation: Kay, 1323.

Iowa—Continued.

Paleontology—Continued.

- Eumorphoceras, Greene County: Wiedey, 2858.
Foraminifera: Thomas, 2631.
Proboscidean remains, western Iowa: Rowe, 2218.

Physical geology.

- Tectonic features: Keyes, 1407.

Physiographic geology.

- Aftonian and Yarmouth interglacial horizons: Kay, 1315.
Des Moines glacial section: Keyes, 1384.
Glacial deposits: Keyes, 1385.
Glacial outlook: Keyes, 1386.
Iowan glacial epoch: Keyes, 1413.
Iowan loess and Iowan till: Sardeson, 2775.
Maquoketa natural bridge: Keyes, 1367.
Pleistocene geology: Kay, 1318; Pleistocene: Kay, 1317.
Pleistocene sections: Kay, 1320.
Post-Illinoian, pre-Iowan loess, significance: Kay, 1316.

- Recessional stages between Altamont and Gary (?) moraines: Smith, 2429.

Underground water.

- Deep wells: Norton, 1926.
Well water recessions: Lees, 1532.

- Irma oil field, Nevada County, Ark.: Teas, 2605.

Iron.

- Colorado, Boulder County, magnetite deposits: Henderson, 1121.
Lake Superior hematite-limonite ores, origin: Gruner, 1014.
Limonite, cellular structure: Boswell, 256.
Lodestone, genesis: Bandy, 106.
Lodestone magnetite, identity and genesis: Gruner, 1012; Newhouse, 1901.
Magnetite crystals, growth: Schwartz, 2328.
Maryland, mineral resources: Mathews, 1723.
Mexico, Cerro Mercado, Durango: Foshag, 861.
Michigan, Marquette range: Derby, 672; Eaton, 729.
Minnesota, Agawa iron formation: Stark, 2466.
Mesabi iron range: Taylor, 2604.
Missouri, Iron Mountain and Pilot Knob: Singewald, 2400.
Newfoundland, Wabana iron ore, origin: Hayes, 1095.
New York, St. Lawrence County, magnetite deposit: Dale, 624.
Ontario, Michipicoten River area: Weeks, 2786.
Rainy River district: Hawley, 1086.
Rush River area, Woman River district: Bannerman, 107.

Iron—Continued.

Ontario—Continued.

- Sudbury district, Woman River and Ridout areas: Emmons, 756.
Pennsylvania, magnetite ore body, Cornwall: Callahan, 416.
Solvent effects of organic acids on oxides of iron: Harrar, 1073.
Wisconsin, Gogebic iron range: Aldrich, 24.
Wyoming, Carbon County: Lovering, 1609.
Iron and copper sulphides, hydrothermal experiments on: Foreman, 858.
Iron and silica, solution, transportation, and precipitation: Moore, 1834.
Iskut River area, British Columbia: Kerr, 1348.
Isocon map for Ordovician waters: Dott, 697.

Isostasy.

- Critical review: Hubbert, 1199.
General: Bowie, 260, 264; Day, 652; Keyes, 1364; Melton, 1767.
Geologic considerations: Chamberlin, 468.
Geotherms: Lane, 1503.
Gravity measurements: Putnam, 2067.
Isostatic compensation: Putnam, 2066.
Mountain structure: Longwell, 1597.
Problems in isostasy: Goranson, 964.
Status and importance: Bowie, 262; Hixon, 1164.

Jamaica.

Historical geology.

- Basal complex, Kingston district: Matley, 1726.
Blue Mountains: Trechmann, 2673.
Manchioneal beds: Trechmann, 2672.

Paleontology.

- Blue Mountains: Trechmann, 2673.
Manchioneal beds: Trechmann, 2672.
Miocene Foraminifera, Buff Bay: Cushman, 616.
Mollusks of Bowden formation: Woodring, 2912.
Pseudorbitoides, Green Island: Vaughan, 2721.
Tertiary Foraminifera: Vaughan, 2723.

Petrology.

- Basal complex: Matley, 1726.
Joint systems, Ouachita Mountains: Melton, 1764.
Jointing, pyramidal, in shales: Sheldon, 2363.
Jurassic. See also Paleontology, Jurassic.
Alaska, Aniakchak district: Knappen, 1448.
northwestern: Smith, 2434.
southeastern: Buddington, 362.
Alberta, foothill region: Evans, 772.
Highwood-Jumpingpound anticline: Hume, 1207.
Mesozoic, Blairmore district: McLearn, 1671.
Arctic regions: Stanton, 2463.

Jurassic—Continued.

- British Columbia, Bear River and Stewart map areas: Hanson, 1060.
- Britannia Beach area: James, 1236.
- Harrison Lake area: Crickmay, 583.
- California, Mother Lode belt: Knopf, 1459.
- Colorado, Front Range: Lovering, 1611.
- northwestern: Heaton, 1101.
- Sangre de Cristo Mountains: Johnson, 1274.
- Correlation: Baker, 83.
- Greenland: Koch, 1466; east: Koch, 1465.
- Idaho, Orofino region: Anderson, 50.
- Portneuf quadrangle: Mansfield, 1695.
- Mexico, Sonora: Keller, 1330; central: Flores, 838.
- Tuxpan-Misanila region: Hisazumi, 1162.
- Montana, Carbon, Big Horn, Yellowstone, and Stillwater Counties: Knappen, 1449.
- Kevin-Sunburst oil field: Collier, 522.
- Rocky Mountain front: Bevan, 223.
- Nevada, Spring Mountains: Glock, 946.
- Oregon: Luper, 1633.
- Rocky Mountain region red beds: Branson, 296; Reeside, 2123.
- Rocky Mountain section, 51st parallel: Warren, 2762.
- South Dakota, Black Hills: Connolly, 542.
- Utah, San Rafael Swell: Gilluly, 931.
- Wyoming, Carbon County: Dobbin, 682.
- Rock Creek oil field: Dobbin, 683.
- sections: Bartram, 142.

Kansas.

- General: Wooster, 2923.
- Meteor, Butler County: Nininger, 1916.
- Areas described.*
- Cloud and Republic Counties: Wing, 2901.
- Cowley County: Bass, 143.
- Mitchell and Osborne Counties: Landes, 1489.
- Economic geology.*
- Coal analyses: U. S. B. M., 2702.
- Coal fields: Moore, 1840.
- Coffeyville oil field, Montgomery County: Foster, 864.
- El Dorado oil field, Butler County: Reeves, 2131.
- Fairport oil field, Russell County: Allan, 33.
- Madison oil field, Greenwood County: Cheyney, 481.
- Nemaha Mountains (Granite Ridge) oil fields: Thomas, 2634, 2635.
- Oil and gas fields, Cowley County: Bass, 143.

Kansas—Continued.

Economic geology—Continued.

- Rainbow Bend oil field, Cowley County: Snow, 2445.
- Shale-gas, eastern Kans: Homer, 474.
- Valley Center oil field: Hall, 1037.
- Virgil oil field, Greenwood County: Beekly, 165.
- Historical geology.*
- Geologic map: Moore, 1846.
- Luta limestone: Boos, 254.
- Marmaton and Cherokee formations, Mid-Continent region: Roth, 2212.
- Mohawkian sediments, correlatives: Kay, 1322.
- Nemaha uplift: Thomas, 2635.
- Pennsylvanian, correlation: Moore, 1845.
- Pre-Mississippian, central Kansas: Edson, 733.
- Richmond fossils in Viola formation: Kidd, 1417.
- Smoky Hill chalk, western Kansas: Russell, 2251.

Mineralogy.

- Coldwater meteorite: Nininger, 1915, 1917.

Paleontology.

- Algae of fossil red salt: Tilden, 2653.
- Benton fauna: Johnson, 1279.
- Carboniferous invertebrates: Girty, 941.
- Celtis nutlets, Phillips County: Brooks, 321; Watt, 2779.
- Comanchean reptiles: Gould, 973.
- Holinella, Carboniferous: Kellett, 1331.
- Holothuroidea, Carboniferous: Hanna, 1052.
- Luta limestone: Boos, 254.
- Permian insects: Carpenter, 453.
- Pleistocene, McPherson County, Nininger, 1918.
- Teleostean, Niobrara: Hussakof, 1215.
- Upper Cretaceous dinosaur faunas: Russell, 2242.
- Urodele, Pliocene: Adams, 10.

Physical geology.

- Circular structural depressions, central Kansas: Rich, 2146.
- Local subsidence, western Kansas: Russell, 2252.
- Subsidence, Wallace County: Elias, 741.

Physiographic geology.

- Drift border, eastern Kansas: Schoewe, 2310.
- Drift deposits: Schoewe, 2306.
- Glacial erratics, Shawnee, Douglas, and Johnson Counties: Schoewe, 2307.
- Ice invasion south of Kansas River: Schoewe, 2308.
- Surface features: Moore, 1847.

Kaolin.

- Georgia, Coastal Plain: Smith, 2437.
- Minerals: Ross, 2197.

Kaolin—Continued.

North Carolina, slate belt: Stuckey, 2554.

Ontario, Mattagami and Missinaibi Rivers: Montgomery, 1817.

Vermont, Bennington kaolins, origin: Burt, 382.

Karsts, Kentucky, western: Dicken, 678.

Kentucky.

General: Jillson, 1253.

Geological Survey, administrative report, 1926-27: Jillson, 1255; 1928-29: Jillson, 1257.

Harrison County, map: Ky. G. S., 1340.

Johnson County, map: Ky. G. S., 1344.

Pendleton County, map: Ky. G. S., 1342.

Areas described.

Dawson Springs quadrangle, southern part: Sutton, 2559.

Economic geology.

Allen County, oil sands: Lee, 1531.

Barren County, oil and gas map: Ky. G. S., 1343.

Clays of Jackson Purchase region: Roberts, 2170.

Coal, western Kentucky: Jillson, 1259.

Fluorites: Jillson, 1264.

Island Creek oil pool, Owsley County: Jillson, 1261.

Johnson County, map of subsurface structural geology: Miller, 1800.

Meade County, oil and gas map: Briggs, 313.

Mineral resources: Burroughs, 379; Jillson, 1253, 1258.

Natural gas sands, eastern Kentucky: Jillson, 1266.

Oil and gas fields, eastern Kentucky coal fields: Fiske, 829.

Historical geology.

Bath County, geologic map: Miller, 1796.

Boyle County, geologic map: Miller, 1797.

Bracken County, geologic map: Dunn, 710.

Bullitt County, geologic map: Miller, 1798.

Calloway County, geologic map: Roberts, 2168.

Carboniferous deformation, western Kentucky: Jillson, 1260.

Carroll County, geologic map: Shideler, 2369.

Chester, western Kentucky: Butts, 396.

Cretaceous, Trigg, Lyon, and Livingston Counties: Roberts, 2167.

Cretaceous and Tertiary, western Kentucky: Lamar, 1487.

Crittenden County, geologic map: Wel-
ler, 2805.

Devonian: Savage, 2285.

Kentucky—Continued.

Historical geology—Continued.

Edmonson County, geologic map: Wel-
ler, 2797.

Estill County, geologic map: Freeman, 881.

Fleming County, geologic map: Miller, 1799.

Geologic map: Jillson, 1254.

Hardin County, northern, geologic
map: Sutton, 2560.

Harrison County, geologic map: Dunn, 711.

Jessamine County, map: McFarlan, 1656.

McCracken County, geologic map: Rob-
erts, 2169.

McLean County, geologic map: Robin-
son, 2173.

Mercer County, map: Ky. G. S., 1341.

Montgomery County, geologic map:
McFarlan, 1657.

Morehead quadrangle, geologic map:
Crabb, 572.

Natural gas sands, eastern Kentucky:
Jillson, 1266.

Nelson County, geologic map: Shideler, 2370.

Oldham County, geologic map: Miller, 1801.

Powell County, geologic map: Miller, 1802.

Pre-Mississippian: McClellan, 1643.

Pulaski County, geologic map: May-
field, 1747.

Simpson County, geologic map: Miller, 1803.

Spencer County, geologic map: Shide-
ler, 2371.

Trimble County: Shideler, 2372.

Tully fauna at the base of black shale
in east-central Kentucky: Savage,
2284.

Utica shale: Beckner, 164.

Paleontology.

Calcified wood in Pleistocene sand:
Brand, 288.

Cryphiocrinus: Kirk, 1435.

Cumberland sandstone fauna: Dunn, 709.

Devonian: Savage, 2285.

Physical geology.

Changes in base-level indicated by
caves: Swinnerton, 2574.

Physiographic geology.

General: Visher, 2738.

Karst landscapes: Dicken, 678.

Mammoth Cave National Park: Lo-
beck, 1579.

Midland Trail: Lobeck, 1580.

Peneplains: Jillson, 1262.

Pleistocene, northern Kentucky: Lev-
erett, 1551.

Kevin-Sunburst oil field, Toole County,
Mont: Howell, 1193.

- Klinter, Indiana, upper Wabash Valley: Shrock, 2381.
- Labrador Peninsula, mature valleys: Cooke, 556.
Mineral composition of sands: Martens, 1708.
- Laccoliths.
California, Marysville Buttes: Williams, 2874.
Quebec, Lake Defaut compound laccolith: Cooke, 557.
- Lake Savant area, Ontario: Moore, 1833.
- Lakes.
Thermal stratification in lakes: Kinde, 1420.
- Lakes, extinct. See also Glacial lakes.
Lake Lahontan, age: Jones, 1295.
Wisconsin: Aldrich, 26.
- Lakes, glacial. See Glacial Lakes.
- Lamellibranchiata. See Pelecypoda.
- Lancaster quadrangle, Pennsylvania: Jonas, 1292.
- Lance Creek oil and gas field, Niobrara County, Wyo: Emery, 754.
- Land surfaces, determining average slope: Wentworth, 2819.
- Landslides.
Type common in clay terraces: Rogers, 2182.
- Latah formation, Idaho: Kirkham, 1443.
- Lava.
Hawaii: Hinds, 1156.
Pillow lavas, origin: Moore, 1839.
- Lava flows.
Anosma or "squeeze-ups": Colton, 537.
Hawaii, Kau district: Stearns, 2482.
- Lava tube, fossil: Palmer, 1977.
- Lava Creek district, Idaho: Anderson, 46.
- Lead.
Alaska, Hyder area: Buddington, 363.
British Columbia, Bear River and Stewart map areas: Hanson, 1060.
Lardeau map area: Gunning, 1018.
Canada: Alcock, 21.
Colorado, Ouray district: Burbank, 376.
Idaho, Clark Fork district: Anderson, 48.
Lava Creek district: Anderson, 46.
south-central, mining districts: Ross, 2202.
Wood River region: Umpleby, 2700.
- Mackenzie, Great Slave Lake, Pine Point: Bell, 176.
- Mexico, northeastern: Fletcher, 831.
- Missouri, Potosi and Edgehill quadrangles: Dake, 623.
- Montana, New World district: Lovering, 1608.
- Nevada, mining districts: Ferguson, 809.
- Nova Scotia: Messervey, 1788.
- Lead—Continued.
Ontario, Algoma: Hurst, 1211;
Ranger Lake and Garden River area: Hurst, 1210.
Cartier-Stralak area: Osborne, 1959.
north shore of Lake Huron: Moore, 1836.
Rush River area, Woman River district: Bannerman, 107.
Sudbury Basin area: Burrows, 381.
Thunder Bay district, Dorion and McTavish townships: Hawley, 1087.
Woman River district: Bannerman, 108.
Quebec, Gaspé, Berry Mountain area: Jones, 1294.
- Lechatellerite, Meteor Crater: Rogers, 2179.
- Lignite. See also Coal.
Alabama, western: Barksdale, 113.
Ontario, Abitibi River, Blacksmith Rapids: Gilmore, 938.
Onakawana, Moose River Basin: Dyer, 720, 721.
- Limestone. See also Building stone.
Alabama, Russellville district: Jones, 1304.
Canada: Goudge, 966.
Illinois, Pontiac-Fairbury region: Lamar, 1484.
Indiana oolitic limestone: Loughlin, 1606, 1607.
Iowa, Burlington limestone, composition: Knight, 1456.
Ontario, Moose River and Albany River Basins: Dyer, 717.
Origin: Field, 815.
Pennsylvanian, Lancaster quadrangle: Jonas, 1292.
Precipitation by submarine volcanic action: Kania, 1313.
- Limonite, cellular structure: Boswell, 256.
- Lithium.
Manitoba, southeastern: Wright, 2937.
South Dakota, Black Hills: Connolly, 542.
- Lithology. See Petrology.
- Lodestone magnetite, identity and genesis: Newhouse, 1901.
- Long Beach oil field, Los Angeles County, Calif.: Roberts, 2164.
- Louisiana.
Economic geology.
Bellevue oil field, Bossier Parish: Teas, 2606.
Caddo oil field, Caddo Parish: Fletcher, 833.
Clays, Monroe-Ruston area: Whittemore, 2855.
Cotton Valley oil field, Webster County: Ross, 2205.
Dixie oil pool, Caddo Parish: Shearer, 2361.

Louisiana—Continued.

Economic geology—Continued.

Homer oil field, Claiborne Parish: Spooner, 2457.

Magnetometer study of Caddo-Shreveport uplift: Barret, 122; Collingwood, 524.

Petroleum potentialities, Gulf coast: Barton, 138.

Pine Island oil field, Caddo Parish: Crider, 589.

Secondary salt-dome materials: Hanna, 1056.

Sulphur dome, Calcasieu Parish: Bauernschmidt, 155.

Urania oil field: Schneider, 2304.

Historical geology.

Catahoula Parish: Shearer, 2360.

Claiborne, correlation: Ellisor, 746.

Cotton Valley oil field, Webster County: Ross, 2205.

Oligocene: Ellisor, 747.

Sabine uplift, Tertiary history: Moody, 1826.

Sulphur dome, Calcasieu Parish: Bauernschmidt, 155.

Paleontology.

Orbitocyclina, Foraminifera: Vaughan, 2722.

Physical geology.

Phases of sedimentation, Gulf coastal region: Steinmayer, 2487.

Sediments, Barataria Bay: Winston, 2902.

Physiographic geology.

Mississippi Delta: Trowbridge, 2680.

Natural mounds: Melton, 1763.

Lower Silurian. See Ordovician.

Luling oil field, Caldwell and Guadalupe Counties, Tex: Brucks, 341.

McCalls Ferry-Quarryville district, Pennsylvania: Knopf, 1463.

McKittrick oil field, Calif.: English, 763.

Mackenzie.

Economic geology.

Lead-zinc deposits, Great Slave Lake: Bell, 176.

Madden dam project, Alhajuela, Canal Zone: Reeves, 2130.

Madison oil field, Greenwood County, Kans: Cheyney, 481.

Magmas and magmatic differentiation. See also Intrusions; Laccoliths; Lavas.

Magmatic cycles: MacCarthy, 1642.

Minnesota, northeastern, Snowbank stock: Sanders, 2266.

Temperature: Larsen, 1514.

Washington, Cornucopia porphyry dike: Goodspeed, 960.

Magnetic surveying: Slichter, 2414.

Magnetite crystals, growth: Schwartz, 2328.

Magnetometer investigation of gold placer deposits near Golden, Colo.: Heiland, 1111.

Maine.

First annual report on the geology: Merrill, 1780.

Maine—Continued.

Economic geology.

General: Merrill, 1780.

Post-Pleistocene clays: Perkins, 2013.

Historical geology.

Mount Desert Island: Brown, 325.

Mineralogy.

General: Merrill, 1780.

Natural history of Maine minerals: Perkins, 2011.

Newry pegmatite, paragenesis: Fraser, 878.

Pegmatite minerals, Poland: Berman, 193.

Topaz crystal, Auburn: Nevel, 1892.

Paleontology.

Graptolites, Brownville: Smith, 2418.

Post-Pleistocene clays: Perkins, 2013.

Petrology.

Igneous rocks, Mount Kineo: Smith, 2420.

Rhyolite: Smith, 2421.

near Mount Katahdin: Smith, 2419.

Physical geology.

Contact metamorphism of Ellsworth schist, Blue Hill: Gillson, 929.

Earthquakes: Perkins, 2012.

Physiographic geology.

Evolution of Maine scenery: Perkins, 2014.

Mount Desert Island: Raisz, 2078.

Mammalia.

Allocyon, John Day beds: Merriam, 1768.

Amblypoda: Simpson, 2391.

American camel, recent, Utah: Romer, 2187.

Artiodactyl families, reclassification: Matthew, 1736.

Artiodactyla, Fish Lake Valley, Nev: Stirton, 2512.

Bear, Tertiary, California: Frick, 884.

Borophagus, Texas: Matthew, 1739.

California, Mint Canyon formation: Maxson, 1746.

Rancho La Brea: Stock, 2519.

Ventura County, Apache Canyon: Gazin, 903.

Camels, Miocene, Nebraska, Brown, 323.

Capromeryx minor, McKittrick beds, California: Furlong, 891.

Carnivora, Mascall beds, Oregon: Stock, 2518.

Castoroides: Cahn, 410.

Castoroides ohioensis, Illinois: Baker, 96; plastotype: Whipple, 2834.

Cetothere, southern California: Kellogg, 1336.

Elephant remains, Santa Rosa Island, Calif: Stock, 2514.

Elephants, Nebraska: Barbour, 109.

Eodelphis cutleri, Belly River formation, Alberta: Simpson, 2394.

Equidae, Pliocene, Texas: Matthew, 1742.

Mammalia—Continued.

- Florida, Pleistocene: Simpson, 2386, 2393; Pinellas County: Simpson, 2392.
- Fort Union fauna, Bear Creek, Mont.: Simpson, 2387.
- Ground sloth, New Mexico: Lull, 1622.
- Heudehog, Nevada: Hall, 1032; Matthew, 1735.
- Hemicyoninae: Frick, 884.
- Holmesina, extinct armadillo, Florida: Simpson, 2395.
- Horse, Idaho: Anon., 2956.
- Hydrachyidae: Wood, 2910.
- Kansas, McPherson County, Pleistocene: Nininger, 1918.
- Leptomeryx, South Dakota: Hernon, 1131.
- Mammoth, woolly: Osborn, 1954.
- Mammoth and Bison, Colorado: Cook, 548.
- Maryland, pelagic mammals: Kellogg, 1334.
- Mastodon skeleton near San Francisco Bay, Calif.: Berry, 228.
- Mastodons, trilophodont, tooth sequence: Frick, 885.
- Mastodons and mammoths, occurrence in Canada; Sternberg, 2496.
- Merycoidodon, variation: Bump, 371.
- Mesozoic: Simpson, 2385.
- Miocene Soricidae: Stirton, 2513.
- Multituberculata, Tertiary: Granger, 987.
- Mystipterus (new bat), Nevada: Hall, 1035.
- New Mexico, Organ Mountains, antelope remains: Stock, 2520.
- New York, Syracuse, Quaternary: Smith, 2416.
- Nothotherium, Dona Ana County, N. Mex.: Lull, 1622, 1624.
- Oklahoma, Frederick: Gould, 970, 975.
- Oregon, eastern: Gidley, 916.
- southeastern, Miocene: Gazin, 905.
- Oreodon with unborn twins: Hernon, 1132; O'Harra, 1938.
- Oreodonts, California, Sespe deposits: Stock, 2517.
- Palaeonictis: Sinclair, 2399.
- Paleocene mammals, Bear Creek, Mont.: Simpson, 2389.
- Parelephas floridanus, Florida: Osborn, 1956.
- Pleistocene, first interglacial stage: Hay, 1094.
- Pleistocene fauna: Hay, 1092.
- Pliocene rhinoceroses, Colorado and Nebraska: Cook, 549.
- Pliomastodon, California: Matthew, 1741.
- Proboscidea: Osborn, 1949.
- Proboscidian remains, western Iowa: Rowe, 2218.
- Prohyracodon: Wood, 2908.

Mammalia—Continued.

- Protoloph-ectoloph angle of Equidae: Stovall, 2545.
- Rhinoceroses, phylogeny: Matthew, 1740.
- Rodents and lagomorphs, Barstow beds, California: Hall, 1034.
- Fish Lake Valley, Nev.: Hall, 1033.
- Species, range and limitations: Matthew, 1738.
- Tapir, California: Stirton, 2511.
- Titanotheres: Osborn, 1942, 1947.
- Toothed whale, Florida: Kellogg, 1335.
- Uintathere, Paleocene, Wyoming: Simpson, 2391.
- Vertebrates associated with human artifacts, Colorado, Oklahoma, and New Mexico: Hay, 1093.
- Wyoming, Big Horn Basin, lower Eocene: Jepsen, 1250.
- Lance formation: Simpson, 2388.
- Park County: Jepsen, 1251.
- Man, fossil.
- Antiquity in America: Cox, 571.
- Florida: Gidley, 913-915.
- Geologic history of mankind: Mather, 1717.
- Influence of glacial age on evolution: Osborn, 1948.
- Malakoff image: Sellards, 2348.
- Neanderthal (Mousterian) man: Farington, 792.
- Nevada, early man: Anon., 2960.
- Occurrence of human remains: Hay, 1090.
- Oklahoma, Frederick: Evans, 777; Gould, 970, 971, 975; Hay, 1090.
- Origin of man: Gregory, 998.
- Pithecanthropus and Eoanthropus, geologic age: Osborn, 1945.
- Skeletal remains: Hrdlička, 1194.
- Tertiary man: Osborn, 1953.
- Manganese.
- Alabandite, occurrence and relations: Hewett, 1140.
- Arizona: Wilson, 2893.
- Minerals, etching tests: Smitheringale, 2442.
- South Dakota, Chamberlain: Anon., 2949.
- Manitoba.
- Areas described.*
- Kississing Lake area: Wright, 2933.
- Reindeer Lake area: Stockwell, 2525.
- Economic geology.*
- Cold Lake copper-zinc deposits: Wright, 2934.
- Gold, copper-nickel, and tin, southeastern Manitoba: Wright, 2935.
- Leached outcrops, northern Manitoba: Gwillam, 1027.
- Limestones: Goudge, 966.
- Mineral resources: DeLury, 666.
- Sheritt-Gordon copper-zinc deposit: Bruce, 337, 338, 340; Wright, 2936; geology: Wright, 2938.

Manitoba—Continued.

Economic geology—Continued.

Tin, lithium, and beryllium deposits: Wright, 2937.

Tin prospects: DeLury, 667.

Tin-bearing pegmatites, eastern Manitoba: Derry, 673.

Historical geology.

Cold Lake area: Wright, 2934.

Cretaceous stratigraphy, Manitoba escarpment: Kirk, 1442.

Ontario-Manitoba boundary: Derry, 674.

Kisseynew gneiss: Bruce, 339.

Ordovician: Foerste, 844.

Paleontology.

Cephalopods, Red River formation: Foerste, 849.

Ordovician: Foerste, 844.

Petrology.

Kisseynew gneiss: Bruce, 339.

Physiographic geology.

Ice recession, northern Manitoba: Antevs, 62.

Maps. See Geologic maps: Relief maps.

Map making. See Cartography.

Marl.

Formation affected by thermal stratification: Kindle, 1420.

Minnesota: Thiel, 2620.

Maryland.

Areas described.

Baltimore County: Mathews, 1722.

Economic geology.

Analyses of coal: Fieldner, 818.

Coal fields: Mathews, 1724.

Frost pegmatite, Howard County: Watson, 2775.

Mineral resources: Mathews, 1723.

Historical geology.

Baltimore County, Coastal Plain deposits: Berry, 203.

crystalline rocks: Knopf, 1462.

Eruptive rocks near Baltimore, sequence: Watson, 2776.

Helderberg group: Swartz, 2565.

McKenzie shale, correlation: Swartz, 2567.

Paleontology.

Foraminifera: Cushman, 606.

Pelagic mammals, Calvert formation: Kellogg, 1334.

Xiphias? drydeni, Calvert Cliffs: Berry, 219.

Petrology.

Baltimore County, crystalline rocks: Knopf, 1462.

Pegmatites, origin: Watson, 2774.

Physical geology.

Appalachian Piedmont deformation determined by river gravel: Campbell, 426.

Metamorphic belt of central Appalachians, structure: Jonas, 1291.

Maryland—Continued.

Physiographic geology.

Baltimore County: Berry, 202; Knopf, 1461.

Massachusetts.

Historical geology.

Boston Basin, eastern part: Billings, 224.

Paleontology.

Amphibian footprints, Pennsylvanian, Narragansett Basin: Willard, 2872.

Physical geology.

Boston Basin: eastern part, structural geology: Billings, 224.

Physiographic geology.

Glacial marine limit: Hörner, 1173.

Nashua Valley, glacial history: Brown, 332.

glacial deposits, origin: Brown, 333.

Permo-Carboniferous varves at Squantum: Sayles, 2290.

Meandering.

Intrenched meanders, interpretation: Cole, 516.

Meeker quadrangle, Colorado, geology and coal resources: Hancock, 1041.

Meerschaum, Green River formation: Bradley, 279.

Meetings. See Associations.

Mercury. See Quicksilver.

Merycoidodon, variation: Bump, 371.

Mesozoic (undifferentiated).

Alaska, Chakachamna-Stony region: Capps, 441.

Metallization from basic magmas: Hulin, 1203.

Metamorphic orogeny: Willis, 2887.

Metamorphism.

Coal as recorder of incipient rock metamorphism: Campbell, 430.

General: Willis, 2887.

Idaho, Pend Oreille district: Gillson, 926.

Igneous metamorphism of coal beds: McFarlane, 1659.

Maine, Ellsworth schist, contact metamorphism: Gillson, 929.

Meteor Crater, Ariz: Fairchild, 785; Skerrett, 2410.

Meteor Crater, Ector County, Tex: Barringer, 123.

Meteorites.

Arizona, prehistoric meteorite: Brady, 285.

Ballinger, Tex.: Nininger, 1913.

Carbo, Mexico: Palache, 1976.

Coe College collection: Dillé, 680.

Coldwater meteorite, Kansas: Nininger, 1915, 1917.

Composition and structure: Merrill, 1779.

Duchesne, Utah: Nininger, 1912.

Estes Park "meteorite," Colorado: Van Valkenburgh, 2716.

Flagstaff, Ariz: Brady, 286.

Meteorites—Continued.

- Germanium and arsenic, presence:
Papish, 1983.
General: Farrington, 790; Lucas, 1619;
Merrill, 1775.
Meteor Crater, Ector County, Tex:
Barringer, 123.
Meteor Crater bolide: Fairchild, 787.
Oxidation: Nininger, 1919.
Paragould meteorite, Arkansas: Wylie,
2941.
Peck's Spring, Midland County, Tex:
Merrill, 1777.
Sandia Mountains, N. Mex: Nininger,
1914.
Savik, Greenland: Boeggild, 249.
Tilden, Ill: Crook, 599.
Winona, Ariz: Heineman, 1116.
Meteorodes, formation: Nininger, 1919.
Mexico.

Geological Survey: Salazar Salinas,
2260.

Geology indispensable for mapping:
Salazar, 2261.

Areas described.

Sonora, central part: Flores, 838.

Economic geology.

Asbestos: Flores, 840; García, 900.

Asphalt, Pueblo: Muñoz Lumbier,
1873.

Bauxite: Dovalina, 700, 701.

Boleo copper deposit, Lower California:
Touwaide, 2664.

Chiapas: Müllerried, 1867.

Clay, Oaxaca: Barrera, 121.

Clay, sand, and gravel, Coahuila:
Cumming, 605.

Clay and sand, Tlaxcala: Santillán,
2271.

Durango-Mazatlan: Santillán, 2269.

Garnets, tourmalines, micas, and
feldspars, Lower California:
Flores, 841.

Geosynclinals, influence on occurrence
of petroleum: Villatoro, 2737.

Guerrero: Santillán, 2270.

Gypsum, Apipilulco, Guerrero: San-
tillán, 2272.

Iron, Cerro Mercado, Durango: Fo-
shag, 861.

Lead-silver manto deposits, northeast-
ern Mexico: Fletcher, 831.

Mineral resources: Flores, 839.

Oil possibilities, Colorado River delta,
Lower California: Stipp, 2510.

Cordoba-Vera Cruz-Tierra Blanca
region: Díaz Lozano, 677.

Pachuca area: Hulin, 1204.

Parral area, Chihuahua: Schmitt,
2303.

Petroleum: Cumming, 604.
accumulation: Zevada Baldenebro,
2944.

exploration, northern Mexico: Mu-
ñoz Lumbier, 1875.

Guadalupe Hidalgo: Vivar, 2739.

Mexico—Continued.**Economic geology—Continued.****Petroleum—Continued.**

Sinaloa (northern): Hisazumi,
1163.

Tamaulipas (southern) and Vera-
cruz (northern): Müllerried, 1863.

Tuxpan-Misantla region: Hisazumi,
1162.

Quicksilver deposits: Schuette, 2326.

Secondary enrichment at Cananea:
Elsing, 752.

Tin: MacCoy, 1650.

Water associated with oil deposits:
Larralde, 1511.

Historical geology.

Chiapas: Müllerried, 1867.

Cordillera eastern: Baker, 88.

Durango-Mazatlan: Santillán, 2269.

Geologic formations in oil region:
Díaz, 676.

"Guayabal" formation: Dorr, 696.

Guerrero: Santillán, 2270.

Isthmus of Tehuantepec: Baker, 89.

Papantla, Vera Cruz: Muñoz Lumbier,
1874.

Pachuca area: Hulin, 1204.

Parral area, Chihuahua: Schmitt,
2303.

Sinaloa (northern): Hisazumi, 1163.

Sonora: Keller, 1330.

Tamaulipas (southern) and Vera-
cruz (northern): Müllerried, 1863.

Tampico region: Kellum, 1337.

Tuxpan-Misantla region: Hisazumi,
1162.

Mineralogy.

Carbo, iron meteorite: Palache, 1976.

Cerro Mercado, Durango: Foshag, 861.

Sphalerite, green, Sonora: Leonard,
1545.

Uraninite, Chihuahua: Wells, 2812.

Paleontology.

Actinosiphon, Foraminifera: Vaughan,
2721.

Decapod crustaceans: Rathbun, 2088.

Discocyclina, Eocene: Vaughan, 2717.

Foraminifera, Meson formation: Cole,
515.

Tampico embayment area: White,
2847.

Hippurites, Cardenas: Müllerried, 1865.

San Luis Potosí: Müllerried, 1865.

Hippurites calamitiformis: Müllerried,
1866.

Hippurites mexicana: Müllerried, 1864.

Jurassic, Sonora: Jaworski, 1238.

Mosasaur, Amphekepubis: Mehl, 1754.

Oligocene brachiopod: Cole, 514.

Orbitocyclina, Foraminifera: Vaughan,
2722.

Rudistids, southern Mexico: Palmer,
1981.

Petrology.

Radioactivity, eruptive rocks, Lower
California: Hirschi, 1161.

Mexico—Continued.

Physical geology.

Cordillera, eastern: Baker, 88.

Earthquakes, Puebla and Oaxaca: Muñoz, 1872.

Structural features: Baker, 91.

Physiographic geology.

Natural regions: Baker, 90.

San Pedro region, Chihuahua: Waitz, 2745.

Structural features: Baker, 91.

Underground water.

Water associated with oil deposits: Larraide, 1511.

Mica.

Canada: Spence, 2449.

New Hampshire, Gilsun area: Megathlin, 1752.

Michigan.

Earth-resistivity measurements in Lake Superior copper country: Hotchkiss, 1186.

Economic geology.

Arsenic in native copper deposits: Broderick, 319.

Copper deposits: Broderick, 320; Butler, 391.

genetic classification: Calumet & Hecla Consolidated Copper Co., 418.

Field work in Huronian and Keeweenawan areas: Pardee, 1985.

Hematite, Marquette range: Eaton, 729.

Lake Superior hematite-ilmonite ores, origin: Gruner, 1014.

Magnetic field work in copper country: Seaman, 2336.

Marquette range ores: Derby, 672.

Oil and gas: Osgood, 1962.

Saginaw oil field: Carlson, 444.

Structural features, Michigan Basin: Newcombe, 1899.

Zoning in copper deposits: Hoffman, 1175.

Historical geology.

Correlating geologic markers: Newcombe, 1898.

Pennsylvanian, Grand Ledge: Kelly, 1338.

Salt-bearing rocks of Michigan: Newcombe, 1900.

Southern Michigan: Lane, 1499.

Traverse group: Pohl, 2036.

Mineralogy.

Glauconite in Hermansville formation: Bergquist, 185.

Seamanite, Iron County: Kraus, 1477.

Paleontology.

Atrypa, Traverse group: Fenton, 802.

Carboniferous fossils in coal pebbles in glacial drift: Bartlett, 126.

Nephriticerina: Foerste, 852.

Pennsylvanian, lower: Kelly, 1338.

Stromatoporoid reef: Fenton, 806.

Michigan—Continued.

Physical geology.

Structural features, Michigan Basin: Newcombe, 1899.

Physiographic geology.

Moraines and shore lines, Lake Superior region: Leverett, 1552.

Micromagnetometer: Rieber, 2155.

Micropaleontology in Mid-Continent region: Radler, 2075.

Mid-Atlantic islets: Anon, 2954.

Mid-Atlantic ridge, origin: Washington, 2769.

Midland Trail, Kentucky: Lobeck, 1580.

Mineral resources (general). See also Economic geology under the names of States.

Alabama, mineral production, 1926: Barksdale, 114; 1927: Barksdale, 115; 1928: Barksdale, 116.

Alaska: Smith, 2432, 2435.

Arkansas: Branner, 290.

British Columbia, northern: Kerr, 1346.

California, mineral production 1928: Symons, 2578; 1929: Symons, 2580.

Canada: Moore, 1831.

Florida, mineral production, 1927: Gunter, 1024.

Idaho, mining report for 1928: Campbell, 432; 1929: Campbell, 433.

Kentucky: Burroughs, 379; Jillson, 1253, 1258.

Manitoba: DeLury, 666.

Mexico: Flores, 839.

Missouri: McQueen, 1679.

Nevada, southern: Carpenter, 454.

New Jersey, mineral industry, 1927: Johnson, 1282; 1928: Johnson, 1283.

New Mexico: Wells, 2806.

Ontario, mineral industry, 1927: Rogers, 2183; 1929: Rogers, 2184. nonmetallic: Dyer, 716.

Porto Rico: Low, 1614.

South Dakota: O'Harra, 1935. mineral production, 1929: Rothrock, 2214.

United States: U. S. Bur. Mines, 2701.

Vermont, mineral resources, 1928: Perkins, 2016.

Wyoming: Dietz, 679.

Mineralogy (general). For areal see names of States. See also Crystallography; Meteorites; Technique.

Acmite, fusion relations: Bowen, 259.

Adirondack feldspars: Barth, 125.

Age of radioactive mineral: Kovarik, 1473.

Amphibole: Parsons, 1993.

Anisotropy in metallic minerals: Sampson, 2262.

Authigenic feldspar, Glens Falls, N Y Singewald, 2401.

Mineralogy (general)—Continued

- Bornite-chalcocite intergrowth: Schwartz, 2327.
- Calcium sulphate, crystal forms: Ramsdell, 2080.
- Camsellite and szaibelyite: Winchell, 2899.
- Capsular silica, Brazos County, Tex: Burt, 383.
- Chromite, crystallization: Ross, 2196; Sampson, 2263; Singewald, 2403.
- Copper erratics: Crook, 596.
- Copper pitch ore: Guild, 1015.
- Covellite-chalcocite relationships; Bateman, 149.
- Crystal structure types: Gruner, 1010.
- Crystal structures of magnesium, zinc, and cadmium ferrites: Posnjak, 2047.
- Crystallographic constants in the triclinic system: Parsons, 1990.
- Crystals, distribution in symmetry classes: Rogers, 2181.
- Desert roses: Whitlock, 2851.
- Dickite: Ross, 2197.
- Dispersion of minerals: Winchell, 2900.
- Dolomite, polysynthetic twinning: Rogers, 2177.
- Domeykite group, X-ray study: Ramsdell, 2081.
- Elements of optical mineralogy: Winchell, 2898.
- Feldspars in Adirondack anorthosite: Ailing, 44.
- Fibrous magnetite after chrysotile: Perry, 2019.
- Fluorescence in ultra-violet rays: Spencer, 2453.
- Gallium in zinc minerals: Papish, 1984.
- Garnet, detrital, natural etching: Bramlette, 287.
- Gems and gem minerals: Foshag, 860.
- Gillespite: Schaller, 2294.
- Gravity separation: Emmons, 760.
- Heavy mineral separation: Brown, 327.
- Hornblende, changes at about 800° C.: Barnes, 118.
- Hydrophilite: Slawson, 2412.
- Identification of minerals by staining methods: Head, 1097.
- Kaolin minerals: Ross, 2197, 2198.
- Kennecott ore minerals, colloidal origin: Lasky, 1520.
- Manganese minerals, etching tests: Smitheringale, 2442.
- Marcasite: Webber, 2784.
- Marcasite minerals: Thomson, 2644.
- Magnetite and ilmenite in Duluth gabbro: Schwartz, 2331.
- Magnetite crystals, growth: Schwartz, 2328.
- Melillite group, composition: Berman, 192.
- Mineral determination by absorption spectra: Wherry, 2831.

Mineralogy (general)—Continued.

- Mineral localities, New England: Merrill, 1776.
- Mineral names: Schaller, 2296.
- Mineral specific gravity chart: Landes, 1491.
- Mineralogical Society of America, first ten years: Kraus, 1476.
- ninth annual meeting, New York City: Van Horn, 2709.
- Minerals of sandstones, Ozark region: Cordry, 566.
- Naming minerals: McKinstry, 1665.
- Newry pegmatite, Maine, paragenesis: Fraser, 878.
- Oriented intergrowths in minerals: Gruner, 1011.
- Orthoclase-plagioclase equilibrium diagram: Doggett, 688.
- Peristerite, iridescent color: Parsons, 1991.
- Plagioclase feldspars, refraction indices: Ailing, 42.
- Potash fields, New Mexico and Texas: Schaller, 2292.
- Projection diagrams, preparation: Wright, 2931.
- Pseudocubic quartz crystals, Artesia, N. Mex: Tarr, 2592.
- Pyrite and wolframite, relations: Guild, 1016.
- Quartz crystals, doubly terminated, in gypsum: Tarr, 2591.
- Refractive index determination, double variation method: Emmons, 758.
- Rhythmic banding: Cook, 547.
- Satin spar: Hills, 1151.
- Serpentine, hydrothermal alteration: Wells, 2807.
- Smaltite: Short, 2379.
- Sodium and potassium chlorides, quantitative optical determination: Slawson, 2413.
- Sodium carbonate hydrates: Pabst, 1963.
- Standardizing names of crystal forms: Wherry, 2833.
- Stibnite and orpiment, Manhattan, Nev: Palache, 1975.
- Sulphides and sulphosalts, structures: Gruner, 1013.
- Tables for determining minerals and rocks: Ellis, 744.
- Temperature of magmas: Larsen, 1514.
- Tourmaline in sediments: Brown, 328.
- Translation gliding in crystals: Buerger, 367; of the NaCl type: Buerger, 368.
- Tungsten minerals: Van Horn, 2712.
- Universal stage, modified: Emmons, 759.
- Violarite and other rare nickel sulphides: Short, 2378.
- X-ray diffraction study of calcite-rhodochrosite series: Krieger, 1478.

Minnesota.

Economic geology.

- Agawa iron formation: Stark, 2466.
 Lake Superior hematite-limonite ores,
 origin: Gruner, 1014.
 Magnetite and ilmenite in Duluth
 gabbro; Schwartz, 2331.
 Mesabi iron range: Taylor, 2604.

Historical geology.

- Batholiths near Minnesota-Ontario
 boundary: Grout, 1005.
 Cuyuna stratigraphy: Zapffe, 2942.
 Dresbach formation: Peterson, 2020.
 Field work of State Survey: Grout,
 1003.
 Iron formation, eastern Mesabi range:
 Richarz, 2153.
 Keweenawan, southern Minnesota:
 Sardeson, 2278.
 Knife Lake region: Gruner, 1007.
 Knife Lake slates, northern Minne-
 sota: Gruner, 1008.
 Ordovician tuffs: Allen, 35.
 Saganaga granite: Grout, 1004.

Mineralogy.

- Amphibole, eastern Mesabi range:
 Richarz, 2152.

Paleontology.

- Actinoceras: Sardeson, 2279.
 Cambrian Trilobita: Ulrich, 2698.
 Cameroceras: Sardeson, 2280.
 Cephalopoda: Foerste, 850.
 Conodonts, Decorah shale: Stauffer,
 2472.
 Lichenocrinus, Black River forma-
 tions: Fenton, 807.
 Ordovician brachiopods, habits: Sar-
 deson, 2274.

Petrology.

- Batholiths near Minnesota-Ontario
 boundary: Grout, 1005.
 Cambrian sandstone, petrography:
 Graham, 986.
 Minerals of upper Cambrian: Graham,
 983.
 Ordovician tuffs: Allen, 35.
 Saganaga granite: Grout, 1004.
 Snowbank Lake composite stock, north-
 eastern Minnesota: Sanders, 2266.

Physiographic geology.

- Marl beds correlation with glacial de-
 posits: Thiel, 2620.
 Moraines and shore lines, Lake Su-
 perior region: Leverett, 1552.

Miocene. See Tertiary.

Miscellaneous. See also Addresses.

- Cataclysmal geology: Berry, 195.
 Educational function of the geologic
 sciences: Wallace, 2753.
 Field conferences: Gould, 967.
 Geologic advance, review: Vogt, 2740.
 Geologic dogmas: Smith, 2441.
 Geology, study and relationships: Wil-
 lard, 2867.

Miscellaneous—Continued.

- Geology from original sources: Agar,
 15.
 Geology and civil engineering: Ries,
 2160.
 Mid-Atlantic Islets: Anon, 2954.
 National Research Council, Division of
 geology and geography, report on:
 Bucher, 360.
 Place of geology among the sciences:
 Merriam, 1770.
 Mississippi.
Historical geology.
 Paleozoic rocks: Morse, 1857.
Paleontology.
 Foraminifera: Cushman, 606.
 Oligocene Foraminifera: Howe, 1188.
 Mississippi Valley, upper, diastrophic his-
 tory: Trowbridge, 2679.
 Mississippian. See Carboniferous.
 Missouri.

- State geologist, report, 1927-28: Bueh-
 ler, 366.

Areas described.

- Eminence and Cardareva quadrangles:
 Bridge, 312.
 Potosi and Edgehill quadrangles:
 Dake, 623.

Economic geology.

- Alnoite pipe, Avon: Ball, 105.
 Barite: Weigel, 2790.
 Clay and coal, Perry area: McQueen,
 1680.
 Diaspore and flint fire clays: McQueen,
 1681.
 Iron Mountain iron ores, origin: Singe-
 wald, 2400.
 Mineral production: McQueen, 1679.
 Mineralization, Silvermine: Singewald,
 2402.
 Ore deposition near Avon: Singewald,
 2404.
 Sulphide ores, origin: Emmons, 761.

Historical geology.

- Bethany limestone: Keyes, 1392.
 Cretaceous and Tertiary, southwest-
 ern Missouri: Lamar, 1487.
 Kinderhookian: Branson, 298.
 Ozark region: McQueen, 1682.
 Pennsylvanian outlier, St. Louis:
 Knight, 1451.
 Residues, insoluble, as a guide in strat-
 igraphic studies: McQueen, 1682.
 Silurian, southeastern Missouri: Ball,
 102.

Mineralogy.

- Silver mine mineralization: Singewald,
 2402.

Paleontology.

- Blastoids, Chouteau limestone: Peck,
 2000.
 Brachiopoda, Silurian, southeastern
 Missouri: Ball, 101.
 Cambrian and Ordovician, Ozark re-
 gion: Ulrich, 2699.

Missouri—Continued.

Paleontology—Continued.

Carboniferous Bellerophons: Weller, 2799.

Gastropods, Pennsylvanian outlier, St. Louis: Knight, 1455.

Pelecypoda, Louisiana limestone: Williams, 2877.

Productidae of basal Mississippian: Branson, 301.

Silurian, southeastern Missouri: Ball, 102.

Petrology.

Alnoite pipe near Avon: Singewald, 2404.

Minerals of sandstones, Ozark region: Cordry, 566.

Physical geology.

Initial dips peripheral to resurrected hills: Bridge, 311.

Secondary oolite: Swartzlow, 2571.

Molding sand. See also Sand.

Alabama: Adams, 3.

Canada, eastern: Freeman, 879.

Mollusca. See also Cephalopoda; Gastropoda; Invertebrates (general); Pelecypoda.

Alberta, nonmarine: Dyer, 715.

Smoky River and Dunvegan formations: Warren, 2764.

Arizona, Pleistocene Mollusca, Hopi Buttes: Reagan, 2102.

Arkansas and Kansas, Carboniferous: Girty, 941.

British Columbia, Harrison Lake area: Crickmay, 583.

Color patterns: Foerste, 851.

Connecticut, New Milford marl deposits: Cooper, 561.

Fernando group, California: Waterfall, 2772.

Illinois, Pleistocene aquatic mollusks: Baker, 95.

Influence of glacial period on molluscan fauna: Baker, 97.

Jamaica, Bowden formation: Woodring, 2912.

Mexico, Sonora, Jurassic: Jaworski, 1238.

Nova Scotia, Windsor area, Mississippian: Bell, 181.

Phosphoria formation: Branson, 295. Pleistocene: Shimek, 2376.

Illinois, Fulton County: Baker, 93.

Pleistocene and Recent: Baker, 98.

Texas, Reynosa formation: Marshall, 1706.

Washington and Oregon, fresh-water Mollusca: Henderson, 1123.

Molluscoidea. See Brachiopoda; Bryozoa. Molybdenum.

Alaska, Shakan: Buddington, 365.

British Columbia, Bear River and Stewart map areas: Hanson, 1060.

Colorado, Climax district: Butler, 394.

Molybdenum—Continued.

Electrical prospecting at Questa, N. Mex.: Sundberg, 2556.

Montana.

Areas described.

Carbon, Big Horn, Yellowstone, and Stillwater Counties (parts): Knappen, 1449.

Kevin-Sunburst oil field: Collier, 522.

Red Lodge, cooperative research: Thom, 2630.

Economic geology.

Alabandite, occurrence and relations: Hewett, 1140.

Elk Basin oil and gas field, Carbon County: Bartram, 140.

Forsyth coal field: Dobbin, 684.

Kevin-Sunburst oil field, Toole County: Howell, 1193; Collier, 522.

Metasomatic replacement deposits, Butte: Ray, 2092.

New World district, Park County: Lovering, 1608.

Oil fields, Sweetgrass arch: Romine, 2189.

Rainy Creek district, near Libby: Pardee, 1987.

York-Confederate Gulch area: Anon., 2951.

Historical geology.

Forsyth coal field: Dobbin, 684.

New World district, Park County: Lovering, 1608.

Phosphoria formation: Branson, 295.

Plains adjacent to Highwood Mountains: Reeves, 2128.

Rainy Creek district, near Libby: Pardee, 1987.

Rocky Mountain front: Bevan, 223.

Rosebud County, central and southern: Renick, 2137.

Sweetgrass arch: Romine, 2189.

Yellowstone and Treasure counties: Hall, 1036.

Mineralogy.

Hübnerite, Kendall: Fisher, 824.

Paleontology.

Collecting dinosaurs: Gilmore, 934.

Dinosauria, Two Medicine formation: Gilmore, 937.

Fort Union fauna, Bear Creek: Simpson, 2387.

Multituberculata, Tertiary: Granger, 987.

Paleocene mammals, Bear Creek: Simpson, 2389.

Trachelocrinus, Upper Cambrian: Ulrich, 2695.

Upper Cretaceous dinosaur faunas: Russell, 2242.

Petrology.

Alkaline stock near Libby: Larsen, 1513.

Cretaceous sedimentary rocks, Black Hills region, lithology: Rubey, 2224.

Montana—Continued.

Physical geology.

- Dreikanter: Delo, 665.
 Moyle-Lenia overthrust fault: Kirkham, 1445.
 Rocky Mountain front: Bevan, 223.
 Solution-faceted limestone pebbles: Bryan, 347.
 Sweetgrass arch: Collier, 522.
 Trust faulting, plains adjacent to Highwood Mountains: Reeves, 2128.

Underground water.

- Rosebud County, central and southern: Renick, 2137.
 Yellowstone and Treasure Counties: Hall, 1036.
 Moon: Farrington, 791.
 Surface: Barrell, 120.
 Tectonic features: Matoušek, 1727, 1728.
 Moose River Basin, Ontario: Dyer, 714.
 Moraines.
 Lake Superior region: Leverett, 1552.
 Morrison oil field, Pawnee County, Okla.: Carpenter, 450.

Mounds.

- Columbia River Plateau, origin: Waters, 2773.
 Natural mounds: Melton, 1761.
 Texas, Arkansas, and Louisiana: Melton, 1763.

Mount Desert Island, Maine, scenery: Raisz, 2078.

Mountains. See Orogeny.

Mowry shale, origin: Rubey, 2223.

Mud-crack casts, behavior during compaction: Bradley, 283.

Mud volcanoes.

- Trinidad, off south coast: Weeks, 2788.

Museums.

- Harvard College: Sayles, 2291.
 Report on fossil echinoderms, Museum of Comparative Zoology: Jackson, 1228.
 Report on invertebrate paleontology, Museum of Comparative Zoology: Raymond, 2097.
 Report on vertebrate paleontology, Museum of Comparative Zoology: Stetson, 2499, 2500.

Natural bridges.

- Iowa, Maquoketa: Keyes, 1367.
 Virginia, Natural Bridge: Reeds, 2116; origin: Malott, 1694.

Natural gas.

- Alabama: Semmes, 2351.
 Alberta: Madgwick, 1690.
 southern: Williams, 2879.
 Turner Valley gas field, structure: Goodman, 959.
 Arkansas: Branner, 289.
 Paleozoic area, oil and gas possibilities: Croneis, 591.

Natural gas—Continued.

- California: Wernekke, 2821.
 Buttonwillow field: Musser, 1881.
 Colorado, Vermilion Creek area: Nightingale, 1911.
 Helium-rich natural gas, origin: Wells, 2811.
 Kansas, Cowley County: Bass, 143.
 eastern: Homer, 474.
 Kentucky, eastern, correlation chart: Jillson, 1266.
 Michigan: Osgood, 1962.
 New York: Torrey, 2663.
 Oklahoma, Cushing oil and gas field: Weirich, 2793.
 Haskell, Latimer, Leflore, and Sequoyah Counties: Stone, 2529.
 Love and Marshall Counties: Bulard, 369.
 Ontario: Harkness, 1066, 1067.
 oil and gas fields: Harkness, 1065.
 Pennsylvania, New Castle quadrangle: DeWolf, 675.
 Pittsburgh quadrangle: Johnson, 1281.
 Scenery Hill field, Washington County: Robinson, 2171.
 Quebec: Parks, 1989.
 Saskatchewan: Hume, 1209.
 Texas, Glen Rose formation: Gordon, 965.
 Laredo district: McFarland, 1658.
 Saxet field, Nueces County: Price, 2062.
 Wyoming, Lance Creek field, Niobrara County: Emery, 754.
 Lost Soldier district: Irwin, 1223.
 map of oil and gas fields: Richardson, 2151.
 Vermilion Creek area: Nightingale, 1911.

Nebraska.

Historical geology.

- Cretaceous: Hewitt, 1142.
 Dakota stage, type section: Tester, 2616.

Marmaton and Cherokee formations, Mid-Continent region: Roth, 2212.

Paleontology.

- Camels, Miocene: Brown, 323.
 Elephants: Barbour, 109, 110.
 Pliocene rhinoceroses: Cook, 549.
 Titanotheres: Osborn, 1942.

Physiographic geology.

- Drainage alignment in western Great Plains: Russell, 2250.

Underground water.

- Ground water, Platte River Valley: Lugn, 1621.
 Nemaha Mountains (Granite Ridge) oil fields, Kans.: Thomas, 2634.

Nevada.

Economic geology.

- Alabandite, occurrence and relations: Hewitt, 1140.

Nevada—Continued.

Economic geology—Continued.

Colorado Plateau, ore deposits: Butler, 393.

Mineral resources, southern Nevada: Carpenter, 454.

Mining districts: Ferguson, 809.

Pioche district: Westgate, 2824.

Quicksilver deposits: Schuette, 2326.

Tonopah district: Nolan, 1922.

Historical geology.

Liassic fauna: Muller, 1868.

Mesozoic: Muller, 1869.

Pilot Mountains, Mineral County, faunal horizons: Muller, 1870.

Spring Mountains: Glock, 946.

stratigraphy and structure: Nolan, 1921.

Tonopah district: Nolan, 1922.

Triassic, Hawthorne and Tonopah quadrangles: Muller, 1871.

White Mountain quadrangle: Anderson, 55.

Mineralogy.

Stibnite and orpiment, Manhattan: Palache, 1975.

Vashegyite and barrandite: Clinton, 500.

Paleontology.

Artiodactyla, Fish Lake Valley: Stirton, 2512.

Goose, Pliocene: Burt, 385.

Hedgehog, Fish Lake Valley: Hall, 1032; Matthew, 1735.

Mitrospira, Ordovician: Kirk, 1438.

Mystipterus (new bat): Hall, 1035.

Rodents and lagomorphs, Fish Lake Valley: Hall, 1033.

Petrology.

Pioche district: Gillson, 925.

Sandstone, State prison, origin: Thompson, 2643.

Physical geology.

Faulted fans, Sheep Range: Longwell, 1598.

Gypsum Cave, Las Vegas: Stock, 2521. Subsequent faulting, Great Basin: Hulin, 1206.

Physiographic geology.

Lake Lahontan, age: Jones, 1295.

Sheep Range: Longwell, 1598.

New Brunswick.

Economic geology.

Gypsum deposits, hydration factors in: Bailey, 75.

Mineral occurrences: Alcock, 20.

Nickel-copper deposit: Low, 1615.

Potash salts: Cole, 511.

Newfoundland.

Economic geology.

General: Lundberg, 1628.

Geophysical surveying at Gull Lake: Dougherty, 698.

Wabana iron ore, origin: Hayes, 1095.

Historical geology.

General: Lundberg, 1628.

New Hampshire.

Economic geology.

Pegmatite dikes, Gilsum area: Megathlin, 1752.

Historical geology.

Gilsum area: Megathlin, 1752.

New Jersey.

Economic geology.

Mineral industry 1927: Johnson, 1282; 1928: Johnson, 1283.

Zinc deposits, Franklin and Sterling Hill, origin: Tarr, 2593.

Zinc ores, Franklin, origin: Palache, 1968, 1969.

Historical geology.

Cape May formation: Richards, 2147. Delaware Water Gap region: Willard, 2868.

Mineralogy.

Beryllium, Franklin: Palache, 1971.

Calcites, diabase region, crystallography: Whitlock, 2850.

Central New Jersey: Hawkins, 1080.

Franklin minerals: Bauer, 153; paragenetic classification: Palache, 1968.

Greenockite, West Paterson: Whitlock, 2849.

Loseyite, Franklin: Bauer, 151.

Mooreite and fluoborite, Sterling Hill: Bauer, 152.

Zinc deposits, Franklin and Sterling Hill: Tarr, 2593.

Paleontology.

Eocene age of "Cretaceous" birds: Wetmore, 2829.

Upper Cretaceous dinosaur faunas: Russell, 2242.

Physical geology.

Erosion of beaches: Anon., 2952.

Intrusive dikes in basalt: Hawkins, 1081.

Underground water.

Ground-water supplies, Asbury Park: Thompson, 2641.

New Mexico.

General: Davis, 640.

Geologic literature: Wootton, 2924.

Red River dam sites: Powell, 2050.

Rio Grande Canyon: Bryan, 350.

State Line dam site: Bryan, 349.

Economic geology.

Artesia oil field, Eddy County: Davis, 636.

Colorado Plateau, ore deposits: Butler, 393.

Electrical prospecting for molybdenite at Questa: Sundberg, 2556.

Ground Hog mine, Central district, Grant County: Lasky, 1521.

Mineral deposits: Ellis, 745.

Mineral resources: Wells, 2806.

Potash: Mansfield, 1697, 1699.

Sandstone copper deposit, Guadalupe County: Stauber, 2469.

New Mexico—Continued.

Economic geology—Continued.

Shiprock district, Navajo Indian Reservation: Nowels, 1927.

Historical geology.

Capitan limestone: Lloyd, 1577.

Correlation, Texas and New Mexico
Permian: Willis, 2889.

Delaware, Yeso, and Manzano, use of
terms: Keyes, 1375.

Ground Hog mine, Central district,
Grant County: Lasky, 1521.

Guadalupe Mountains: Keyes, 1368.

Permian: Baker, 85; Willis, 2890.
southeastern New Mexico: Blanchard, 248; Cartwright, 457; Crandall, 576.

Permian correlation, northwestern New
Mexico: Baker, 82.

Mineralogy.

Potash fields, mineralogy: Schaller,
2292, 2293.

Pseudo-cubic quartz crystals, Artesia:
Tarr, 2592.

Quartz crystals, doubly terminated, in
gypsum, Acme: Tarr, 2591.

Samaraskite, Petaca: Hess, 1137.

Sandia Mountain meteorite: Nininger,
1914.

Tables for determining minerals and
rocks: Ellis, 744.

Paleontology.

Allognathosuchus mooki, Puerto forma-
tion: Simpson, 2396.

Bishops Cap cavern: Bryan, 353.

Ceratopsia, upper Cretaceous: Wiman,
2897.

Crocodylian, Torrejon beds: Mook,
1828.

Ground sloth, Nothrotherium, Dona
Ana County: Lull, 1622, 1624.

Ground sloth coprolite, Dona Ana
County: Eames, 723.

Insectivora, Paleocene: Reynolds, 2145.

Jurassic fishes: Koerner, 1471.

Mastodons: Frick, 885.

Multituberculata, Tertiary: Granger,
987.

Quaternary antelope remains, Organ
Mountains: Stock, 2520.

San Juan Basin: Gilmore, 935.

Upper Cretaceous dinosaur faunas:
Russell, 2242.

Vertebrates associated with human ar-
tifacts: Hay, 1093.

Physical geology.

Erosion, Zuni region: Bryan, 343.

Oolites, Carlsbad Caverns: Hess, 1136.

Solution-faceted limestone pebbles:
Bryan, 347.

Temperature gradients, Permian basin:
Lang, 1506.

Physiographic geology.

Folsom area: Brown, 324.

General: Davis, 640.

Physiographic provinces: Keyes, 1370.

New Mexico—Continued.

Underground water.

Hot Springs artesian basin: Powell,
2051.

Lea County, northern: Nye, 1931.

Mimbres Valley: White, 2848.

Roswell artesian basin: Fiedler, 814.

New York.

Areas described.

Capital district (Albany and vicinity):
Ruedemann, 2234.

Economic geology.

Bradford oil field: Newby, 1897.

Emery deposits, Peekskill gneiss:
Gillson, 930.

Feldspar, DeKalb Junction: Shaub,
2358.

Gas fields: Torrey, 2663.

Gypsum: Newland, 1904.

Magnetite deposit, St. Lawrence
County: Dale, 624.

Oil fields: Hartnagel, 1076.

Sand and gravel resources: Nevin,
1896.

Siderite and limonite, Hudson, age and
origin: Ruedemann, 2235.

Historical geology.

Adirondack anorthosite: Balk, 100.

Adirondack gabbros, age: Alling, 43.

Erosion intervals on Manlius-Helder-
berg series: Smith, 2417.

Granite phacoliths, Adirondacks: Bud-
dington, 364.

Hamilton group: Cooper, 562.

Oscillatory movement in Chazy and
Levis troughs of the Appalachian
geosyncline: Ruedemann, 2232.

Portage sedimentation: Sheldon, 2362.

Pre-Cambrian names: Chadwick, 466.

Shawangunk conglomerate: Swartz,
2563.

Silurian: Chadwick, 465.

Mineralogy.

Adirondack feldspars: Barth, 125.

Authigenic feldspar, Glens Falls: Sin-
gewald, 2401.

Feldspars in Adirondack anorthosite:
Alling, 44.

Kaolinite from Brooklyn subway tun-
nel: Kerr, 1350.

Paleontology.

Bertie waterline: Monahan, 1815.

Callixylon, Devonian: Arnold, 65; bark
structure: Arnold, 66.

Cephalopoda: Foerste, 850.

Cocosteus, Portage shales: Bryant,
355.

Devono - Carboniferous, southwestern
New York: Caster, 461.

Fishes, Hamilton shales: Bryant, 354.

Gilboa fossil trees: Goldring, 955, 957.

Handbook of paleontology: Goldring,
956.

Mollusks from Hudson River tunnel:
Richards, 2148.

New York—Continued.

Paleontology—Continued.

Oldhamia : Ruedemann, 2229.

Quaternary mammal remains, Syracuse : Smith, 2416.

Petrology.

Adirondack anorthosite : Balk, 99, 100 ; Miller, 1804.

Bedford augen gneiss, origin : Barbour, 111.

Granite phacoliths, Adirondacks : Budington, 364.

Physical geology.

Glacial pebbles, faceted and striated, type form : Von Engel, 2742.

Lake Champlain region, normal faulting : Quinn, 2069.

Pyramidal jointing in shales, Crowbar Point, Cayuga Lake : Sheldon, 2363.

Sea level studies : Johnson, 1270.

Physiographic geology.

Boulders in Hudson River formation : Warthin, 2766.

Capital district, glacial geology : Cook, 550.

Drumlins : Fairchild, 786.

south of Lake Ontario : Slater, 2411.

Erosion surfaces, south-central New York : Fridley, 886.

Helderberg region : Cleland, 497.

Hudson River, lower, origin : Sharp, 2357.

Interglacial deposit, central New York : Von Engel, 2741.

Interglacial valley, upper Hudson : Stoller, 2527.

Intrenched meanders, interpretation : Cole, 516.

Mohawk valley, glacial fill : Stoller, 2526.

lower : Brigham, 314.

Niagara gorge : Taylor, 2600.

Pre-Newark peneplain : Sharp, 2357.

New World district, Park County, Mont. : Lovering, 1608.

Niagara Falls survey : Boyd, 269.

Niagara gorge : Taylor, 2600.

Nicaragua : Marshall, 1707.

Nickel.

Connecticut, Hodges prospect, Torrington : Agar, 16.

Manitoba, southeastern : Wright, 2935.

New Brunswick : Low, 1615.

Ontario, Frood deposit, origin : Halferdahl, 1031.

Lower Shebandowan Lake : Watson, 2778.

nickel field, southwest : Moore, 1837.

north shore of Lake Huron : Moore, 1836.

Sudbury : Coleman, 518 ; Collins, 531.

Violarite and other rare nickel sulphides : Short, 2378.

Nickel Plate Mountain, British Columbia : Bostock, 255.

Nigger Creek oil field, Limestone County, Tex. : Pepperberg, 2010.

Nomenclature.

Coal research : Thiessen, 2621.

Conglomerite : Willard, 2871.

Correction of generic and specific names : Roth, 2208.

Deuteric, use of the term : Gillson, 927 ; Osborne, 1957 ; Sederholm, 2339.

Eutectic, use of term : Fenner, 796.

General : Keyes, 1396.

Geologic time subdivisions : Chadwick, 464 ; Woodward, 2922.

Geon : Woodward, 2917.

Mineral names : Schaller, 2296.

Naming minerals : McKinstry, 1665.

Ordovician : Keyes, 1390.

Ore, definition : Fermor, 812.

Outcrop vs. exposure : Woodward, 2921.

Permian, taxonomic analysis of term : Keyes, 1408.

Planational terms : Glock, 951.

Priority in stratigraphic nomenclature : Woodward, 2919.

River system : Campbell, 427.

Roundstone : Fernald, 813.

Stratigraphic nomenclature : Stanton, 2464.

Tophomoeotype : Howell, 1191.

Types of subsurface structural contouring : Rettger, 2143.

North Carolina.

Economic geology.

Copper : Bryson, 356.

Report of division of mineral resources : Bryson, 357, 358.

Mineralogy.

Hiddenite, Alexander County : Palache, 1973.

Paleontology.

Bituminous plant, Triassic : Prouty, 2063.

Petrology.

Hiddenite deposit, Alexander County : Palache, 1973.

Kaolinized volcanic ash from slate belt : Stuckey, 2554.

Magnetite, Cranberry, origin : Ross, 2195.

Physiographic geology.

Drainage changes, Blue Ridge : Wright, 2928.

Stream piracy, Asheville : Wright, 2929.

Underground water.

Ground-water resources of crystalline rocks : Stuckey, 2553.

Water from crystalline rocks : Stuckey, 2552.

North Dakota.

Areas described.

Edgeley and La Moure quadrangles : Hard, 1064.

North Dakota—Continued.

Historical geology.

General: Simpson, 2397.

Paleontology.

Lignite, microstructure: Gauger, 902.

Underground water.

Artesian conditions, Edgeley and La Moure quadrangles: Meinzer, 1755.

Edgeley and La Moure quadrangles: Hard, 1064.

Ground-water resources: Simpson, 2397.

Northwest Territories.

Great Slave Lake: Bell, 175; Lausen, 1524.

Mistake Bay area, Hudson Bay: Weeks, 2787.

Economic geology.

Coronation Gulf copper deposits: Burwash, 388.

Pitchblende, Great Bear Lake: Knight, 1450.

Paleontology.

Algal structures: Rutherford, 2256.

Nothrotherium, Dona Ana County, N. Mex.: Lull, 1624.

Nova Scotia.

Areas described.

Horton-Windsor district: Bell, 180.

Economic geology.

Anhydrite plasters and cements: Flynn, 842.

Cape Breton Island, exploration for oil: Eastern Gulf Oil Co., 725.

Copper: Messervey, 1787.

Coxheath copper mine, Cape Breton: Beaton, 160.

Gold: Messervey, 1786.

Gold fields: Malcolm, 1691.

Gold River area: Davison, 650.

Gypsum deposits, hydration factors in: Bailey, 75.

Lead and zinc: Messervey, 1788.

Oil shale, Pictou County: Swinnerton, 2572.

Post-Carboniferous mineralization: Messervey, 1789.

Potash salts: Cole, 511.

Road materials, Prince Edward Island: Picher, 2023.

Tin: Davison, 651.

Historical geology.

Boring, Springhill: McCall, 1641.

Cape Breton Island: Eastern Gulf Oil Co., 725.

Gold River area: Davison, 650.

Windsor area: Bell, 181.

Mineralogy.

Heulandite, Wasson's Bluff: Parsons, 1995.

Natrolite, Wasson's Bluff: Parsons, 1994.

Paleontology.

Mississippian fauna, Windsor area: Bell, 181.

Nova Scotia—Continued.

Petrology.

Differentiation in Cape Spencer flow: Lund, 1625.

Physical geology.

Acadian-Newfoundland earthquake: McIntosh, 1661.

Oahu, geologic history: Palmer, 1979.

Ocher.

Alabama: Barksdale, 117.

Ohio.

White clays of upland-flat soils: Westgate, 2826.

Economic geology.

Coal resources: Stout, 2544.

Coal supply: Ray, 2091.

Coals, analyses: Bownocker, 266.

Refractory clays: Stout, 2543.

Structural conditions, eastern Ohio: Cottingham, 570; Lockett, 1584.

Historical geology.

Clinton County, surface geology: Austin, 72.

Hillsboro sandstone: Carman, 446, 447.

Monongahela series: Stout, 2542.

Oregonia-Fort Ancient region: Wolford, 2906.

Pennsylvanian: Weller, 2801.

Silurian, southwestern Ohio: Foerste, 847.

Unconformity at top of Trenton, Lima district: Ver Wiebe, 2734.

Paleontology.

Callixylon: Hoskins, 1184.

Castoroides ohioensis, plastotype: Whipple, 2834.

Cephalopoda: Foerste, 850.

Devonian corals: Stewart, 2504.

Lichenocrinus: Faber, 780.

Silica shale, Lucas County: Stewart, 2505.

Sponge spicules in Sunbury shale: Bucher, 359.

Types in Ohio State University museum: Stewart, 2506.

Physical geology.

Devonian cherts, origin: Westgate, 2825.

Hillsboro sandstone: Carman, 447.

Marl balls, Miami Valley: Rouse, 2216.

Sediments deformed by ice thrust: Glock, 949.

Physiographic geology.

Clinton County, surface geology: Austin, 72.

Drainage changes, northeastern Ohio: Coffey, 508.

Toledo region: Carman, 448.

Wooster area: Ver Steeg, 2729.

Ottawa County, surface deposits: Conrey, 545.

White clays or upland-flat soils, southern Ohio: Westgate, 2826.

Oil. See Petroleum.

Oil sands, physical analysis: Nutting, 1930.

Oil shales.

California, Wheeler Ridge: Hoots, 1181.

Eastern United States: Jillson, 1252.

General: Hill, 1144.

Nova Scotia, Pictou County: Swinner-ton, 2572.

Organic content and origin: Hawley, 1083.

Shearing pressures: Hawley, 1084.

Oklahoma.

Field conferences: Gould, 967.

Isocon map for Ordovician waters: Dott, 697.

Work of Geological Survey: Cooper, 560.

Areas described.

Arbuckle Mountains: Gould, 972.

Cherokee and Adair Counties: Cram, 575.

Criner Hills: Stone, 2531.

Haskell, Latimer, Leflore, and Sequoyah Counties: Stone, 2529.

Hughes County: Boyle, 272.

Johns Valley boulders: Gould, 969.

Johnston and Murray Counties: Mel-ton, 1765.

Lincoln County: Radler, 2076.

Love and Marshall Counties: Bullard, 369.

Mayes, Delaware, and Ottawa Coun-ties: Ireland, 1222.

Okfuskee County: Boyle, 271.

Pottawatomie County: Weirich, 2795

Tulsa County: Cloud, 504.

Economic geology.

Burbank oil field, Osage County: Sands, 2267.

Coals, chemical study: Moose, 1850.

Crinerville oil field, Carter County: Powers, 2053.

Cromwell oil field, Seminole and Ok-fuskee Counties: Grawe, 991; Langworthy, 1510.

Cushing oil and gas field, Creek County: Weirich, 2793.

Delaware Extension oil pool, Nowata County: Lewis, 1562.

Depew area, Creek County: Martin, 1712.

Garber oil field, Garfield County: Gish, 943.

Geothermal gradients in oil fields: Mc-Cutchin, 1651-1653.

Glenn oil pool: Wilson, 2896.

Greater Seminole district, Seminole and Pottawatomie Counties: Levorsen, 1560.

Hewitt oil field, Carter County: Bur-ton, 386.

Hughes County: Boyle, 272.

Lincoln County: Radler, 2076.

Mineral raw materials, chemical anal-yses: Shead, 2359.

Morrison oil field, Pawnee County: Carpenter, 450.

Oklahoma—Continued.

Economic geology—Continued.

Oil fields, Osage County: Stephensen, 2489.

Kay County: Clark, 496.

Oklahoma City oil field: Charles, 475;

Riggs, 2163; Zavoico, 2943.

Pottawatomie County: Weirich, 2795.

Road materials: Wolfard, 2903.

Turkey Mountain lime pools: Ruede-mann, 2226.

Historical geology.

Anadarko Basin, sedimentation: Freie, 882.

Benton formation, Cretaceous: Gould, 968.

Bokchito formation, Love County: Redfield, 2107.

Cherts of lead-zinc district, age: Weidman, 2789.

Dolomite region: Suffel, 2555.

Fort Riley limestone: Gould, 978.

Frederick deposits: Gould, 971.

Luta limestone: Boos, 254.

Marmaton and Cherokee formations,

Mid-Continent region: Roth, 2212.

Mid-Continent oil-field sediments: Cheney, 479.

Mississippian and Morrow formations, comparative faunal chart: Roth, 2207.

Oklahoma City oil field: Charles, 475; Zavoico, 2943.

Oolitic horizons in Arbuckle forma-tion: Stone, 2530.

Ouachita Mountains, structure: Miser, 1809.

Ouachita orogeny, age: Melton, 1766

Paleozoic, classification: Ulrich, 2696

Pennsylvanian, Ardmore Basin: Tom-kinson, 2662.

correlation: Moore, 1845.

Permian, northwestern Oklahoma: Clifton, 499.

Pre-Mississippian: McClellan, 1643.

Sandstones in Arbuckle limestone: Decker, 658.

Simpson formation: Weirich, 2794.

Arbuckle and Wichita Mountains: Decker, 660.

central Oklahoma: Weirich, 2796.

Oklahoma City: Roth, 2211.

subdivision: Decker, 659.

Structure and stratigraphy, southwest-ern Oklahoma: Becker, 162.

Unconformities in lower Paleozoic: Edson, 735.

Volcanic deposits: Ross, 2194.

Wichita Mountains: Hoffman, 1174.

early Paleozoic: Cram, 574.

Mineralogy.

Tourmaline in sediments: Brown, 328.

Paleontology.

Algae of fossil red salt: Tilden, 2653.

Bones and artifacts at Frederick: Gould, 975.

Oklahoma—Continued.

Paleontology—Continued.

- Comanchean reptiles: Gould, 973.
 Foraminifera, Atoka formation: Gal-
 loway, 896.
 Ordovician and Silurian: Moreman,
 1853.
 Fossil leaves in Dakota sandstone in
 Cimarron County: Tate, 2596.
 Frederick deposits: Hay, 1090.
 antiquity of man: Evans, 777.
 glyptodon: Gould, 970.
 Kirkbya and Amphissites, revision:
 Roth, 2206.
 Luta limestone: Boos, 254.
 Micropaleontology, Wetumka, and
 Holdenville formations: Warthin,
 2767.
 Mississippian and Morrow formations,
 comparative faunal chart: Roth,
 2207.
 Mississippian and Pennsylvanian Ostra-
 coda: Harlton, 1070.
 Ostracodes, Haragan marl: Roth, 2210.
 Pennsylvanian, Ardmore Basin: Tom-
 linson, 2662.
 Ostracoda and Foraminifera, locali-
 ties: Harlton, 1069.
 Trophocrinus, Sycamore limestone:
 Kirk, 1439.
 Vertebrates associated with human ar-
 tifacts: Hay, 1093.
 Walnut, Pleistocene, Frederick: Berry,
 199.

Petrology.

- Black shale of Cromwell oil dome:
 Grawe, 991.
 Wichita Mountains: Hoffman, 1174.

Physical geology.

- Beach markings, Wichita Mountains:
 Evans, 774, 776.
 En échelon faulting: Link, 1571; Sher-
 rill, 2366; origin: Sherrill, 2367.
 Joint studies: Melton, 1760.
 Joint-systems, Ouachita Mountains.
 Melton, 1764.

Mountains: Cloos, 501.

Mushroom rock: Redfield, 2106.

Uplifts, north-central Oklahoma:
 Nevin, 1894.

Physiographic geology.

- Dolomite region: Suffel, 2555.
 Relief map: Bollinger, 250.

Oligocene. See Tertiary.

Ontario.

Niagara Falls survey: Boyd, 269.

Areas described.

- Algoma, Ranger Lake and Garden
 River area: Hurst, 1210.
 Beardmore-Nezah gold area, Thunder
 Bay district: Langford, 1508.
 Cartier-Stralak area: Osborne, 1959.
 Heron Bay area: Thomson, 2647.
 Huronian gold mine, District of Thun-
 der Bay: Watson, 2777.

Ontario—Continued.

Areas described—Continued.

- Lake Savant area, Thunder Bay dis-
 trict: Moore, 1833.
 Michipicoten River area, Algoma dis-
 trict: Weeks, 2786.
 Moose River Basin: Dyer, 714.
 North shore of Lake Huron: Moore,
 1836.
 Oba area, District of Algoma: May-
 nard, 1748.
 Pickle Lake-Crow River area, District
 of Kenora: Hurst, 1213.
 Platinum-bearing nickel-copper deposit,
 Lower Shebandowan Lake, Dis-
 trict of Thunder Bay: Watson,
 2778.
 Porcupine district, German, Stock,
 Macklem, Bond, and Currie town-
 ships: Laird, 1483.
 Rush River area, Woman River dis-
 trict: Bannerman, 107.
 Sapawe Lake area: Hawley, 1086.
 Sudbury Basin area: Burrows, 381.
 Woman, Narrow, and Confederation
 lakes: Bruce, 336.
 Woman River and Ridout areas, Sud-
 bury district: Emmons, 756.

Economic geology.

- Algoma, lead-zinc deposits: Hurst,
 1211.
 Beardmore-Nezah gold area: Langford,
 1509.
 Boston-Skead gold-copper area, District
 of Timiskaming: Bell, 178.
 Caviar Lake gold area: Burwash, 388.
 Clay and sand deposits, Mattagami and
 Missinaibi Rivers: Montgomery,
 1817.
 Clays: Montgomery, 1818.
 Cobalt ores: Short, 2379; Thomson,
 2646.
 Cochrane and Timiskaming districts,
 base metal areas: Gledhill, 944.
 Favourable Lake-Sandy Lake, Patricia:
 Hurst, 1214.
 Fluorspar, Madoc district: Wilson,
 2895.
 Fort Hope gold area, Patricia: Bur-
 wash, 387.
 Frood ore deposit, Sudbury: Corless,
 569; origin: Halferdahl, 1031.
 General: Goodwin, 963.
 Gold-bearing quartz veins, northern
 Ontario: Bain, 80.
 Gowganda silver area: Campbell, 424.
 Grenville series: Goodwin, 962.
 Groundhog River area: Graham, 981.
 Iron Mask Cobalt Silver Mines de-
 posit: Osborne, 1958.
 Lake Savant area, Thunder Bay dis-
 trict: Moore, 1833.
 Lead and zinc deposits, Dorion and
 McTavish Townships, Thunder
 Bay district: Hawley, 1087.

Ontario—Continued.

Economic geology—Continued.

Lignite, Blacksmith Rapids, Abitibi River: Gilmore, 938.

Onakawana, Moose River Basin: Dyer, 720, 721.

Limestone: Goudge, 966.

Moose River and Albany River Basins: Dyer, 717.

Mineral industry, 1927: Rogers, 2183; 1929: Rogers, 2184.

Moose River Basin: Dyer, 714.

Natural gas and petroleum: Harkness, 1066, 1067.

Nicolite and chalcopyrite intergrowth, Sudbury: Lausen, 1526.

Nonmetallic mineral resources: Dyer, 716.

Obonga Lake area: Graham, 980.

Oil and gas fields, Harkness, 1065.

Oil possibilities: Spearman, 2448.

Pickle Lake-Crow River area: Hurst, 1212.

Platinum-bearing nickel-copper deposit, Lower Shebandowan Lake, District of Thunder Bay: Watson, 2778.

Sudbury nickel field, southwest part: Moore, 1837.

Sudbury nickel intrusive: Coleman, 518.

Sudbury nickel irruptive, southwestern part: Collins, 531.

Sudbury ore: Nicholls, 1906.

Sylvania sandstone, Amherstburg: Dyer, 718.

Wilberforce radium occurrence: Spence, 2450.

Woman River district: Bannerman, 108.

Historical geology.

Bentonite near Collingwood: Maddox, 1689.

Birch Lake batholith: Tolman, 2660.

Borings: Maddox, 1686.

Cobalt: Thompson, 2646.

Favourable Lake-Sandy Lake, Patricia: Hurst, 1214.

Fort Hope gold area, Patricia: Burwash, 387.

French River area: Quirke, 2071.

Grenville series: Goodwin, 962.

Huronian, disappearance: Quirke, 2072.

Huronian complex, eastward limitation: Quirke, 2074.

Intrusions, Maisenville Township: Derby, 671.

Keewatin-Timiskaming boundary: Moore, 1835.

Manitoba-Ontario boundary: Derry, 674.

Paleozoic, Albany River: Dyer, 719.

Pre-Cambrian: Lawson, 1527.

western Ontario: Kranck, 1474.

Rainy River district: Hawley, 1088.

Ontario—Continued.

Historical geology—Continued.

Saganaga granite: Grout, 1004.

Sudbury area: Lausen, 1526.

Sudbury nickel field, southwest part: Moore, 1837.

Mineralogy.

Celestite: Fairbairn, 784.

Cenosite, North Burgess Township, Lanark County: Graham, 982.

Cobalt ores: Thomson, 2646.

Hornblende, Hastings County: Parsons, 1993.

Pegmatite minerals: Spence, 2451.

Stephanite, argentite, and silver, South Lorrain: Walker, 2752.

Sudbury nickel intrusive: Coleman, 518.

Thucholite and oil in pegmatite dike, Parry Sound district: Spence, 2452.

Wire gold, Porcupine region: Burrows, 380.

Paleontology.

Cephalopoda: Foerste, 850.

Devonian cephalopods, Moose River Basin: Foerste, 848.

Petrology.

Birch Lake batholith: Tolman, 2660.

Egan Chute nepheline rocks, Dunganon Township: Osborne, 1961.

French River area: Quirke, 2071.

Intrusions, Maisenville Township: Derby, 671.

Killarney rocks: Jones, 1302.

Mineral concentrates of beach sand, Toronto: Trainer, 2665.

Pillow lavas, origin: Moore, 1839.

Saganaga granite: Grout, 1004.

Schist granite transition zone: Osborne, 1960.

Xenoliths in gabbro, Sudbury: Jones, 1303.

Physiographic geology.

Varves, Toronto: Coleman, 519.

Oolites.

Formation: Hess, 1136.

Great Salt Lake, origin and growth: Mathews, 1721.

secondary: Swartzlow, 2571.

Opal stalactites and stalagmites, northern California: Anderson, 52.

Ordovician. See also Paleontology, Ordovician.

Alaska, Eagle-Circle district: Mertie, 1784.

southeastern: Buddington, 362.

Alberta, Jasper Park: Raymond, 2098.

Arctic regions: Foerste, 844.

Arkansas, De Queen and Caddo Gap quadrangles: Miser, 1808.

northern, St. Peter and older sandstones: Giles, 917.

Paleozoic area: Croneis, 591.

Ordovician—Continued.

- Base of Ordovician, Canadian Rockies: Raymond, 2099.
- Bighorn formation, correlation: Miller, 1793.
- Colorado, Alma mining district: Singewald, 2406.
- Front Range: Lovering, 1611.
- Correlation: Ulrich, 2697.
- Greenland: Koch, 1466.
- east: Poulsen, 2049.
- northern: Troedsson, 2676.
- Harding sandstone, Colorado: Kirk, 1440.
- Hounsfield bentonite, age: Kay, 1326.
- Idaho, Portneuf quadrangle: Mansfield, 1695.
- Wood River region: Umpleby, 2700.
- Illinois, Alexis quadrangle: Wanless, 2756.
- Indiana, Trenton limestone, upper surface: Logan, 1585.
- Iowa, Decorah formation: Kay, 1323.
- Kansas: McClellan, 1643.
- Viola formation: Kidd, 1417.
- Kentucky, Utica shale: Beckner, 164.
- Lower Ordovician: Kay, 1324.
- Maquoketa series: Keyes, 1399.
- Missouri, Eminence and Cardareva quadrangles: Bridge, 312.
- Ozark region: Cordry, 566; McQueen, 1682.
- Potosi and Edgehill quadrangles: Dale, 623.
- Mohawkian sediments, Kansas, correlations: Kay, 1322.
- Montana, New World district: Lovering, 1608.
- Rocky Mountain front: Bevan, 223.
- New York, capital district (Albany and vicinity): Ruedemann, 2234.
- Ohio, Oregonia-Fort Ancient region: Wolford, 2906.
- unconformity at top of Trenton, Lima district: Ver Wiebe, 2734.
- Oklahoma: McClellan, 1643.
- Cherokee and Adair Counties: Cram, 575.
- Johnston and Murray Counties: Melton, 1765.
- Mayes, Delaware, and Ottawa Counties: Ireland, 1222.
- Simpson group: Decker, 660; Weirich, 2794, 2796.
- Wichita Mountains: Hoffman, 1174.
- Ontario, north shore of Lake Huron: Moore, 1836.
- Pennsylvania, Delaware Water Gap region: Willard, 2868.
- Fairfield and Gettysburg quadrangles: Stose, 2538.
- Lancaster quadrangle: Jonas, 1292.
- McCalls Ferry-Quarryville district: Knopf, 1463.
- Quebec, Percé: Schuchert, 2324.

Ordovician—Continued.

- Rocky Mountain section, 51st parallel: Warren, 2762.
- South Dakota, Black Hills: Connolly, 542.
- Terminology: Keyes, 1390.
- Texas, Reagan County, Big Lake oil field: Lowman, 1617.
- Utah, Gold Hill quadrangle: Nolan, 1923.
- Vermont, Bridgewater and Plymouth Townships: Perry, 2017.
- Ferrisburg: Foyles, 872.
- Hyde Manor, Sudbury, outlier: Dale, 625.
- Reading, Cavendish, Baltimore, and Chester: Richardson, 2150.
- west-central: Foyles, 873.
- Wisconsin, Glover Bluff: Ekern, 740.
- Ore deposits, origin. For ore deposits in general see Economic geology (general).
- Alaska, Hyder area: Buddington, 363.
- Aldermac ore, western Quebec: Cooke, 559.
- Biochemical reduction of sulphate waters: Thiel, 2619.
- Bornite-chalcocite intergrowth: Schwartz, 2327.
- Boxwork siderite: Trischka, 2675.
- California, Engels copper deposits: Knopf, 1460.
- Mother Lode belt: Knopf, 1459.
- Carbonate filling of veins: Platts, 2028.
- Chromite, crystallization: Ross, 2196; Sampson, 2263; Singewald, 2403.
- Chromite deposits: Fisher, 826.
- Colorado, Front Range, localization of ore: Lovering, 1613.
- Leadville district: Behre, 167.
- Ouray district: Burbank, 376.
- Colorado Plateau, ore deposits: Butler, 393.
- Copper, British Columbia, Copper Mountain: Dolmage, 693.
- Cape Breton, Coxheath mine: Beaton, 160.
- Idaho, northern: Anderson, 49.
- Mexico, Boleo deposit: Touwaide, 2664.
- Michigan: Butler, 391.
- Covellite-chalcocite relationships: Bateman, 149.
- Deuteric, use of the term: Gillson, 927; Osborne, 1957; Sederholm, 2339.
- Diffusion in ore genesis: Whitman, 2852.
- Diopside-bearing pegmatite in dolomite: Watson, 2775.
- Emery deposits, New York, Peekskill: Gillson, 930.
- Galena, incipient oxidation: Anderson, 51.

Ore deposits, origin—Continued.

- General: Boydell, 270; Erich, 766; Fenner, 797; Keyes, 1357; Ropes, 2190.
- Gold, Alleghany district, Calif.: Ferguson, 810.
- Hypogene ore deposits and electrode potentials: Butler, 392.
- Idaho, northern: Anderson, 49.
- Wood River region: Umpleby, 2700.
- Intergrowth of bornite and chalcopyrite: Schwartz, 2329.
- Iron, Lake Superior ores: Gruner, 1014.
- magnetite deposits: Schwartz, 2331.
- Missouri, Iron Mountain and Pilot Knob: Singewald, 2400.
- Wabana, Newfoundland: Hayes, 1095.
- Wisconsin, Gogebic iron range: Aldrich, 24.
- Iron and copper sulphides, hydrothermal experiments on: Foreman, 858.
- Iron and silica, solution, transportation, and precipitation: Moore, 1834.
- Iron-manganese carbonate concretions, genesis: Hewett, 1141.
- Kennecott ore minerals, colloidal origin: Lasky, 1520.
- Limonite, cellular structure: Boswell, 256.
- Limonite types from bornite and tetrahedrite: Blanchard, 247.
- Lodestone, genesis: Bandy, 106; Gruner, 1012; Newhouse, 1901.
- Magnetite ore body, Cornwall, Pa.: Callahan, 416.
- Maine, Blue Hill area: Gillson, 929.
- Manitoba, Sherritt-Gordon copper-zinc deposit: Bruce, 337.
- Metallization from basic magmas: Hulin, 1203.
- Metasomatic replacement deposits: Ray, 2092.
- Mexico, Parral area, Chihuahua: Schmitt, 2303.
- Michigan, copper deposits, genetic classification: Calumet & Hecla Consolidated Copper Co., 418.
- Microscopic examination of ores: Erimesco, 767.
- Minnesota, Agawa iron formation: Stark, 2466.
- Missouri, alnoite pipe, Avon: Ball, 105.
- Nevada, mining districts: Ferguson, 809.
- New Hampshire pegmatite dikes, Gilsum area: Megathlin, 1752.
- Occurrence of ore deposits: Porter, 2046.
- Ontario, Iron Mask Cobalt Silver Mines deposit: Osborne, 1958.
- Sudbury, Frood ore deposit: Corless, 569.

Ore deposits, origin—Continued.

- Ore, location: Harvey, 1077.
- Ore deposition, structural control: Porter, 2045.
- in open fissures formed by solution pressure: Wandke, 2754.
- Ore genesis and ore shoots: Hulin, 1202.
- Pressure zones and ore deposition: Wright, 2939.
- Pseudo-eutectic textures: Lindgren, 1568; Schwartz, 2332.
- Schistose sulphide ores, texture and origin: Newhouse, 1902.
- Secondary enrichment at Cananea, Mexico: Elsing, 752.
- Solvent effects of organic acids on oxides of iron: Harrar, 1073.
- Source of ore: Fletcher, 832.
- Structural control of ore deposition: Hulin, 1201; Koeberlin, 1469.
- Sulphide ores of Mississippi Valley: Emmons, 761.
- Supergene cassiterite: Koeberlin, 1470; Singewald, 2405.
- Synthetic sulphide replacement of ore minerals: Ray, 2093.
- "Unsupported inclusions": Talmage, 2590.
- Zinc, New Jersey, Franklin: Palache, 1968.
- Franklin and Sterling Hill: Tarr, 2593.
- Ore shoots. See Economic geology (general); ore deposits, origin.
- Oregon.
- Owyhee irrigation project: Bryan, 345; Smith, 2439.
- Economic geology.*
- Diatomaceous deposits, eastern Oregon: Smith, 2438.
- Platinum, southwestern Oregon: Kellogg, 1332.
- Porphyry copper deposits: Bell, 179.
- Quicksilver deposits: Schuette, 2326.
- Historical geology.*
- Baird Mississippian fauna, central Oregon: Packard, 1966.
- Cascade Range: Chaney, 471.
- Climatic changes, late Tertiary: Hodge, 1169.
- Cretaceous, central Oregon: Packard, 1965.
- Dalles and Hood River formations, age: Buwalda, 401.
- John Day region: Hodge, 1168.
- Jurassic, central Oregon: Lupper, 1633.
- McKenzie Valley: Stearns, 2480.
- Malheur County: Renick, 2138.
- Ochoco Range and Silvies Plateau: Lupper, 1634.
- Pittsburgh Bluff fauna, Oligocene: Schenck, 2298.
- "Satsop" formation of Columbia River gorge: Buwalda, 398.

Oregon—Continued.

Paleontology.

Alloeyon, John Day beds: Merriam, 1768.

Carnivora, Mascall beds: Stock, 2518.

Comstock floral: Sanborn, 2265.

Eastern Oregon: Gidley, 916.

Fresh-water Mollusca: Henderson, 1123.

Goshen flora: Chaney, 472.

Jurassic and Cretaceous rudistids: Lupher, 1632.

Miocene Mammalia, southeastern Oregon: Gazin, 905.

Rudistids: Packard, 1967.

Petrology.

Malheur County: Renick, 2138.

Xenolith, recrystallization, Cornucopia: Goodspeed, 961.

Physical geology.

Horst and graben structure, southern Oregon: Fuller, 888.

Recrystallization of xenoliths: Goodspeed, 961.

Physiographic geology.

Columbia River gorge: Buwalda, 401.

Mounds on Columbia River Plateau, origin: Waters, 2773.

Neocene erosion surface, central Oregon: Buwalda, 397.

Pacific shore line: Smith, 2440.

Underground water.

McKenzie Valley: Stearns, 2480.

Orientation of cores: Macready, 1683.

Orogeny.

Alaska: Mertie, 1785.

Appalachians, central, metamorphic belt: Jonas, 1291.

northern, threefold orogeny: Schuchert, 2321.

Basin Ranges: Davis, 645.

California, central coast region: Loud-erback, 1603.

Cascade Range, age: Buwalda, 401.

Desert ranges, diversity of origin: Keyes, 1377.

Front Range: Higgins, 1143.

Galiuro Mountains, Ariz.: Davis, 642.

General: Cloos, 501; Longwell, 1597.

Great Basin: Keyes, 1355.

Metamorphic orogeny: Willis, 2887.

Mexico, Cordillera, eastern: Baker, 88.

Mountain structure: Longwell, 1597.

Orogenic process: Thom, 2627.

Ouachita orogeny, age: Melton, 1766.

Pacific States: Berry, 206.

Permian-Carboniferous, southern United States: Van der Gracht, 2706.

Sierra Nevada: Cloos, 501.

Submountain structures of desert range: Keyes, 1373.

Tertiary mountain ranges, correlation: Taylor, 2601.

Theory of orogeny: Cheney, 477.

Oscillation. See Changes of level.

Ostracoda. See also Crustacea.

Arkansas, Upper Cretaceous: Israel-sky, 1225.

Carboniferous, west Texas: Delo, 664.

Colorado, McCoy formation: Roth, 2213.

Correction of generic and specific names: Roth, 2208.

Graphiodactylus: Roth, 2209.

Greenland, northern, Ordovician: Troedsson, 2676.

Holinella: Kellett, 1331; Knight, 1454.

Kirkbya and Amphissites, revision: Roth, 2206.

Mohawkian, lower: Kay, 1325.

Oklahoma, Haragan marl: Roth, 2210.

micropaleontology, Wetumka, We-woka, and Holdenville formations: Warthin, 2767.

Orientation of carapaces of Paleozoic Ostracoda: Bonnema, 253.

Texas, Cretaceous: Alexander, 28.

Pennsylvanian: Harlton, 1068.

Otoliths, fish: Campbell, 431.

Ouachita Mountains, Oklahoma and Arkansas, structure: Miser, 1809.

Ouachita orogeny, age: Melton, 1766.

Owyhee irrigation project, Oregon: Bryan, 345.

Owen Lake area, British Columbia: Lang, 1504.

Paleobotany.

Alberta, Allison flora, Blairmore district: Berry, 210.

Blairmore, upper, flora: Berry, 209.

Cypress Hills: Berry, 215.

Kootenay and lower Blairmore floras: Berry, 208.

Algae of fossil red salt: Tilden, 2653.

Amber: Farrington, 789.

Ampelocissites, Eocene, Texas: Berry, 197.

Amygdalus, Latah formation, Washington: Berry, 198.

Anacardium, Eocene, Texas: Berry, 196.

Antillean floras: Maury, 1744.

Arctic regions: Berry, 201.

Arizona, Grand Canyon: White, 2838.

Artocarpus: Ball, 104.

Bituminous plant, Triassic, North Carolina: Prouty, 2063.

British Columbia, St. Eugene silt, Kootenay Valley: Berry, 205.

Callixylon, bark structure: Arnold, 66.

Devonian, New York: Arnold, 65.

New Albany shale: Arnold, 64.

Ohio: Hoskins, 1184.

Carboniferous fossils in coal pebbles in glacial drift: Bartlett, 126.

Celtis nutlets, Kansas: Brooks, 321; Watt, 2779.

Cercis idahoensis, Miocene: Berry, 214.

Paleobotany—Continued.

- Colorado, De Beque, Tertiary: Hollick, 1119.
- Comstock flora, Oregon: Sanborn, 2265.
- Cupressinoxylon, Jurassic, South Dakota: Lutz, 1637.
- Cycadeoid flower: Dahlgren, 622.
- Denver flora, Colorado: Knowlton, 1464.
- Endemism in California Coast Range flora: Mason, 1713.
- Equisetites, Sundance limestone: Black, 226.
- Fresh-water algae, Green River formation, Colorado: Bradley, 282.
- Frontier formation, Wyoming: Berry, 207.
- Gilboa fossil trees, New York: Goldring, 955, 957.
- Gordonia, Miocene, Idaho and Washington: Berry, 211.
- Goshen flora, Oregon: Chaney, 472.
- Grand Canyon floras: White, 2842.
- Hermit shale: White, 2841.
- Green River flora, Colorado: Brown, 330.
- Wind River Basin, Wyoming: Berry, 216.
- Guatemala, Upper Cretaceous: Stephenson, 2491.
- Illinois, coal-measure plants: Hoskins, 1183.
- Lamar Valley flora, age: Read, 2101.
- Land plants, origin: Campbell, 425.
- Latah flora: Berry, 204.
- Lignite, North Dakota, microstructure: Gauger, 902.
- Meliosma, Miocene, California: Berry, 200.
- Mesaverde cycadeoids: Wieland, 2861.
- Miocene floras, Washington: Berry, 206.
- North polar region: Berry, 213.
- Oklahoma, Cimarron County, Dakota sandstone leaves: Tate, 2596.
- Oldhamia, New York: Ruedemann, 2229.
- Petrified forests: Wieland, 2860.
- Pityoxylon, Yellowstone National Park: Conard, 538.
- Plants in petroleum "mother rocks," Alaska: White, 2840.
- Pollen, Erie Basin: Sears, 2338.
- Pterophyllum, Shinarump conglomerate, Utah: Berry, 217.
- Quebec, Devonian plant, Gaspé: Alcock, 19.
- Reef-forming phormidioid alga, Medicine Bow: Wieland, 2865.
- Rhododendron, California: Read, 2100.
- Seed-plant descent: Wieland, 2864.
- Seeds from peat bogs, southeastern Canada: McAtee, 1640.
- Sequoia forest, Tertiary, St. Lawrence Island: Chaney, 473.
- Triletes: Bartlett, 127.

Paleobotany—Continued.

- Upper Cretaceous, Alaska: Hollick, 1180.
- Walnut, Pleistocene, Frederick, Oklahoma: Berry, 199.
- Wilcox flora: Berry, 212.
- Zamites, Mariposa slates; California: Wieland, 2863.
- Paleoclimatology.
- Climatic cycles: Giles, 919.
- Controls of geologic climates: Giles, 921.
- Criteria for climatic conditions: Hubbard, 1195.
- Eocene climate: Berry, 212.
- Green River epoch, varves and climate: Bradley, 280.
- Indicators of ancient climates: Hubbard, 1197.
- North polar region: Berry, 213.
- Ordovician and Silurian: Foerste, 845.
- Oregon, late Tertiary: Hodge, 1169.
- Peat as a climatic indicator: Giles, 920.
- Pennsylvanian climates: Giles, 922.
- Varved clay and solar radiation weather: Reeds, 2117.
- Varves and duration of Eocene epoch: Bradley, 278.
- Paleogeographic maps.
- Antillean region: Schuchert, 2316.
- Colorado: Lovering, 1610.
- Sangre de Cristo Mountains, Pennsylvanian: Johnson, 1274.
- North America: Nichols, 1908.
- Pennsylvanian: Giles, 922.
- Western North America, Paleozoic: Schuchert, 2323.
- Paleogeography. See also Geologic history; Paleoclimatology, Paleogeographic maps.
- Ancestral Rocky Mountains: Ver Wiebe, 2736.
- Antillean region: Schuchert, 2316.
- California, Fernando group, Ventura County: Pressler, 2057.
- Colorado, eastern, Benton paleogeography: Johnson, 1277.
- Cretaceous and Cenozoic continental connections: Schuchert, 2320.
- Criteria: Shideler, 2375.
- Devonian: Pohl, 2033, 2039.
- General: Schuchert, 2315.
- New York, central, Portage sedimentation: Sheldon, 2362.
- Oscillatory movement in Chazy and Levis troughs of the Appalachian geosyncline: Ruedemann, 2232.
- Sioux: Schuchert, 2323.
- Paleometeorology. See Paleoclimatology.
- Paleontology. For areal see names of States. See also the classes of animals and Invertebrates (general); Evolution; Paleobotany; Problematic organisms; Restorations.

Paleontology—Continued.

Ordovician—Continued.

Manitoba, Red River formation cephalopods: Foerste, 849.

Minnesota, Cephalopoda: Sardeson, 2279.

Missouri, Ozark region: Ulrich, 2699.
Nevada, Mitrospira, Ordovician: Kirk, 1438.

Oklahoma, Foraminifera: Moreman, 1853.

Pennsylvania, Clinton County, Homalotus trentonensis: Whitcomb, 2837.

Telephides: Ulrich, 2697.

Pre-Cambrian.

Northwest Territories, algal structures: Rutherford, 2256.

Quaternary.

Alaska: Frick, 883.

Arizona, Coconino County, fresh-water shells: Colton, 535.

Pleistocene Mollusca, Hopi Buttes: Reagan, 2102.

California, Capromeryx minor, McKittrick beds: Furlong, 891.

Deadman Island: Crickmay, 581.

Rancho La Brea: Stock, 2519; passerine birds: Miller, 1795.

Colorado, Pliocene rhinoceroses: Cook, 549.

Connecticut, New Milford marl deposits: Cooper, 561.

Fernando group, California: Waterfall, 2772.

Florida, Mammalia: Simpson, 2393; Pleistocene, Pinellas County: Simpson, 2392.

Trachemys sculpta: Gilmore, 936.

Illinois, Pleistocene aquatic mollusks: Baker, 95.

Pleistocene mollusks, Fulton County: Baker, 93.

Kansas, McPherson County, Pleistocene: Nininger, 1918.

Nebraska, Pliocene rhinoceroses: Cook, 549.

New Mexico, Organ Mountains, antelope remains: Stock, 2520.

New York, mollusks from Hudson River tunnel: Richards, 2148.

Parelephas floridanus, Florida: Osborn, 1956.

Pleistocene fauna: Hay, 1092.

Pleistocene Mammalia: Hay, 1091; extinction: Scott, 2335.

Vertebrates associated with human artifacts, Colorado, Oklahoma, and New Mexico: Hay, 1093.

Washington, Paphia, Port Blakely, Frizzell, 887.

Silurian.

Actinoceroids: Foerste, 855.

Arctic and subarctic faunas: Foerste, 844.

Paleontology—Continued.

Silurian—Continued.

Arkansas, Proparia, St. Clair limestone: Thomas, 2637.

Brachiopoda, southeastern Missouri: Ball, 101.

Cephalopoda: Foerste, 853.

Missouri, southeastern: Ball, 102.

Oklahoma, Foraminifera: Moreman, 1853.

Pennsylvania, Dalmanella: Barnsley, 119.

Tertiary.

Alberta, Gastropoda: Russell, 2241.

Paleocene vertebrates: Russell, 2239.

Ants of North America: Carpenter, 452.

California, Barstow beds, rodents and lagomorphs: Hall, 1034.

Discocyclina: Schenck, 2297.

Etchegoin formation, diatoms: Hanna, 1042.

Fernando group, Ventura County: Pressler, 2057.

Humboldt County, Foraminifera: Cushman, 613.

Mint Canyon formation, Mammalia: Maxson, 1746.

Miocene mollusks: Wiedey, 2859.

Miocene silicoflagellate: Hanna, 1053.

Pliomastodon: Matthew, 1741.

San Diego Pliocene, pecten: Hertlein, 1134.

Santa Ynez Range, Eocene Foraminifera: Woodring, 2915.

Sespe deposits, oreodonts: Stock, 2517.

Simi Valley, Pliocene: Woodring, 2916.

Temblor formation, birds: Wetmore, 2830.

Ventura County, Apache Canyon, vertebrates: Gazin, 903; Pliocene Foraminifera: Stewart, 2508.

Claiborne on coastal domes: Weinzierl, 2792.

Colorado, De Beque, plants: Hollick, 1179.

Green River flora: Brown, 330.

East Indian and equatorial American faunas in Eocene time: Berry, 220.

Fernando group, California: Waterfall, 2772.

Florida, Choctawhatchee formation: Mansfield, 1704; Foraminifera: Cushman, 612.

Marianna limestone, Foraminifera: Cole, 517.

Pliocene tortoise: Wark, 2760.

teleost fish, Oligocene: Gregory 999

Gabb's lamellibranch types: Stewart, 2507.

Paleontology—Continued.

Tertiary—Continued.

Green River flora in Wind River Basin,
Wyo.: Berry, 216.

Jamaica, Blue Mountains: Trechmann,
2673.

Foraminifera: Vaughan, 2723.

Manchioneal beds: Trechmann, 2672.

Miocene Foraminifera, Buff Bay:
Cushman, 616.

Kansas, Pliocene, urodele: Adams, 10.

Mexico, decapod crustaceans: Rath-
bun, 2088.

Discocyclina, Eocene: Vaughan,
2717.

Meson formation, Foraminifera:
Cole, 515.

Oligocene brachiopod: Cole, 514.

Mississippi, Oligocene Foraminifera:
Howe, 1188.

Montana, Paleocene mammals, Bear
Creek: Simpson, 2389.

Nevada, Fish Lake Valley, Artiodac-
tyla: Stirton, 2512; rodents and
lagomorphs: Hall, 1033.

goose, Pliocene: Burt, 385.

hedgehog: Matthew, 1735.

new bat (*Mystipterus*): Hall, 1035.

Oregon, Carnivora, Mescal beds:
Stock, 2518.

Texas, Claiborne: Cole, 513.

Equidae, Pliocene: Matthew, 1742.

Foraminifera: Cushman, 614.

mollusks, Reynosa formation: Mar-
shall, 1706.

Trinidad, echinoids: Jeannet, 1239.

Virginia, *Amyda virginiana*, Eocene,
Aquia Creek: Lynn, 1638.

Wilcox flora: Berry, 212.

Wyoming, Big Horn Basin, lower
Eocene, Vertebrata: Jepsen, 1250.

Park County, northeastern: Jepsen,
1251.

Triassic.

Amphibia, Rocky Mountain region:
Branson, 297.

Connecticut, North Branford Triassic
field: Thorpe, 2649.

Phytosaurs: Camp, 423.

Utah, Fort Douglas area, cephalopoda:
Mathews, 1719.

Pterophyllum, Shinarump conglom-
erate: Berry, 217.

Panama Canal Zone.

Madden dam project, Alhajuela:
Reeves, 2130.

Panamint silver district, California:
Mac Murphy, 1677.

Paragenesis of minerals.

Maine, Newry pegmatite: Fraser, 878.

Pearls, fossil, Chico formation, California:
Russell, 2245.

Peat.

Canada, southeastern: Auer, 71.

chemical composition: Waksman, 2746.

climatic indicator: Giles, 920.

Pebbles.

Beach-pebble abrasion and transporta-
tion: Landon, 1492.

Dreikanter, Wyoming and Montana:
Delo, 665.

Glacial pebbles, faceted and striated,
type form: Von Engel, 2742.

Solution-faceted limestone pebbles:
Bryan, 347.

Pelecypoda. See also Mollusca.

Alberta, Bearpaw formation: Williams,
2880.

British Columbia, Ashcroft, Jurassic:
Crickmay, 585.

California, Miocene: Wiedey, 2859.

San Diego Pliocene, pecten: Hert-
lein, 1134.

Calypptogena, Deadman Island, Cali-
fornia: Crickmay, 580.

Cyphoxis Rafinesque: Pilsbry, 2026.

Devonian, Wisconsin: Pohl, 2035.

Exogyra: Reeside, 2121.

Gabb's Cretaceous and Tertiary types:
Stewart, 2507.

Guatemala, Upper Cretaceous: Ste-
phenson, 2491.

Hippurites, Cardenas, Mexico: Müller-
ried, 1865.

San Luis Potosi, Mexico: Müllerried,
1865.

Hippurites calamitiformis, Mexico:
Müllerried, 1866.

Hippurites mexicana, Mexico: Müller-
ried, 1864.

Leda, Eocene, Black Bluff, Ala.: Gard-
ner, 901.

Missouri, Louisiana limestone: Wil-
liams, 2877.

Mytilus loeli: Grant, 989.

New names for west American Mol-
lusca: Hertlein, 1135.

Oregon, Jurassic and Cretaceous rudis-
tids: Lupher, 1632.

Ostrea and Exogyra, Austin chalk
Texas: Stephenson, 2490.

Oysters, Miocene, California: Tieje,
2652.

Paphia, Washington, Port Blakely:
Frizzell, 887.

Pitaria: Tegland, 2607.

Rudistids, Oregon: Packard, 1967.

southern Mexico: Palmer, 1981.

Texas, Claiborne: Cole, 513.

Peneplains.

Appalachian: Ashley, 68; Ver Steeg,
2731.

Erosion surfaces, Idaho: Kirkham,
1446; Ross, 2204.

Fall Zone peneplain: Sharp, 2356.

General: Smith, 2441; Ver Steeg, 2728.

Idaho, northern: Anderson, 47.

Kentucky: Jillson, 1262.

New York, south-central: Fridley, 886.

Oregon, central, Neocene: Buwalda,
397.

Petroleum—Continued.

California—Continued.

Santa Maria fields, Santa Barbara County: Collom, 533.
Ventura Avenue field, Ventura County: Hertel, 1133.

Whittier fault oil fields: Norris, 1924.

Canada: Redfield, 2105.

Carbon ratios and oil gravities in Rocky Mountain region: Dobbin, 686.

Clays associated with oil-bearing strata: Taylor, 2598.

Colorado, Florence field, Fremont County: De Ford, 662.

northwestern: Heaton, 1101.

Compaction and oil migration: Athy, 70.

Discovery of oil fields: Eaton, 728.

Earth movements and accumulation: Croneis, 595.

Earth temperatures in oil fields: Heald, 1099.

Electric and electromagnetic prospecting for oil: Jenny, 1248.

Electric prospecting for oil structure: Sundberg, 2557.

Exchange of time for temperature in petroleum generation: White, 2846.

General: Thom, 2626.

Generation of oil by shearing pressures: Hawley, 1085.

Genesis: Van der Gracht, 2704.

Geologic distillation: Russell, 2249.

Geologic structure, rôle in accumulation: Clapp, 485.

Geophysical prospecting: Barton, 132; for petroleum in 1929, review of: Barton, 135.

Geosynclinals, influence on occurrence of petroleum: Villatoro, 2737.

Glossary of technical terms: González, 958.

Illinois, Centralia and Martinsville oil fields: Moulton, 1860.
developments in 1928: Moulton, 1861.

Dupo field: Bell, 172.

Indiana, Francisco field: Moulton, 1860.

Siosi field: Logan, 1587.

Tri-County field: Esarey, 763; surface and subsurface structure: Wanenmacher, 2755.

Kansas, Coffeyville oil field, Montgomery County: Foster, 864.

Cowley County: Bass, 143.

El Dorado field, Butler County: Reeves, 2131.

Fairport field, Russell County: Allan, 33.

Madison field, Greenwood County:

Petroleum—Continued.

Kansas—Continued.

Nemaha Mountains (Granite ridge) fields: Thomas, 2634, 2635.

Rainbow Bend field, Cowley County: Snow, 2445.

Valley Center oil field: Hall, 1037.

Virgil field, Greenwood County: Beekly, 165.

Kentucky, Allen County: Lee, 1531.
eastern: Fiske, 829.

Island Creek oil pool, Owsley County: Jillson, 1261.

Limestone as a reservoir rock: Howard, 1187; Murray, 1879.

Louisiana, Bellevue field, Bossier Parish: Teas, 2606.

Caddo field, Caddo Parish: Fletcher, 833.

Cotton Valley oil field: Ross, 2205.

Dixie pool, Caddo Parish: Shearer, 2361.

Homer field, Claiborne Parish: Spooner, 2457.

Pine Island field, Caddo Parish: Crider, 589.

Sulphur dome, Calcasieu Parish: Bauernschmidt, 155.

Urania field: Schneider, 2304.

Mapping oil structures by the Sundberg method: Zuschlag, 2946.

Mexico: Cumming, 604.

Guadalupe Hidalgo: Vivar, 2739.

Sinaloa (northern): Hisazumi, 1163.

Tamaulipas (southern) and Veracruz (northern): Müllerried, 1863.

Tuxpan-Misanfla region: Hisazumi, 1162.

Michigan: Osgood, 1962.

Saginaw field: Carlson, 444.

Mid-Continent oil fields: Anon, 2958.

Montana, Elk Basin field, Carbon County: Bartram, 140.

Kevin-Sunburst field, Toole County: Collier, 522; Howell, 1193.

Sweetgrass arch: Romine, 2189.

New Mexico, Artesia field, Eddy County: Davis, 636.

Shiprock district, Navajo Indian Reservation: Nowels, 1927.

New York: Hartnagel, 1076.

Bradford field: Newby, 1897.

Ohio, eastern: Cottingham, 570; Lockett, 1584.

Oil accumulation: Clapp, 486.

Oil and gas distilled from recent sediments: Trask, 2669.

Oil fields of United States: Ver Wiebe, 2735.

Oil sands, physical analysis: Nutting, 1930.

Oklahoma, Burbank field, Osage County: Sands, 2267.

Crinerville field, Carter County:

Petroleum—Continued.

Oklahoma—Continued.

- Cromwell field, Seminole and Okfus-
kee Counties: Langworthy, 1510.
Cushing oil and gas field: Weirich,
2793.
Delaware Extension pool, Nowata
County: Lewis, 1562.
Depew area, Creek County: Martin,
1712.
Garber field, Garfield County: Gish,
943.
Glenn pool: Wilson, 2896.
Greater Seminole district, Seminole
and Pottawatomie Counties: Le-
vorsen, 1560.
Hewitt field, Carter County: Burton,
386.
Hughes County: Boyle, 272.
Kay County: Clark, 496.
Lincoln County: Radler, 2076.
Love and Marshall Counties: Bul-
lard, 369.
Morrison field, Pawnee County: Car-
penter, 450.
Okfuskee County: Boyle, 271.
Oklahoma City oil field: Charles,
475; Riggs, 2163; Zavoico, 2943.
Osage County: Stephenson, 2489.
Pottawatomie County: Weirich, 2795.
Tulsa County: Cloud, 504.
Turkey Mountain lime pools: Ruede-
mann, 2226.
Wichita uplift: Becker, 162.
Ontario: Harkness, 1066, 1067.
oil and gas fields: Harkness, 1065.
Origin: Flores, 837; Ries, 2159.
Origin and environment of source sedi-
ments: Haseman, 1078.
Pennsylvania, Bradford field: Newby,
1897.
New Castle quadrangle: DeWolf, 675.
Pittsburgh quadrangle: Johnson,
1281.
Potentialities, Gulf coast, Texas and
Louisiana: Barton, 138.
Presence in sediments: Trask, 2671.
Quebec: Parks, 1989.
Recovery of oil in sandstones: Cloud,
503.
Salt-dome problem: Van Tuyl, 2715.
Sampling and coring in prospecting for
oil and gas: Cloud, 502.
Sandstone dikes (intrucast) as oil con-
duits: Jenkins, 1243.
Science in oil finding: Gould, 976.
Source sediments: Trask, 2667.
Structure of typical American oil
fields: Powers, 2055.
Subsurface contouring: Lauer, 1523.
Subsurface structure of unsymmetrical
anticlines in Rocky Mountains:
Bartram, 141.

Petroleum—Continued.

- Sulphate reduction in oil-well waters:
Bastin, 148; Ginter, 92.
Tectonic classification of oil fields:
Ver Wiebe, 2733.
Tennessee: Bailey, 78.
structure in oil fields: Lusk, 1636.
Texas, Archer County: Thompson,
2642.
Barbers Hill salt dome, Chambers
County: Murphy, 1877.
Big Lake pool, Reagan County:
Hennen, 1128.
Boggy Creek salt dome, Anderson
and Cherokee Counties: Storm,
2536.
Esperson salt dome, Liberty County:
Barton, 136.
Guadalupe County, Darst Creek
fault: Row, 2217.
Hendrick field, Winkler County:
Ackers, 1.
Laredo district: McFarland, 1658.
Larremore area, Caldwell County:
Weeks, 2785.
Luling field, Caldwell and Guadalupe
Counties: Brucks, 341.
Mexia and Tehuacana fault zones:
Lahee, 1482.
Nigger Creek field, Limestone Coun-
ty: Pepperberg, 2010.
northeastern: Judson, 1311.
Pecos County, Yates oil pool: Hen-
nen, 1129.
Petrolia field, Clay County: Ken-
drick, 1339.
Reagan County, University well:
Sellards, 2344.
Salt Flat field, Caldwell County:
Hedstrom, 1107; McCollum, 1648.
Saxet field, Nueces County: Price,
2062.
Smith-Ellis field, Brown County:
Storm, 2587.
Stephens County: Esgen, 770.
Van Zandt County, Van field: Liddle,
1564.
Westbrook field, Mitchell County:
Edwards, 736.
West Columbia field: Carlton, 445.
Wilbarger Co: Fuqua, 890.
Yates field, Pecos County: Adams,
8; Gester, 911.
Yoast field, Bastrop County: Colling-
wood, 526.
Trinidad, Lizard Springs anticline:
Skelton, 2409.
United States: Wunstorf, 2940.
West Virginia, Cabin Creek field: Was-
son, 2771.
Copley oil pool: Reger, 2132.
southern, synclinal oil fields: Davis,
639.

Petroleum—Continued.

- Wyoming, Carbon County: Dobbin, 682.
 Elk Basin field, Park County: Bartram, 140.
 Frannie field: Lupton, 1635.
 Grass Creek dome, Hot Springs County: Harrison, 1075.
 Lance Creek field, Niobrara County: Emery, 754.
 Lost Soldier district: Irwin, 1223.
 map of oil and gas fields: Richardson, 2151.
 Rock Creek oil field: Dobbin, 683.
 Rock River field, Carbon County: Emery, 755.
 Salt Creek field, Natrona County: Beck, 161.
 Petrolia oil field, Clay County, Tex.: Kendrick, 1339.
 Petrology (general). For areal see names of States. See also Igneous and volcanic rocks; Sedimentary rocks; Technique.
 Abstracts and reviews: Johannsen, 1267.
 Beach sand, composition: Hamaker, 1040.
 Chemical characterization of rock types: Mathews, 1725.
 Chemical composition and groundmass texture in siliceous lavas: Powers, 2052.
 Crystallization of basalts: Fenner, 795.
 Duration of pegmatite crystallization: Lane, 1495.
 Eutectic, use of term: Fenner, 796.
 Genetic classification of rocks: Chadwick, 463.
 Glacial deposits, weathered zones: Allen, 37.
 Gypsum-anhydrite salt-dome cap rock: Goldman, 952.
 Ice as a rock: Blackwelder, 245.
 Leucite-diopside system: Bowen, 258.
 Melting granite and basalt in laboratory: Greig, 1001.
 Petrographic methods: Milton, 1807.
 Petrographic microscope: Emmons, 757.
 Pisolites, polyhedral: Shrock, 2383.
 Plateau basalts, source: Bowen, 257.
 Radium in granites: Piggot, 2024.
 Rock suites, Pacific and Atlantic basins: Washington, 2768.
 Tables for determining minerals and rocks: Ellis, 744.

Phosphoria formation: Branson, 295.

Physical geology (general). For areal see names of States.

- Abyssal assimilation: Grout, 1006.
 Algae reefs and oolites, Green River formation: Bradley, 277.
 Algal oolites: Bradley, 281.
 Amygdaloids and cavity fillings: Morris, 1854.

Physical geology (general)—Continued.

- Amygdules and pseudo-amygdules: Morris, 1855.
 Anomalies of vertical intensity: Somers, 2447.
 Anosmia or "squeeze-ups": Colton, 537.
 Appalachian Piedmont deformation determined by river gravels: Campbell, 426.
 Arroyo running in the desert: Brown, 334.
 "Basin range" structure: Keyes, 1369.
 Bathymetric and orogenic movements: Gillson, 928.
 Beach-pebble abrasion and transportation: Landon, 1492.
 By-passing and discontinuous deposition of sediments: Eaton, 727.
 Cavern formation: Swinnerton, 2576.
 Cavernous rock surfaces of desert: Blackwelder, 236.
 Clay galls, origin: Burt, 384.
 Cleavage and parajointing: Donnay, 694.
 Coal as recorder of incipient rock metamorphism: Campbell, 430.
 Columnar structure in limestone: Roy, 2222.
 Concretions: Tarr, 2595.
 Continental drifting: Longfellow, 1590; Russell, 2238; Van der Gracht, 2703.
 Continental fragmentation: Barrell, 120.
 Coralline algae: Ruedemann, 2233.
 Deflation in deserts: Blackwelder, 240.
 Deformation and temperature: Nutting, 1928.
 Differential compaction: Foley, 856; Nevin, 1893, 1895; effects on coal-bearing strata: Spleker, 2454.
 En échelon fault belts: Clark, 492.
 Festoon cross lamination: Knight, 1458.
 Flood erosion: Jacobs, 1229.
 Folding and faulting of strata: Reid, 2135.
 Forest fires, geologic importance: Crickmay, 584.
 Frost heaving: Taber, 2583, 2584.
 Fundian fault vs. glaciers: Shepard, 2365.
 General: Smith, 2441.
 Hoarfrost and glacial growth: Ahlman, 18.
 Igneous metamorphism of coal beds: McFarlane, 1659.
 Imbricate arrangement of pebbles in a pre-Cambrian conglomerate: Pettijohn, 2021.
 Initial dips peripheral to resurrected hills: Bridge, 311.
 Lava tree casts and tree molds: Finch, 822.

Physical geology (general)—Continued.

- Limestone, precipitation by submarine volcanic action: Kania, 1313.
 Limestone caverns, origin: Davis, 646.
 Magmatic cycles: MacCarthy, 1642.
 Metamorphic belt of central Appalachians: Jonas, 1291.
 Metamorphic orogeny: Willis, 2887.
 Mississippi Delta, building of: Trowbridge, 2680.
 Mississippi River problem: Haas, 1028.
 Mississippi Valley, upper, diastrophic history: Trowbridge, 2679.
 Mowry shale, origin: Rubey, 2223.
 Mud-crack casts: Bradley, 283.
 Oolites, Great Salt Lake, origin and growth: Mathews, 1721.
 Organic acids, action on limestone: Murray, 1878.
 Origin of caverns: Davis, 647.
 Oscillation theory of diastrophism: Longwell, 1599.
 Oscillatory movement in Chazy and Levis troughs of the Appalachian geosyncline: Ruedemann, 2232.
 Pisolites, polyhedral: Schrock, 2383.
 Planational terms: Glock, 951.
 Polygonal cracking in granite: Leonard, 1547.
 Porosity in reef limestone, origin: Lloyd, 1578.
 of limestones: Murray, 1879.
 of rocks: Lamar, 1486.
 Pseudo-eutectic textures: Schwartz, 2332.
 Pyramidal jointing in shales: Sheldon, 2363.
 Quartz surfaces, chemical activation: Nutting, 1929.
 Red bed bleaching: Keller, 1329.
 Red beds, origin: Baker, 86.
 Rock features caused by glacial movement: Glock, 948.
 Rhythmic banding: Cook, 547.
 St. Croixan sandstones, origin: Graham, 985.
 Salt deposits, formation in inland basins: Jones, 1296.
 Salt-dome problem: Van Tuyl, 2715.
 Sea-level studies: Johnson, 1270.
 Secondary oolite: Swartzlow, 2571.
 Sediments beneath deep sea, magnitude: Twenhofel, 2688.
 Sediments deformed by ice thrust: Glock, 949.
 Selenite fragments as criteria of wind action: Schoewe, 2312.
 Soil freezing experiments: Taber, 2582.
 Solution in peneplanation: Ward, 2759.
 Solution-faceted limestone pebbles: Bryan, 347.
 Solvent denudation overestimated: Lane, 1494.
 Sorting power of wind and wave: Henderson, 1124.

Physical geology (general)—Continued.

- Stalactites, rate of growth: Johnston, 1288.
 Status and importance of isostasy: Hixon, 1164.
 Strain ellipsoid, Link, 1572; applications: Foley, 857; Link, 1572; Mead, 1751.
 Submarine volcanism: Kania, 1314.
 Submountain structures of desert range: Keyes, 1373.
 Textbook: Longwell, 1596; Pirsson, 2027.
 Thermal stratification in lakes: Kindle, 1420.
 Transverse fractures: Lasky, 1519.
 "Unsupported inclusions": Talmage, 2590.
 Water solubility, Bailey, 74.
 Physiographic geology (general). For areal see names of States. See also Drainage changes.
 Appalachian peneplains: Ver Steeg, 2731; age: Ashley, 68.
 Appalachian Piedmont deformation determined by river gravels: Campbell, 426.
 Base-level: Johnson, 1272; level of: Chamberlin, 467.
 Bolsons, desert: Keyes, 1400.
 Boulders in Hudson River formation: Warthin, 2766.
 Canadian shield, depression and uplift: Cooke, 556.
 Colorado River region: Reichel, 2134.
 Continental abyssal slopes, origin: Shepard, 2364.
 Correlation of coastal terraces: Cooke, 554.
 Desert bolsons: Keyes, 1394, 1400.
 Drainage alinement in western Great Plains: Russell, 2250.
 Drainage systems, development: Glock, 950.
 East and West contrasts: Davis, 644.
 Faceted piedmont spurs of desert ranges: Keyes, 1382.
 Fall Zone peneplain: Sharp, 2356.
 General: Bryan, 351; Keyes, 1359; Leighton, 1536.
 Geomorphic value of river gravel: Campbell, 428.
 Illinoian drift weathered zone: Conrey, 546.
 Klintar, upper Wabash Valley, Indiana: Shrock, 2381.
 Labrador Peninsula, mature valleys: Cooke, 556.
 Land surfaces, determining average slope: Wentworth, 2819.
 Land tilting, Great Lakes region: Taylor, 2599.
 Landslide family: Blackwelder, 244.
 Mid-Atlantic ridge, origin: Washington, 2769.
 Mountain pediments: Davis, 641.

Physiographic geology (general)—Contd.

- Natural mounds, Texas, Arkansas, and Louisiana: Melton, 1763.
 New England Upland: Johnson, 1268.
 Outline of physiography: Hinds, 1152.
 Pediments and bajadas, Great Basin: Blackwelder, 232.
 Peneplains: Ver Steeg, 2728; Susquehanna Valley: Stose, 2539.
 Peneplanation of Continental Divide: Keyes, 1361.
 Periodicity in desert physiography: Davis, 643.
 Phenomena of arid regions: Bryan, 352.
 Physiography, dual nature: Glock, 947.
 Planational terms: Glock, 951.
 Pleistocene lakes, Basin Range province: Blackwelder, 246.
 Pleistocene seashores: Cooke, 553.
 Provinces in desert: Keyes, 1371.
 Radio talks: Leighton, 1536.
 River system, nomenclature: Campbell, 427.
 River valleys in older Appalachians: Wright, 2930.
 Rock floors in arid and humid climates: Davis, 641.
 Sea level: Johnson, 1271.
 Solution in peneplanation: Ward, 2759.
 Structural contouring: Ley, 1563.
 Tertiary mountain ranges, correlation: Taylor, 2601.
 Topographic features, geologic age: Blackwelder, 243.
 Tundra climate land forms: Russell, 2248.
 United States, physical divisions: Fenneman, 794.
 Western United States, erosional history: Fillman, 819.
 Wind gaps and water gaps, relation to peneplanation: Ver Steeg, 2730.
 Physiography, dual nature: Glock, 947.
 Phytosaurs: Camp, 423.
 Pine Island oil field, Caddo Parish, Louisiana: Crider, 589.
 Pine Mountain quartzites, Georgia: Adams, 4.

Pisces.

- Amia, Cretaceous, Alberta: Jordan, 1310.
 Arthrodira: Stetson, 2501.
 Coccosteus, Portage shales, New York: Bryant, 355.
 Descriptions: Roy, 2221.
 Devonian fishes, new localities: Branson, 299.
 Devonian, Utah and Wyoming: Branson, 302.
 Dinichthys and Macropetalichthys: Stetson, 2501.
 Fish otoliths: Campbell, 431.
 Greenland, eastern, Devonian: Heintz, 1118.

Pisces—Continued.

- New Mexico, Jurassic: Koerner, 1471.
 New York, Hamilton shales: Bryant, 354.
 Portheus molossus: Gregory, 995.
 Shark teeth: Carroll, 455.
 Snapper, Marianna limestone, Florida: Gregory, 996.
 Stylomyleodon and Kindeleia: Russell, 2240.
 Teleost fish, Oligocene, Florida: Gregory, 999.
 Niobrara, Kansas: Hussakof, 1215.
 Texas, fish spine, Pennsylvanian: Moore, 1844.
 Titanichthys, dental elements: Hussakof, 1216.
 Xiphias? drydeni, Calvert Cliffs, Maryland: Berry, 219.
 Isolites, polyhedral: Shrock, 2383.
 Planetesimal hypothesis: Jeffreys, 1240; Willis, 2886; development: MacMillan, 1675; and meteoritic agglomeration: Keyes, 1357.
 Plants, fossil. See Paleobotany.
 Platinum.
 Ontario, Lower Shebandowan Lake: Watson, 2778.
 Oregon, southwestern: Kellogg, 1332.
 Washington, black sand: Pardee, 1986.
 Pleistocene. See Glacial geology; Quaternary.
 Pliocene. See Tertiary.
 Pollen, Erie Basin: Sears, 2338.
 Polygonal cracking in granite: Leonard, 1547.
 Polyzoa. See Bryozoa.
 Pomperaug Basin, Conn.: Meinzer, 1756.
 Popular and elementary geology: Reed, 2115.
 Strange adventures of a pebble: Hawksworth, 1082.
 Portland cement. See Cement materials.
 Porto Rico.
 Economic geology.
 Mineral deposits: Low, 1614.
 Historical geology.
 General: Maury, 1743.
 Pre-Oligocene stratigraphy: Meyerhoff, 1791.
 Potash.
 Bibliography: Berliner, 191.
 Canada, maritime provinces: Cole, 511.
 Texas and New Mexico: Mansfield, 1697, 1699.
 United States: Mansfield, 1701.
 Pre-Cambrian. See also Paleontology, pre-Cambrian.
 Alaska, Eagle-Circle district: Mertie, 1784.
 Arizona, Jerome quadrangle, pre-Cambrian greenstone complex: Lausen, 1525; Lindgren, 1569.
 British Columbia, Clearwater Lake area: Davis, 637.
 Lardeau map area: Walker, 2747.

Pre-Cambrian—Continued.

- Classification and correlation: Lawson, 1528.
 Colorado, Front Range: Lovering, 1610.
 Ouray district: Burbank, 376.
 General: Keyes, 1388.
 Greenland: Koch, 1466.
 east: Koch, 1465.
 northeast: Backlund, 73; Kulling, 1481.
 Huronian, disappearance: Collins, 532.
 Huronian problems: Lawson, 1527.
 Idaho, Clark Fork district: Anderson, 48.
 Orofino region: Anderson, 50.
 Wood River region: Umpleby, 2700.
 Kansas: McClellan, 1643.
 Keewatin-Timiskaming boundary: Moore, 1835.
 Manitoba, Cold Lake area: Wright, 2934.
 Maryland, Baltimore County: Knopf, 1462.
 Michigan, copper region: Butler, 391.
 Minnesota: Grout, 1003.
 Cuyuna stratigraphy: Zapffe, 2942.
 Knife Lake region: Gruner, 1007.
 Lake Superior region, batholiths: Grout, 1005.
 southern, Keweenaw: Sardeson, 2278.
 Missouri, Eminence and Cardareva quadrangles: Bridge, 312.
 Potosi and Edgehill quadrangles: Dake, 623.
 Montana, Kevin-Sunburst oil field: Collier, 522.
 New World district: Lovering, 1608.
 Rainy Creek district: Pardee, 1987.
 Rocky Mountain front: Bevan, 223.
 New York: Chadwick, 466.
 Adirondacks: Buddington, 364.
 Northwest Territories, Great Slave Lake: Lausen, 1524.
 Nova Scotia: Malcolm, 1691.
 Horton-Windsor district: Bell, 180.
 Ontario, Algoma, Ranger Lake and Garden River area: Hurst, 1210.
 Beardmore-Nezah gold area: Langford, 1508.
 Birch Lake batholith: Tolman, 2660.
 Boston-Skead area: Bell, 178.
 Cartier-Stralak area: Osborne, 1959.
 Caviar Lake gold area: Burwash, 388.
 Cochrane and Timiskaming districts: Gledhill, 944.
 Favourable Lake-Sandy Lake, Patricia: Hurst, 1214.
 Fort Hope gold area, Patricia: Burwash, 387.
 Huronian, disappearance: Quirke, 2072.
 Huronian complex: Quirke, 2074.

Pre-Cambrian—Continued.

Ontario—Continued.

- Keewatin-Timiskaming boundary: Moore, 1835.
 Lake Savant area: Moore, 1833.
 Maisonville Township: Derby, 671.
 Moose River Basin: Dyer, 714.
 nickel field, southwest part: Moore, 1837.
 north shore of Lake Huron: Moore, 1836.
 Oba area, District of Algoma: Maynard, 1748.
 Pickle Lake-Crow River area, District of Kenora: Hurst, 1213.
 Rainy River district: Hawley, 1088.
 Rush River area, Woman River district: Bannerman, 107.
 Sapawe Lake area: Hawley, 1086.
 Sudbury: Collins, 531.
 Sudbury Basin area: Burrows, 381.
 Sudbury district, Woman River and Ridout areas: Emmons, 756.
 western: Kranck, 1474.
 Woman, Narrow, and Confederation Lakes: Bruce, 336.
 Pennsylvania, Fairfield and Gettysburg quadrangles: Stose, 2538.
 McCalls Ferry-Quarryville district: Knopf, 1463.
 Quebec, Chibougamau, McKenzie Township: Retty, 2144.
 Desmeloizes area, Abitibi district: Mawdsley, 1745.
 Keewatin-Timiskaming boundary: Moore, 1835.
 Obatogamau River area, Abitibi Territory: Tolman, 2661.
 Saguenay County, north shore: Faessler, 783.
 Rocky Mountain section, 51st parallel: Warren, 2762.
 Saskatchewan, southern: McLearn, 1672.
 Saskatchewan-Manitoba, Reindeer Lake area: Stockwell, 2525.
 South Dakota, Black Hills: Connolly, 542.
 Vermont, Bridgewater and Plymouth Townships: Perry, 2017.
 Wisconsin, Baraboo district: Stark, 2467.
 Gogebic iron range: Aldrich, 24.
 northern: Hotchkiss, 1185.
 Pribilof Islands, rocks: Washington, 2770.
 Primates. See Mammalia.
 Proboscidea. See Mammalia.
 Projection diagrams, preparation: Wright, 2931.
 Prospecting in Canada: Canada G. S., 438.
 Pseudo-eutectic textures: Schwartz, 2332.
 Pyrite.
 Alabama: Adams, 5.

- Quaternary. See also Glacial geology; Paleontology, Quaternary.
- Alaska, Mount Spurr region: Capps, 440.
- British Columbia, Vancouver, Pleistocene: Crickmay, 582.
- California, classification: Hill, 1147.
- Deadman Island: Crickmay, 581.
- Rancho La Brea: Stock, 2519.
- San Diego County, marine Pleistocene: Stephens, 2488.
- Colorado, Front Range: Lovering, 1611.
- Connecticut, Stiles clay pit section: Brown, 331.
- Criteria for Pleistocene correlation: Leverett, 1558.
- Florida: Cooke, 551.
- Maryland, Baltimore County: Berry, 203.
- Nevada, Lake Lahontan: Jones, 1295.
- New Jersey, Pleistocene: Richards, 2147.
- Pennsylvania, Fairfield and Gettysburg quadrangles: Stose, 2538.
- Pleistocene, age: Harrington, 1074.
- lakes, Basin Range province: Blackwelder, 246.
- seashores: Cooke, 553.
- Texas, southeastern: Barton, 137.
- Quatsino-Nimkish area, Vancouver Island, British Columbia: Gunning, 1020.
- Quebec.
- Geologic traverses: Dresser, 705.
- New Quebec (Ungava): Anon., 2948.
- Podsol soils: McKibbin, 1664.
- Reconnaissance, Montmorency, Charlevoix, and Saguenay Counties: Faessler, 782.
- Areas described.*
- Berry Mountain area, Gaspé: Jones, 1294.
- Bousquet-Cadillac area, Abitibi district: Bell, 177.
- Desmeloizes area, Abitibi district: Mawdsley, 1745.
- McKenzie Township, Chibougamau region: Retty, 2144.
- North shore, Saguenay County: Faessler, 783.
- Obatogamau River area, Abitibi Territory: Tolman, 2661.
- Economic geology.*
- Aldermac ore, origin: Cooke, 559.
- Amulet mine: Cooke, 558.
- Asbestos: Starks-Field, 2468.
- Bousquet-Cadillac area, Abitibi district: Bell, 177.
- Chrysotile veins, southern Quebec: Taber, 2581.
- Desmeloizes area, Abitibi district: Mawdsley, 1745.
- Gold and copper, western Quebec: Cooke, 555.
- Gold-bearing quartz veins, northern Quebec: Bain, 80.
- Quebec—Continued.
- Economic geology—Continued.*
- Graphite deposits, Louisa: Bain, 79.
- Grenville series: Goodwin, 962.
- Mining, 1928: Dufresne, 707.
- Natural gas possibilities, St. Lawrence lowland: DeMille, 669.
- Nickel-cobalt minerals, Calumet Island: Ellsworth, 750.
- Oil and gas resources: Parks, 1989.
- Oil possibilities: Spearman, 2448.
- Rouyn, Aldermac mine: Alderson, 23.
- Historical geology.*
- Devonian, Escuminac Bay: Kindle, 1424.
- Keewatin-Timiskaming boundary: Moore, 1835.
- Lake Dufault compound laccolith: Cooke, 557.
- Matapedia Valley, Gaspé: Crickmay, 588.
- Percé, upper Ordovician and lower Devonian: Schuchert, 2324.
- Mineralogy.*
- Dalmatianite, Noranda: Walker, 2751.
- Pegmatite minerals: Spence, 2451.
- Pyroxene and scapolite, Templeton Township: Parsons, 1992.
- Villeneuve uraninite, alteration: Ellsworth, 751.
- Paleontology.*
- Devonian plant, Gaspé: Alcock, 19.
- Percé, upper Ordovician and lower Devonian: Schuchert, 2324.
- Petrology.*
- Amulet mine: Cooke, 558.
- Lake Dufault compound laccolith: Cooke, 557.
- Mineral composition of sands: Martens, 1708.
- Mount Royal, nepheline syenites and pegmatites: Finley, 823.
- Physical geology.*
- Keystone faulting, La Tuque: Crosby, 601.
- Physiographic geology.*
- Glacial lakes: Gill, 923.
- St. Maurice Valley, preglacial drainage: Crosby, 602.
- Quicksilver.
- California, Coso Range, Inyo County: Warner, 2761.
- Occurrence of ore bodies: Schuette, 2326.
- Texas, Brewster County: Lonsdale, 1601.
- Radium.
- in granites: Piggot, 2024.
- Ontario, Wilberforce: Spence, 2450.
- Rainbow Bend oil field, Cowley County, Kans: Snow, 2445.
- Red Beds, origin: Baker, 86.
- Relief maps.
- Lake Superior region: Leverett, 1552.
- North America (part): Cooke, 551.
- Oklahoma: Bollinger, 250.

Reptilia.

- Allognathosuchus mooki*, Puerto formation, New Mexico: Simpson, 2396.
- Amyda virginiana*, Eocene, Aquia Creek, Va.: Lynn, 1638.
- Anchiceratops*, Edmonton beds, Alberta: Sternberg, 2495.
- Anodontosaurus*, Edmonton beds, Alberta: Sternberg, 2494.
- Aspideretes*, Paskapoo formation, Alberta: Russell, 2244.
- Brachysuchus megalodon*: Case, 460.
- Camarasaurus lentus* mount: Lull, 1623.
- Ceratopsia*, Upper Cretaceous, New Mexico: Wiman, 2897.
- Comanchean reptiles, Kansas, Oklahoma, and Texas: Gould, 973.
- Crocodylian, Torrejon beds, New Mexico: Mook, 1828.
- Dinosaurs: Lucas, 1620.
- Collecting: Gilmore, 934; Kindel, 1423.
- Pierre formation: Wieland, 2862.
- tendons: Moodie, 1822.
- Two Medicine formation, Montana: Gilmore, 937.
- Wyoming: Moodie, 1823.
- Edaphosaurus*, West Virginia: Whipple, 2835.
- Florida, *Trachemys sculpta*: Gilmore, 936.
- Footprints, coal measures, Alabama: Aldrich, 27.
- Mosasaur*, *Amphikepubis*, Mexico, Mehl, 1754.
- Ostodolepis brevispinatus*: Case, 458.
- Phytosaur* showing dentition: Case, 459.
- Phytosaurs: Camps, 423.
- Arizona: Camp, 422.
- Platecarpus: Mehl, 1754.
- Plesiosaurs, fresh-water: Russell, 2243.
- Theromorph, Permian: Broom, 322.
- Tortoise, Pliocene; Florida: Wark, 2760.
- Turtle skulls and jaws: Martin, 1711.
- Upper Cretaceous dinosaur faunas: Russell, 2242.
- Reservoir and dam sites: Bryan, 344.
- Restorations.
- Dinosaurs: Moodie, 1823.
- Mammalia, Florida: Simpson, 2386.
- Neanderthal (Mousterian) man: Farrington, 792.
- Nothrotherium*, Dona Ana County, N. Mex.: Lull, 1622.
- Wilcox plants: Berry, 212.
- Rhode Island.
- Paleontology*.
- Amphibian footprints, Pennsylvanian, Narragansett Basin: Willard, 2872.
- Mineralogy*.
- Manton minerals: Stewart, 2503.
- River capture. See Stream capture.

Rivers.

- Mississippi River problem: Haas, 1028.
- Red River sediments: Jones, 1301.
- Road materials.
- Oklahoma: Wolfard, 2903.
- Prince Edward Island: Picher, 2023.
- Rock falls north of Savanna: Ekblaw, 739.
- Rock River oil field, Carbon County, Wyo.: Emery, 755.
- Rock slides. See Landslides.
- Rocks. See Igneous and volcanic rocks; Sedimentary rocks.
- Rocky Mountains, former lateral expanse: Keyes, 1406.
- Rome ("Watauga") formation, Appalachian Valley: Woodward, 2920.
- Roundstone: Fernald, 813.
- Saginaw oil field, Michigan: Carlson, 444.
- Saline domes. See Salt domes.
- Salinity of water of Chesapeake Bay: Wells, 2810.
- Salt.
- Alabama, possible salt deposits near Jackson fault: Barksdale, 112.
- Alberta: Allan, 32.
- Canada: Cole, 510.
- Salt deposits, formation in inland basins: Jones, 1296.
- Salt domes.
- Cap rock, petrographic study: Barton, 139.
- Experimental investigation: Link, 1573.
- Formation: Escher, 769.
- Secondary salt-dome materials: Hanna, 1056.
- Texas, Barbers Hill salt dome, Chambers County: Murphy, 1877.
- Boggy Creek salt dome, Anderson and Cherokee Counties: Storm, 2536.
- eastern: Wendlandt, 2813.
- West Columbia dome: Carlton, 445.
- Salt Creek oil field, Natrona County, Wyo.: Beck, 161.
- Salt-dome problem: Van Tuyl, 2715.
- Salvador.
- Izalco Volcano: Termer, 2611.
- Sand. See also Glass sand; Silica.
- California, recent sands: Reed, 2112.
- Classification and specifications: Tuck, 2684.
- General: Thoenen, 2624.
- Indiana, foundry sands: Logan, 1589.
- New York: Nevin, 1896.
- Ontario, Mattagami and Missinaibi Rivers: Montgomery, 1817.
- Virginia, Coastal Plain: Wentworth, 2817.
- Sand-calcite crystals, South Dakota: Conolly, 543.
- Sand movement, beaches, etc.; a bibliography: Haferkorn, 1029.
- Sandstone. See also Building stone.
- Arkansas, northern: Giles, 917.
- Ontario, Amherstburg, Sylvania sandstone: Dyer, 718.

Santa Maria oil fields, Santa Barbara County, Calif.: Collom, 533.

Saskatchewan.

Soils: Edmunds, 732.

Areas described.

Reindeer Lake area: Stockwell, 2525.

Southern Saskatchewan: McLearn, 1672.

Southwestern Saskatchewan: Williams, 2879.

Economic geology.

Clay: Worcester, 2925.

Clay and coal deposits, southern Saskatchewan: McLearn, 1673.

Coal reserves: Hastings, 1079.

Fire clays, southern Saskatchewan: Hutt, 1218, 1219.

Limestones: Goudge, 966.

Natural gas: Hume, 1209.

Oil and gas prospects, central Saskatchewan: Warren, 2763.

Historical geology.

Miocene gravels, southern Saskatchewan: Sternberg, 2497.

Regina area: Simpson, 2398.

Paleontology.

Plants, Cypress Hills: Berry, 215.

Upper Cretaceous dinosaur faunas: Russell, 2242.

Petrology.

Petrography of sediments: Fraser, 874, 875.

Physiographic geology.

Glacial Lake Regina: Johnston, 1286.

Southwestern Saskatchewan: Williams, 2878.

Underground water.

Ground water resources, Regina: Simpson, 2398.

Oil-field waters: Campbell, 434.

Scaphopoda. See also Mollusca.

Florida, Choctawhatchee formation: Mansfield, 1704.

Scenery Hill gas field, Washington County, Pennsylvania: Robinson, 2171.

Secondary enrichment. See Ore deposits, origin.

Sedimentary rocks. See also Petrology.

Algae reefs and oolites, Green River formation: Bradley, 277.

Cambrian sandstone, Minnesota, petrography: Graham, 986.

Colorado, Sangre de Cristo conglomerates, origin: Johnson, 1275.

Compaction and oil migration: Athy, 70.

Cretaceous, Black Hills region, lithology: Rubey, 2224.

Density, porosity, and compaction: Athy, 69.

Detrital minerals in Canadian sediments: Fraser, 876.

Differential compacting: Nevin, 1893.

Discoloration of sediments by bacteria: Singewald, 2407.

Sedimentary rocks—Continued.

Glacial sediments: Leighton, 1540.

Heavy mineral work in Mid-Continent region: Edson, 734.

Hillsboro sandstone: Carman, 447.

Madison and Jordan sandstones, southern Wyoming, petrography: Ockerman, 1932.

Mechanical analyses of sediments by centrifuge: Trask, 2670.

Mineral composition of sands from Quebec, Labrador, and Greenland: Martens, 1708.

Minerals of sandstones, Ozark region: Cordry, 566.

New York, central, Portage sedimentation: Sheldon, 2362.

Oklahoma, Anadarko Basin: Freie, 882.

Pennsylvanian: Weller, 2801.

Secondary oolite: Swartzlow, 2571.

Sespe formation, California: Reed, 2109.

Silicified bog iron deposits, post-Cambrian, Virginia: Goldman, 953.

Varved sediments: Antevs, 61.

Volcanic deposits, Arkansas, Texas, and Oklahoma: Ross, 2194.

Wisconsin, Waupaca, varved clay deposit: Ellsworth, 749.

Sedimentation. See also Conglomerate; Erosion.

Alberta, Lake Cavell: Kindle, 1426.

Beach sand, composition: Hamaker, 1040.

Bibliography of chemical studies: Steiger, 2486.

By-passing and discontinuous deposition of sediments: Eaton, 727.

California, recent sands: Reed, 2112.

Colorado River delta: Sykes, 2577.

Computing mechanical composition types in sediments: Wentworth, 2816.

Fluvial deposits: Trowbridge, 2678.

General: Ramser, 2082; Reed, 2110; Twenhofel, 2689.

Lake deposits in Basin and Range province: Blackwelder, 237.

Limestone, precipitation by submarine volcanic action: Kania, 1313.

Louisiana, Barataria Bay: Winston, 2902.

Marine bottom deposits: Vaughan, 2725.

Marine sedimentation: Becking, 163; Trask, 2666.

Marl, formation: Kindle, 1420.

Mechanical analyses of sediments by centrifuge: Trask, 2670.

Method of computing mechanical composition types in sediments: Wentworth, 2816.

Mississippi delta: Trowbridge, 2680.

Phases of sedimentation, Gulf coastal region: Steinmayer, 2487.

Sedimentation—Continued.

- River gravel: Campbell, 428.
 Salinity of water of Chesapeake Bay: Wells, 2810.
 Sediments beneath deep sea, magnitude: Twenhofel, 2688.
 Silting, Colorado River: Fortier, 859.
 lake at Austin, Tex: Taylor, 2603.
 reservoirs: Taylor, 2602.
 rivers: Bryan, 348.
 Spring pits: Quirk, 2073.
 Sulphur in recent sediments: Trask, 2668.
 Virginia, James River: Stow, 2547.
 Sediments beneath deep sea, magnitude: Twenhofel, 2688.
 Seismic mapping of geologic structure: Barton, 130.
 Seismic prospecting: Helland, 1113.
 Seismology. See also Earthquakes.
 Accelerometer: Wenner, 2814.
 Bibliography: Hodgson, 1170, 1171.
 Earthquake first motion: Byerly, 403.
 General: Freeman, 880; Heck, 1105; Patton, 1997.
 Location of epicenters, 1926–27: Doxsee, 704.
 Pacific seismic surface waves, velocity: Neumann, 1889.
 Progress in American seismology: Day, 656, 657.
 Rayleigh-wave records: Leet, 1535.
 Report of advisory committee: Day, 653, 655.
 Scale for earthquake intensity: McAuliffe, 1639.
 Seismic surface waves, formation: Gutenberg, 1026.
 Seismographic problems: Macelwane, 1654.
 Seismological investigations in United States, 1927–29: Heck, 1104.
 Seismological reports: Neumann, 1888.
 Seismological Society of America, Eastern section; Washington meeting, 1930: Seismol. Soc. Am., 2340.
 S-wave, analysis: Neumann, 1890.
 Tilt-compensation seismometer: McComb, 1649.
 Travel-times table for earthquakes: Joliat, 1290.
 United States: Heck, 1102.
 Serpentine, hydrothermal alteration: Wells, 2807.
 Shore lines. See also Beaches; Terraces.
 Connecticut: Sharp, 2355.
 Shore lines (abandoned). See also Glacial lakes; Terraces.
 Connecticut: Sharp, 2355.
 Lake Superior region: Leverett, 1552.
 Silicoflagellate? (Protozoa).
 Rocella, Miocene, California: Hanna, 1052.

- Silurian. See also Paleontology, Silurian.
 For Lower Silurian see Ordovician.
 Alaska: Kirk, 1436.
 Chandalar-Sheenjek district: Mertie, 1781.
 Eagle-Circle district: Mertie, 1784.
 northwestern: Smith, 2434.
 southeastern: Buddington, 362.
 Appalachians, central: Swartz, 2564.
 Arctic regions: Foerste, 844.
 Arkansas, De Queen and Caddo Gap quadrangles: Miser, 1808.
 Paleozoic area: Cronis, 591.
 Colorado, Front Range: Lovering, 1611.
 Greenland: Koch, 1466.
 Idaho, Portneuf quadrangle: Mansfield, 1695.
 Wood River region: Umpleby, 2700.
 Illinois, Alexis quadrangle: Wanless, 2756.
 Chicago: Nichols, 1908.
 Chicago shale: Taylor, 2597.
 Michigan, salt-bearing rocks: Newcombe, 1900.
 Missouri, southeastern: Ball, 102.
 Montana, Rocky Mountain front: Bevan, 223.
 New York: Chadwick, 465.
 capital district (Albany and vicinity): Ruedemann, 2234.
 Nova Scotia, Horton-Windsor district: Bell, 180.
 Ohio, southwestern: Foerste, 847.
 Oklahoma, Cherokee and Adair Counties: Cram, 575.
 Johnston and Murray Counties: Melton, 1765.
 Wichita Mountains: Hoffman, 1174.
 Ontario, Albany River: Dyer, 719.
 Rocky Mountain section, 51st parallel: Warren, 2762.
 Shawangunk conglomerate, New York: Swartz, 2563.
 Texas, Reagan County, Big Lake oil field: Lowman, 1617.
 Utah, Gold Hill quadrangle: Nolan, 1923.
 West Virginia, Pocahontas County: Price, 2060.
 Silver.
 Alaska, Hyder area: Buddington, 363.
 British Columbia, Alice Arm district: Hanson, 1063.
 Bear River and Stewart map areas: Hanson, 1060.
 Lardeau map area: Gunning, 1018.
 California, Panamint district: MacMurphy, 1677.
 Randsburg district, miargyrite ores: Shannon, 2354.
 Colorado, Creede district: Larsen, 1512.
 Ouray district: Burbank, 376.
 Economic relations: Merrill, 1774.

Silver—Continued.

- Idaho, Clark Fork district: Anderson, 48.
 Lava Creek district: Anderson, 46.
 south-central, mining districts: Ross, 2202.
 Wood River region: Umpleby, 2700.
 Mexico, northeastern: Fletcher, 831.
 Pachuca area: Hulin, 1204.
 Parral area, Chihuahua: Schmitt, 2303.
 Nevada, mining districts: Ferguson, 809.
 Tonopah district: Nolan, 1922.
 Ontario, Algoma, Ranger Lake and Garden River area: Hurst, 1210.
 Gowganda area: Campbell, 424.
 South Dakota, Black Hills: Connolly, 542.
 Utah, Tintic district: Hahn, 1030.
 Skwentna region, Alaska: Capps, 439.
 Slides. See Landslides.
 Smith-Ellis oil field, Brown County, Tex: Storm, 2537.
 Soapstone.
 Virginia: Burfoot, 378.
 Nelson County: Ryan, 2259.
 Societies. See Associations.
 Soil mapping in geologic interpretation: Edmunds, 732.
 Soils.

- Formation in Tropics: Senstius, 2352.
 General: Nichols, 1907.
 Hawaii: Hinds, 1156.
 Quebec, podsol soils: McKibbin, 1664.
 Soil science: Brown, 329.
 White clays, southern Ohio: Westgate, 2826.
 Wisconsin, Bayfield County: Whitson, 2854.
 profiles of soil types: Kellogg, 1333.
 South Carolina.

Economic geology.

- Tuscaloosa white clays, origin: Adams, 6.

South Dakota.

- Big Badlands: O'Harra, 1939.

Areas described.

- Black Hills: Connolly, 542.
 Fairburn structure, Custer County: Rothrock, 2215.
 Mount Rushmore: Connolly, 544.

Economic geology.

- Bentonite: O'Hara, 1936.
 Black Hills, mineral wealth: Connolly, 542.
 Coal, Black Hills region: O'Harra, 1937.
 Coal resources: Searight, 2337.
 Gold, Keystone district: Connolly, 540.
 Homestake mine, Lead: Wright, 2939.
 Manganese, Chamberlain: Anon., 2949.
 Mineral production, 1929: Rothrock, 2214.
 Mineral resources: O'Harra, 1935.
 Tin Mountain spodumene mine, Black Hills: Schwartz, 2330.

South Dakota—Continued.

Historical geology.

- Fox Hills-Lance contact: Dobbin, 685.
 General: Searight, 2337.
 Minnelusa, Black Hills: Dillé, 681.
 Potter County, western: Russell, 2254.

Mineralogy.

- Minerals of the pegmatites: Connolly, 541.
 Sand-calcite crystals, Devils Hill: Connolly, 543.

Paleontology.

- Badlands: Bump, 372, 373.
 Calianassa, Cretaceous: Rathbun, 2089.
 Collecting fossils: Martin, 1710.
 Cretaceous Foraminifera: Anderson, 56.
 Cupressinoxylon, Jurassic: Lutz, 1637.
 Dinosaur, Pierre formation: Wieland, 2862.
 Leptomeryx: Hernon, 1131.
 Oredon, unborn twins: Hernon, 1132.
 Titanotheres: Osborn, 1942.
 Turtle skulls and jaws: Martin, 1711.

Physical geology.

- Iron-manganese carbonate concretions, genesis: Hewett, 1141.

Physiographic geology.

- Black Hills, northern, Cenozoic history: Fillman, 819.

Underground water.

- Dakota sandstone water, Canton: Meinzer, 1757.

- Spodumene, South Dakota, Black Hills: Schwartz, 2330.

Spongiae.

- Ohio, Sunbury shale, tetractinellid sponge: Bucher, 359.
 Stromatoporoids, structure and relationship: Twitchell, 2690.

- Spring pits, sedimentation phenomena: Quirke, 2073.

- Springs, Virginia, Great Valley: Collins, 527.

- Stalactites, rate of growth: Johnston, 1288.

- Stephens oil field, Columbia and Ouachita Counties, Ark.: Spooner, 2458.

- Stone. See Building stone.

- Stratigraphic geology. See Historical geology.

Stream capture.

- Colorado, Dakota hogback: Schoewe, 2309.
 North Carolina, Asheville: Wright, 2929.

- Stromatoporoid reef: Fenton, 806.

- Stromatoporoids, structure and relationship: Twitchell, 2690.

- Strontium: Santmyers, 2273.

- Structural contouring: Ley, 1563.

- Structural geology. See Physical geology.
 Structural materials. See Building stone; clay; etc.

- Study and teaching. See Educational.

- How to study geology: Neumann, 1891.

Study and teaching—Continued.

Study of geology by airplane: Tiejé, 2651.

Undergraduate preparation for the geologist: Shuler, 2384.

Subsidence. See also Changes of level.

Texas, Sour Lake: Sellards, 2345.

Subterranean water. See Underground water.

Surveys.

California: Jenkins, 1245.

Geological Survey: Bradley, 276.

Canada, Geological Survey report: Collins, 528, 529.

Connecticut, thirteenth biennial report: Britton, 317.

Florida, State geologist, report, 1927–28: Gunter, 1023.

Illinois State Geological Survey, quarter-centennial: Cheney, 480.

Indiana, report of division of geology: Logan, 1536.

Kentucky, administrative report, 1926–27: Jillson, 1255; 1928–29: Jillson, 1257.

Missouri, State geologist, report, 1927–28: Buehler, 366.

North Carolina, report of division of mineral resources: Bryson, 357.

Oklahoma: Cooper, 560.

Texas, Survey activities: Sellards, 2350.

United States Geological Survey, annual report, Smith, 2424, 2425.

Tables of formations. See Geologic formations, tables.

Taku River district, British Columbia: Kerr, 1347.

Talc.

Virginia: Burfoot, 378.

Teaching. See Education; Study and teaching.

Technique.

Abrasives, grading: Vanderwilt, 2708.

Accessory stage for microscope: Lamar, 1485.

Aerial mapping, Eliel, 742.

Airplane photographs in geologic mapping: English, 764.

Anisotropism in metallic minerals: Sampson, 2262.

Apparatus for reproducing suture lines of ammonites: Luper, 1631.

Clinometer rule: Williams, 2882.

Collecting fossils: Martin, 1710.

Construction of a geologic model: Gould, 977.

Cross-section plotting and measurements: Wentworth, 2820.

Depth finding by magnetic triangulation: Stearn, 2477.

Gravity separation: Emmons, 760.

Heavy mineral separation: Brown, 327.

Technique—Continued.

Hotchkiss superdip magnetometer: Stearn, 2475, 2478.

Identification of minerals by staining methods: Head, 1097.

Land surfaces, determining average slope: Wentworth, 2819.

Long shots with alidade: Hillis, 1150.

Measuring temperatures in deep wells: Van Orstrand, 2714.

Mechanical analyses of sediments by centrifuge: Trask, 2670.

Oil sands, physical analysis: Nutting, 1930.

Petrographic methods: Milton, 1807.

Petrographic microscope: Emmons, 757.

Photographic slide mount for microfossils: Plummer, 2031.

Portable thin-section machine: Flagler, 830.

Projection diagrams, preparation: Wright, 2931.

Quantitative microscopic analysis: Thomson, 2645.

Refractive-index determination, double-variation method: Emmons, 758.

Residues, insoluble, as a guide in stratigraphic studies: McQueen, 1682.

Sectioning for microscopic examination: Ragatz, 2077.

Specific gravity determination: Landes, 1490.

Staining method: Gabriel, 893.

Strike and dip, graphic solution: Kitson, 1447.

Study of shark teeth: Carroll, 455.

Submarine observations: Fox, 867.

Subsurface contouring: Lauer, 1523.

Thin sections of rock: Head, 1096.

Thinned polished sections: Donnay, 695.

Universal stage, modified: Emmons, 759.

Volume determination by mercury: Gealy, 906.

Tennessee.

Economic geology.

Copper, Ducktown: McNaughton, 1678.

Mascot, zinc: Newman, 1905.

Petroleum possibilities: Bailey, 78.

Structure in oil fields: Lusk, 1636.

Historical geology.

Black shale series, central Tennessee: Pohl, 2041.

Devonian, central Tennessee: Pohl, 2038, 2039.

Devonian-Mississippian boundary: Swartz, 2568, 2570.

Chattanooga shale: Swartz, 2569.

Mississippian: Pohl, 2037.

Nashville dome: Mehl, 1753.

Richmond group in Nashville Basin: Shideler, 2374.

Tennessee—Continued.

Historical geology—Continued.

Rome ("Watauga") formation, Appalachian Valley: Woodward, 2920.

Paleontology.

Ant (Eoponera), Wilcox clay: Carpenter, 451.

Coleoptera, Wilcox clays: Wickham, 2856.

Foraminifera, Ripley formation. Coon Creek: Berry, 218.

Telephidae: Ulrich, 2697.

Physical geology.

Caves: Pohl, 2040.

Nature and formation of caves: Money-maker, 1816.

Underground water.

Ground waters: Pond, 2044.

Terraces. See also Beaches; Shore lines.

California, Ben Lomond, marine terraces: Rode, 2175.

Correlation of coastal terraces: Cooke, 554.

Marine terraces in nonglaciaded regions: Antevs, 57.

Maryland, Baltimore County: Knopf, 1461.

Pleistocene seashores: Cooke, 553.

Vermont, eastern: Meyerhoff, 1790.

Tertiary. See also Paleontology, Tertiary.

Alaska, Aniakchak district: Knappen, 1448.

Chakachamna-Stony region: Capps, 441.

Mount Spurr region: Capps, 440.

Nizina River, upper: Moffit, 1813.

northwestern: Smith, 2431.

Skwentna region: Capps, 439.

southeastern: Buddington, 362.

Alberta, Highwood-Jumpingpound anticline: Hume, 1207.

southern: Williams, 2879.

Algae reefs and oolites, Green River formation: Bradley, 277.

Arkansas, Irma oil field, Nevada County: Teas, 2605.

southwestern: Dane, 631; Rankin, 2084.

British Columbia, Owen Lake area: Kerr, 1348; Lang, 1504.

California, Fernando group, Ventura County: Pressler, 2057.

Ione formation: Allen, 36.

Kreyenhagen shale, Fresno County: Von Estorff, 2744.

McLure shale, Coalinga region: Henny, 1130.

Marysville Buttes: Williams, 2874.

Mokelumne area: Stearns, 2483.

Potrero Hills and Vacaville region, Solano County: Bailey, 77.

Puente Hills, lower Pliocene: Stewart, 2509.

San Gabriel Mountains: Hill, 1146.

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Tertiary—Continued.

California—Continued.

San Joaquin Valley, southern border: Hoots, 1182.

Sharktooth Hill, Kern County: Hanna, 1049.

Simi Valley, Pliocene: Woodring, 2916.

Claiborne on coastal domes: Weinzierl, 2792.

Colorado, Front Range: Lovering, 1611.

Creede district: Larsen, 1512.

Golden area: Johnson, 1280.

Grand County, Granby anticline: Lovering, 1612.

Meeker quadrangle: Hancock, 1041.

northwestern: Heaton, 1101.

Ouray district: Burbank, 376.

Saguache County, Bonanza mining district: Burbank, 375.

Vermilion Creek area: Nightingale, 1911.

Eocene, Mississippi embayment: Grim, 1002.

Florida: Cooke, 551.

Fox Hills-Lance contact: Dobbin, 685.

Greenland: Koch, 1466.

Disko region: Krueger, 1480.

east: Koch, 1465.

Green River epoch, varves and climate: Bradley, 280.

Idaho, Latah formation: Kirkham, 1443.

Lava Creek district: Anderson, 46.

Orofino region: Anderson, 50.

Portneuf quadrangle: Mansfield, 1695.

Wood River region: Umpleby, 2700.

Ione formation, California: Allen, 36.

Jamaica, Manchioneal beds: Trechmann, 2672.

Kansas, Osborne County: Landes, 1489.

Republic County: Wing, 2901.

Louisiana, Bellevue field, Bossier Parish: Teas, 2606.

Catahoula Parish: Shearer, 2360.

Mexico, Tuxpan-Misanthla region: Hisazumi, 1162.

Mississippi embayment: Lamar, 1487.

Modelo formation, California, age: Hudson, 1200.

Montana, Carbon, Big Horn, Yellowstone, and Stillwater Counties: Knappen, 1449.

Forsyth coal field: Dobbin, 684.

New World district: Lovering, 1608.

Rosebud County: Renick, 2137.

Yellowstone and Treasure Counties: Hall, 1036.

Oligocene, Coastal Plain, Texas and Louisiana: Ellisor, 747.

Oregon, Malheur County: Renick, 2138.

Tertiary—Continued.

- Rocky Mountain region: Osborn, 1942.
 Saskatchewan, southern, Miocene gravel: Sternberg, 2497.
 southwestern: Williams, 2879.
 Sespe formation, California: Reed, 2109.
 South Dakota, Black Hills: Connolly, 542.
 Texas, Brazos County, Yegua delta: Reed, 2108.
 Claiborne: Wendlandt, 2813.
 Eocene (corrections): Chadwick, 462.
 Larremore area, Caldwell County: Weeks, 2785.
 Rio Grande embayment: Getzen-daner, 912.
 Salt Flat oil field, Caldwell County: McCollum, 1648.
 southeastern: Barton, 137.
 Webb County: Jones, 1300.
 Trinidad, Lizard Springs anticline: Skelton, 2409.
 Utah, Vernal: Spieker, 2455.
 Varves and duration of Eocene epoch: Bradley, 278.
 Virginia, Chesapeake Miocene basin: Mansfield, 1702.
 Wyoming, Carbon County: Dobbin, 682.
 Paleocene: Jepsen, 1249.
 Park County, northeastern: Jepsen, 1251.
 Rock Creek oil field: Dobbin, 683.
 Vermilion Creek area: Nightingale, 1911.

Testudinata. See Reptilia.

Texas.

- Lignite in dolomite, Tom Green County: Bauernschmidt, 154.
 Malakoff image: Sellards, 2348.
 Meteor, June 23, 1928: Sellards, 2343.
 Survey activities: Sellards, 2350.

Areas described.

- Stonewall County: Patton, 1996.

Economic geology.

- Accumulation of petroleum in Stephens County: Esgen, 770.
 Barbers Hill salt dome, Chambers County: Murphy, 1877.
 Big Lake oil pool, Reagan County: Hennen, 1128.
 Boggy Creek salt dome, Anderson and Cherokee Counties: Storm, 2536.
 Cinnabar deposit, Brewster County: Lonsdale, 1601.
 Clay Creek salt dome: Heath, 1100.
 Darst Creek fault, Guadalupe County: Row, 2217.
 Esperson salt dome, Liberty County, torsion-balance survey: Barton, 136.
 Glen Rose gas production, northeastern Texas: Gordon, 965.
 Helium, Amarillo fold: Ruedemann, 2227.

Texas—Continued.

Economic geology—Continued.

- Hendrick field, Winkler County: Ackers, 1.
 Larremore area, Caldwell County: Weeks, 2785.
 Little Fry Pan area, Uvalde and Kinney Counties, magnetometer survey: Liddle, 1565.
 Luling oil field, Caldwell and Guadalupe Counties: Brucks, 341.
 Magnetic susceptibility and magnetite content of sands and shales: Collingwood, 525.
 Nigger Creek oil field, Limestone County: Pepperberg, 2010.
 Oil and gas, Laredo district: McFarland, 1658.
 Oil and gas fields, Mexia and Tehuacana fault zones: Lahee, 1482.
 Oil in Saxet gas field, Nueces County: Price, 2062.
 Oil fields, Archer County: Thompson, 2642.
 Oil structure, central Wilbarger County: Fuqua, 890.
 Permian, structural development and oil accumulation: Willis, 2891.
 Permian red beds and saline residues: Baker, 84.
 Petroleum developments in 1928, northeastern Texas: Judson, 1311.
 Petroleum potentialities, Gulf coast: Barton, 138.
 Petrolia oil field, Clay County: Kendrick, 1339.
 Potash: Mansfield, 1697, 1699.
 Quicksilver deposits: Schuette, 2326.
 Salt Flat oil field, Caldwell County: McCollum, 1648; electrical survey: Hedstrom, 1107.
 Secondary salt-dome materials: Hanna, 1056.
 Smith-Ellis oil field, Brown County: Storm, 2537.
 Temperature measurements in deep wells: Hawtof, 1089.
 Van field, Van Zandt County: Liddle, 1564.
 Westbrook oil field, Mitchell County: Edwards, 736.
 West Columbia salt dome and oil fields, Brazoria County: Carlton, 445.
 Woodbine sand, geochemical studies on: Plummer, 2032.
 Yates oil field, Pecos County: Adams, 8; Gester, 911; Hennen, 1129.
 Yoast field, Bastrop County, magnetics and geology: Collingwood, 526.

Historical geology.

- Barrier reefs, west Texas: Van der Gracht, 2705.
 Basement rocks in well in Pecos County: Jones, 1293.
 Bulimina jacksonensis zone: Moree, 1852.

Texas—Continued.

Historical geology—Continued.

- Cambrian, underground: Sellards, 2341.
- Cambrian algal reefs: Deen, 661.
- Capitan limestone: Lloyd, 1577.
- Carboniferous and Permian, trans-Pecos Texas: King, 1428, 1431.
- Cenozoic history of Texas plains: Baker, 92.
- Chazy-Sylvan unconformity, Big Lake: Lowman, 1618.
- Claiborne, correlation: Ellisor, 746.
 eastern Texas: Wendlandt, 2813.
 on coastal domes: Weinzierl, 2792.
- Coastal southeast Texas, surface geology: Barton, 137.
- Concho Bluffs, Crane, Ector, and Winkler Counties: Wilson, 2894.
- Cretaceous: Alexander, 28.
 in Gulf coast salt domes: Morrison, 1856.
- Deepest well: Sellards, 2342.
- Devonian, western Texas: Darton, 633.
- Double Mountain series: Keyes, 1378.
- Eocene (corrections): Chadwick, 462.
- Fisk (Shields) pool, Coleman County: Durward, 712.
- Franklin Mountains, El Paso County: Lonsdale, 1600.
- Georgetown formation: Cuyler, 617.
- Hendrick field, Winkler County: Ackers, 1.
- Larremore area, Caldwell County: Weeks, 2785.
- Mid-Continent oil field sediments: Cheney, 479.
- Montague County: Bullard, 370.
- Mt. Sylvan dome: Wendlandt, 2813.
- North-central Texas: Cheney, 478.
- Oligocene: Ellisor, 747.
- Ordovician rocks, Big Lake, oil field, Reagan County: Harlton, 1071.
- Pennsylvanian, correlation: Moore, 1845.
- Pennsylvanian-Permian, Glass Mountains and Delaware Mountains, correlation: Keyte, 1415.
- Pennsylvanian-Permian shale basin, west Texas: Sellards, 2347.
- Permian: Baker, 85; Willis, 2890;
 southwestern Texas: Blanchard, 248.
 correlation, Texas and New Mexico
 Permian: Willis, 2889.
 trans-Pecos Texas: King, 1432.
 western Texas: Crandall, 576; section: Cartwright, 457; correlation: Lloyd, 1576.
- Permian red beds and saline residues: Baker, 84.
- Pratt well, Webb County: Jones, 1300.
- Pre-Pennsylvanian stratigraphy, Big Lake oil field, Reagan County: Lowman, 1617.

Texas—Continued.

Historical geology—Continued.

- Rio Grande embayment, geologic section: Getzendaner, 912.
- Salt Flat oil field, Caldwell County: McCollum, 1648.
- Silurian rocks, Big Lake oil field, Reagan County: Lowman, 1616.
- Subsurface correlation, west Texas Permian Basin: Cartwright, 456.
- Taylor chalk, Jacksonville embayment: Reiter, 2136.
- Triassic, west Texas: Adams, 7.
- Trinity division: Hill, 1148.
- University well, Reagan County: Sellards, 2344.
- Upper Cretaceous: Stephenson, 2493.
- Volcanic deposits: Ross, 2194.
- Yegua delta, Brazos County: Reed, 2108.

Mineralogy.

- Ballinger meteorite: Nininger, 1913.
- Capsular silica, Brazos County: Burt, 383.
- Euhedral magnesite crystals, Winkler County: Lonsdale, 1602.
- Franklin Mountains, diphyrite and associated minerals: Lonsdale, 1600.
- Galena and sphalerite in Fayette, Orchard salt dome, Fort Bend County: Hanna, 1055.
- Hauerite, Gulf coast salt domes: Hanna, 1054.
- Meteorite, Peck's Spring, Midland County: Merrill, 1777.
- Potash cores: Schaller, 2293.
- Potash fields, mineralogy: Schaller, 2292.

Paleontology.

- Algae of fossil red salt: Tilden, 2653.
- Ammonites, occurrence: Scott, 2333.
- Ammonoid, late Paleozoic fauna, western Texas: Miller, 1794.
- Ampelocissites, Eocene: Berry, 197.
- Anacardium, Eocene: Berry, 196.
- Artocarpus: Ball, 104.
- Borophagus: Matthew, 1739.
- Bryozoa, Graham formation: Moore, 1842.
 Pennsylvanian: Moore, 1849.
- Carboniferous brachiopods: Girty, 942.
- Ostracoda, west Texas: Delo, 664.
- Claiborne fossils: Cole, 513.
 coastal domes: Weinzierl, 2792.
- Comanchean reptiles: Gould, 973.
- Corals, Glen Rose formation: Wells, 2808.
- Equidae, Pliocene, Hemphill County: Matthew, 1742.
- Fish spine, Pennsylvanian: Moore, 1844.
- Footprints, Clear Fork Valley: Moodie, 1824.
 red beds: Moodie, 1821, 1825.
- Foraminifera: Cushman, 606.
 east Texas greensands: Cushman, 610.

Texas—Continued.

Paleontology—Continued.

Hindeastraea, Cretaceous: Hoffmeister, 1176.

Mollusks, Reynosa formation: Marshall, 1706.

Ostracoda, Cretaceous: Alexander, 28.

Ostrea and Exogyra, Austin chalk: Stephenson, 2490.

Pennsylvanian Ostracoda: Harlton, 1068.

Permian ammonoid fauna: Smith, 2427.

Taylor formation, ammonites: Adkins, 12.

Theromorph, Permian: Broom, 322.

Petrology.

Salt-dome cap rock, petrographic study Barton, 139.

Strawn conglomerates, sedimentary study: Bay, 156.

Physical geology.

Balcones faulting: Cuyler, 621.

Dugout Creek overthrust, western Texas: King, 1427.

Ground subsidence at Sour Lake: Sellards, 2345.

Hueco limestone, metamorphism: King, 1430.

Overthrusting, trans-Pecos Texas: Baker, 87.

Red beds, origin: Baker, 86.

Secondary gypsum in Delaware Mountain region: Mohr, 1814.

Silting of lake at Austin: Taylor, 2603.

of reservoirs: Taylor, 2602.

Temperature gradients, Permian basin: Lang, 1506, 1507.

Unconformities, Upper Cretaceous: Stephenson, 2493.

Physiographic geology.

Corpus Christi area: Price, 2061.

Deltaic Coastal Plain, southeastern Texas: Barton, 134.

Glass Mountains drainage: King, 1429.

Meteor crater, Ector County: Barlinger, 123.

Natural mounds: Melton, 1763.

Underground water.

Water horizons, western Texas: Roberts, 2166.

Textbooks.

Economic geology: Tarr, 2594.

Elements of geology: Norton, 1925.

Elements of optical mineralogy: Winchell, 2898.

Outline of physiography: Hinds, 1152.

Paleontology: Berry, 194.

Physical geology, outlines: Longwell, 1596; Pirsson, 2027.

Thermal waters:

Oregon, McKenzie Valley: Stearns, 2480.

Tilt records, Hawaiian Volcano Observatory: Jaggar, 1233.

Tin.

Alaska: Patty, 1998.

Manitoba; DeLury, 667.

eastern: Derry, 673.

southeastern: Wright, 2935, 2937.

Mexico: MacCoy, 1650.

Nova Scotia: Davison, 651.

Gold River area: Davison, 650.

Supergene cassiterite: Koeberlin, 1470; Singewald, 2405.

Triassic. See also Paleontology, Triassic.

Alaska, Eagle-Circle district: Mertie, 1784.

Nizina River, upper: Moffit, 1813.

northwestern: Smith, 2434.

southeastern: Buddington, 362.

Alberta, Jasper Park: Raymond, 2098.

Arctic regions: Stanton, 2463.

British Columbia, Britannia Beach area: James, 1236.

Iskut River area: Kerr, 1348.

Lardeau map area: Walker, 2747.

Similkameen district, Nickel Plate Mountain: Bostock, 255.

Chinle formation in Southwest: Camp, 421.

Colorado, Front Range: Lovering, 1611.

Ouray district: Burbank, 376.

Greenland: Koch, 1466.

east coast: Rosenkrantz, 2193.

Idaho, Orofino region: Anderson, 50.

Portneuf quadrangle: Mansfield, 1695.

Mexico, Sonora: Keller, 1330.

Montana, Rocky Mountain front: Bevan, 223.

Nevada, Spring Mountain Range: Glock, 946.

Nova Scotia, Horton-Windsor district: Bell, 180.

Pennsylvania, Fairfield and Gettysburg quadrangles: Stose, 2538.

Lancaster quadrangle: Jonas, 1292.

Rocky Mountain region red beds: Branson, 296; Reeside, 2123.

Rocky Mountain section, 51st parallel: Warren, 2762.

South Dakota, Black Hills: Connolly, 542.

Southwest: Camp, 423.

Texas, Stonewall County: Patton, 1996.

western: Adams, 7.

Utah, San Rafael Swell: Gilluly, 931.

Wyoming, Rock Creek oil field: Dobbin, 683.

sections: Bartram, 142.

Tri-County oil field, southwestern Indiana: Esarey, 768.

Trilobita.

Cambrian, upper Mississippi Valley: Ulrich, 2698.

Classification status: Ulrich, 2694.

Color markings: Williams, 2876.

Trilobita—Continued.

- Greenland, northern, Ordovician: Troedsson, 2676.
 Homalonotus trentonensis, Pennsylvania: Whitcomb, 2837.
 Hypoparia and Opisthoparia, St. Clair limestone, Arkansas: Thomas, 2636.
 Mississippian trilobite, color markings: Williams, 2876.
 Missouri, Ozark region, Cambrian and Ordovician: Ulrich, 2699.
 Phacops with ventral appendages: Raymond, 2095.
 Proparia, St. Clair limestone, Arkansas: Thomas, 2637.
 Telephidae: Ulrich, 2697.
 West Virginia, chert beds, Pocahontas County: Price, 2058.

Trinidad.

Economic geology.

Lizard Springs anticline: Skelton, 2409.

Historical geology.

Cretaceous, Lizard Springs: Jarvis, 1237.

Lizard Springs anticline: Skelton, 2409.

Paleontology.

Corals: Gregory, 993.

Echinoids: Jeannet, 1239.

Foraminifera: Cushman, 606.

Physical geology.

Mud volcano off south coast: Weeks, 2788.

Underground water.

Chemical investigation: Parker, 1988.

Tungsten.

Idaho, Lava Creek district: Anderson, 46.

Missouri, Silver Mine: Singewald, 2402.

South Dakota, Black Hills: Connolly, 542.

Turkey Mountain lime pools, Oklahoma:

Ruedemann, 2226.

Turtles. See Reptilia.

Unconformities.

Chazy-Sylvan unconformity, Big Lake: Lowman, 1618.

Colorado, eastern, Colorado group: Johnson, 1278.

Iowa, coal measures: Keyes, 1351.

New York, Manlius-Helderberg series: Smith, 2417.

Ohio, unconformity at top of Trenton, Lima district: Ver Wiebe, 2734.

Oklahoma, lower Paleozoic: Edson, 735.

Pennsylvania, Medina sandstone base: Stose, 2540.

Underground water (general). For areal see names of States. See also Springs; Thermal water.

Artesian pressure, origin: Russell, 2253; Terzaghi, 2613, 2614.

Dakota sandstone water: Meinzer, 1757.

Divining rod: Gregory, 992.

Underground water (general)—Contd.

General: Fábrega, 781.

Ground waters, idiosyncracies: Gerber, 910.

Hawaii, Kau district: Stearns, 2482.

Iso-con map for Ordovician waters: Dott, 697.

Mohave Desert region: Thompson, 2639.

Origin of artesian pressure: Thompson, 2640.

Sulphate reduction in oil-well waters: Bastin, 148; Ginter, 939.

Water analyses, geologic significance: Lane, 1499.

Ungulata. See Mammalia.

Upper Silurian. See Silurian.

Urania oil field, Louisiana: Schneider, 2304.

Uranium. See also Carnotite.

Northwest Territories, Great Bear Lake: Knight, 1450.

Utah.

Areas described.

Deep Creek Reservation: Reagan, 2104.

San Rafael Swell: Gilluly, 931.

Economic geology.

Bituminous sandstone near Vernal: Spieker, 2455.

Colorado Plateau, ore deposits: Butler, 393.

Gilsonite, Uinta Basin: Bristol, 315.

Occurrence of ore deposits: Porter, 2046.

Silver minerals of Tintic ores: Hahn, 1030.

Historical geology.

Green River valley: Reeside, 2125.

Paleozoic, Gold Hill quadrangle: Nolan, 1923.

Permian, southern Utah: Baker, 81; correlation: Baker, 82.

Phosphoria formation: Branson, 295.

Manti-Salina area: Spieker, 2456.

Varves and climate of Green River epoch: Bradley, 280.

Wasatch area: Schneider, 2305.

Mineralogy.

Dehrnite and crandallite: Larsen, 1516.

Duchesne meteorite: Nininger, 1912.

Minerals of phosphate nodules, Fairfield: Larsen, 1517.

Scorodite, Gold Hill, Tooele County: Foshag, 863.

Silver minerals of Tintic ores: Hahn, 1030.

Tschermigite, ammoniojarosite, epsomite, celestite, and paligorskite from southern Utah: Shannon, 2353.

Paleontology.

American camel, recent: Romer, 2187.

Blastoids, Brazier formation: Peck, 2001.

Devonian fishes, Jefferson dolomite: Branson, 304.

Utah—Continued.

Paleontology—Continued.

- Exogyra: Reeside, 2121.
 Fishes, Devonian: Branson, 302.
 Pterophyllum, Shinarump conglomerate: Berry, 217.
 Triassic cephalopods, Fort Douglas area: Mathews, 1719.

Physical geology.

- Algae reefs and oolites, Green River formation: Bradley, 277.
 Alancite bds, Green River formation: Bradley, 279.
 Erosional forms, Bryce Canyon: Pack, 1964.
 Great Salt Lake oolites: Mathews, 1721.
 Manti-Salina area: Spieker, 2456.
 Oolites, Great Salt Lake, origin and growth: Mathews, 1721.

Physiographic geology.

- Drainage integration: Gilluly, 932.
 Long Ridge and West Mountain, structural features: Eaton, 726.
 Tooele-Rush valleys: Gilluly, 933.

Underground water.

- Thermal springs near Wasatch fault: Talmage, 2589.

Valleys.

- Asymmetrical valleys, Kansas: Bass, 143.
 Eastern and western: Davis, 644.

Varved clay, Wisconsin, Waupaca: Ellsworth, 749.

Varves, long-range correlation: Coleman, 519.

Ventura Avenue oil field, Ventura County, California: Hertel, 1133.

Vermiculite, Montana, Rainy Creek district: Pardee, 1987.

Vermont.

Economic geology.

- Bennington kaolins, origin: Burt, 382.
 Mineral resources, 1928: Perkins, 2016.

Historical geology.

- Bennington area: Burt, 382.
 Bridgewater and Plymouth Townships: Perry, 2017.
 Correlation, west-central Vermont: Foyles, 873.
 Ferrisburg: Foyles, 872.
 Mount Monadnock: Wolff, 2904.
 Ordovician outlier, Hyde Manor, Sudbury: Dale, 625.
 Paradoxides beds, northwestern Vermont: Howell, 1189.
 Reading, Cavendish, Baltimore, and Chester: Richardson, 2150.

Mineralogy.

- Lazulite, Chittenden: Palache, 1974.

Petrology.

- Bostonite: Alling, 41.
 Irasburg conglomerate: Richardson, 2149.
 Mount Monadnock: Wolff, 2904.
 Reading, Cavendish, Baltimore, and Chester: Richardson, 2150.

Vermont—Continued.

Petrology—Continued.

- Rocks of Vermont: Perkins, 2015.

Physical geology.

- Erosion, November flood: Eggleston, 737.
 Flood erosion: Jacobs, 1229.
 Lake Champlain region, normal faulting: Quinn, 2069.

Physiographic geology.

- Drainage changes: Eggleston, 737.
 Erosional land forms, eastern and central Vermont: Meyerhoff, 1790.
 Peneplains of Taconic Mountains: Pond, 2043.

Vertebrates (general). See also Amphibia: Aves; etc.

- Alberta, Paleocene: Russell, 2239.
 California, Ventura County, Apache Canyon: Gazin, 903.
 Collecting fossils: Sternberg, 2498.
 Florida: Simpson, 2390.
 Indiana: Moodie, 1819.
 Museum of Comparative Zoology, report: Stetson, 2499, 2500.
 New Mexico, Bishops Cap cavern: Bryan, 353.
 Paleontological monographs: Osborn, 1947.
 South Dakota, Badlands: Bump, 372, 373.
 Vertebrate paleontologists: Osborn, 1946.
 West Virginia, Permo-Carboniferous: Whipple, 2836.
 Wyoming, Eocene: Troxell, 2682.
 Virgil oil field, Greenwood County, Kans.: Beekly, 165.

Virginia.

Economic geology.

- Sand and gravel resources of Coastal Plain: Wentworth, 2817.
 Silicified bog deposits, post-Cambrian: Goldman, 953.
 Soapstone, Nelson County: Ryan, 2259.
 Talc and soapstone deposits, origin: Burfoot, 378.

Historical geology.

- Chattanooga shale: Swartz, 2569.
 Chesapeake Miocene basin: Mansfield, 1702.
 Devonian-Mississippian boundary: Swartz, 2568, 2570.
 Geologic map features: Nelson, 1885.
 Helderberg group: Swartz, 2565, 2566.
 Miocene sedimentation: Mansfield, 1702.
 Pegmatites, Amelia, Goochland, and Ridgeway areas: Pegau, 2003.
 Rome ("Watauga") formation, Appalachian Valley: Woodward, 2920.

Mineralogy.

- Gaeksutite: Henderson, 1122.
 Quartz crystals, Shenandoah Valley: Oder, 1933.

Virginia—Continued.

Paleontology.

- Amyda virginiana, Eocene, Aquia Creek: Lynn, 1638.
 Bog-iron deposits, Cambro-Ordovician, Jonesboro formation: White, 2845.
 Helderberg group: Swartz, 2566.
 Narrows section fauna: Hubbard, 1198.
 Telephidae: Ulrich, 2697.

Petrology.

- Pegmatites, Amelia, Goochland, and Ridgeway areas: Pegau, 2003.
 Silicification in Paleozoic: Goldman, 954.

Physical geology.

- Concretions, calcareous, near Lexington: Stow, 2546.
 Metamorphic belt of central Appalachians, structure: Jonas, 1291.
 Sediments from James River: Stow, 2547.
 Silicification in Paleozoic: Goldman, 954.
 Stalactite-stalagmite column fracture: Wherry, 2832.
 Thrust faulting from west in Appalachians: Nelson, 1886.
 Thrust faults, Roanoke area: Woodward, 2918.

Physiographic geology.

- Natural Bridge: Reeds, 2116; origin: Malott, 1694.

Underground water.

- Springs: Collins, 527.
 Thermal springs: Reeves, 2129.

Volcanic ash.

- Minnesota, Ordovician: Allen, 35.
 Mowry shale, origin: Rubey, 2223.
 North Carolina, slate belt: Stuckey, 2554.
 Ontario, Collingwood, bentonite: Maddox, 1689.
 South Dakota, Black Hills: Connolly, 542.

Volcanism. See also Volcanoes.

- Graded swelling and shrinking of volcanoes: Jaggard, 1232.
 Kauai and Niichau: Hinds, 1155.
 Rainfalls with volcanic eruptions: Finch, 820.
 Submarine: Kania, 1314.

Volcanoes. See also Volcanism.

- California, Lassen Peak and vicinity: Williams, 2875.
 General: Jaggard, 1230.
 Guatemala, Santa Maria eruption: Termer, 2612.
 Hawaiian: Jaggard, 1231.

Washington.

Economic geology.

- Platinum and gold from black sand: Pardee, 1986.
 Quicksilver deposits: Schuette, 2326.

Historical geology.

- Cascade Range: Crickmay, 587.

Washington—Continued.

Historical geology—Continued.

- Dalles and Hood River formations, age: Buwalda, 401.
 Eocene lavas, western Washington: Weaver, 2781.
 "Satsop" formation of Columbia River gorge: Buwalda, 398.
 Tertiary, Chehalis Valley: Etherington, 771.

Mineralogy.

- Strontium, La Conner: Landes, 1488.

Paleontology.

- Amygdal, Latah formation: Berry, 198.
 Cercis idahoensis, Miocene: Berry, 214.
 Fresh-water Mollusca: Henderson, 1123.
 Galeodea, Oligocene: Tegland, 2608.
 Gordonina, Miocene: Berry, 211.
 Latah flora: Berry, 204.
 Miocene floras: Berry, 206.
 Paphia, Port Blakely: Frizzell, 887.
 Pitaria: Tegland, 2607.

Petrology.

- Basaltic lava, Columbia River Plateau: Fuller, 889.
 Cornucopia porphyry dike: Goodspeed, 960.

Physical geology.

- Cascade Range, connection with Coast Range, British Columbia: Crickmay, 587.
 Olympic Peninsula, recent changes in elevation: Reagan, 2103.

Physiographic geology.

- Columbia River gorge: Buwalda, 401.
 Lake Missoula and Spokane flood: Bretz, 308.
 Mounds on Columbia River Plateau, origin: Waters, 2773.
 Valley deposits east of channeled scabland: Bretz, 307.
 west of channeled scabland: Bretz, 310.

- Yakima Valley and channeled scabland: Bretz, 309.

Water, underground. See Underground water.

Waterfalls. See Falls.

Weathering.

- Cavernous rock surfaces of desert: Blackwelder, 236.
 Cavernous weathering in arid regions: Blackwelder, 234.
 Hawaii, rock weathering: Palmer, 1980.
 Hawaiian lavas: Hinds, 1156.
 Soil formation in Tropics: Senstius, 2352.

Well records. See Borings.

Westbrook oil field, Mitchell County, Tex: Edwards, 736.

West Columbia salt dome and oil fields, Texas: Carlton, 445.

West Indies (general). See also names of islands.

Bermuda, geology: Swinnerton, 2575.
General: Schuchert, 2316.

West Virginia.

West Virginia University, department of geology, history: Tilton, 2654.

Areas described.

Pocahontas County: Price, 2060.

Economic geology.

Cabin Creek oil field, West Virginia: Wasson, 2771.

Copley oil pool: Reger, 2132.

Synclinal oil fields, southern West Virginia: Davis, 639.

Historical geology.

Devonian, Tygart Valley: Tilton, 2656.

Dunkard series: Core, 567.

Geologic column: Tilton, 2658.

Helderberg group: Swartz, 2566.

Monongahela series: Reger, 2133.

Morgantown to Cascade: Tilton, 2655.

Paleontology.

Cryphiocrinus: Kirk, 1435.

Devonian marine faunas: Tilton, 2656.

Helderberg group: Swartz, 2566.

Permo-Carboniferous vertebrates in Dunkard formation: Whipple, 2836.

Reptilian remains: Whipple, 2835.

Trilobites, chert beds, Pocahontas County: Price, 2058.

Physical geology.

Striated cobbles, Teay Valley: Petty, 2022.

Physiographic geology.

Glacial deposits: Tilton, 2657.

River clays: Tilton, 2657.

Wind gaps and water gaps, northern Appalachians: Ver Steeg, 2732.

Wind work.

Greenland sand dunes: Belknap, 170.

Sand-blast effects in Sierra Nevada: Blackwelder, 235.

Selenite fragments as criteria of wind action: Schoewe, 2312.

Wind abrasion in arid Southwest: Blackwelder, 231.

Wisconsin.

Profiles of soil types: Kellogg, 1333.

Soil survey, Bayfield County: Whitson, 2854.

Economic geology.

Field work in Euronian and Keweenawan areas: Bean, 159.

Gogebic iron range: Aldrich, 24.

Lake Superior hematite-limonite ores, origin: Gruner, 1014.

Mineral lands, northern Wisconsin: Hotchkiss, 1185.

Sulphide ores, origin: Emmons, 761.

Historical geology.

Devonian: Pohl, 2033, 2035; correlation: Pohl, 2034.

Wisconsin—Continued.

Historical geology—Continued.

Dresbach formation: Peterson, 2020.

Gogebic iron range: Aldrich, 24.

Glover Bluff, Marquette County: Ekern, 740.

Mineral lands, northern Wisconsin: Hotchkiss, 1185.

Pre-Cambrian water-laid tuff in Baraboo district: Stark, 2467.

Paleontology.

Cambrian Trilobita: Ulrich, 2698.

Cephalopoda: Foerste, 850.

Devonian Pelecypoda: Pohl, 2035.

Rafinesquina incurvata: Kay, 1321.

Petrology.

Madison and Jordan sandstones: Ockerman, 1932.

Physical geology.

Beach pebble abrasion and transportation: Landon, 1492.

Glover Bluff, Marquette County, structure: Ekern, 740.

Shore recession, southeastern Wisconsin: Ball, 103.

Physiographic geology.

Ancient lake: Aldrich, 26.

Moraines and shore lines, Lake superior region: Leverett, 1552.

Varved clay deposit, Waupaca: Ellsworth, 749.

Vilas County glacial geology: Thwaites, 2650.

Wolframite. See Tungsten.

Wyoming.

Areas described.

Laramie Mountains: Fowler, 865.

Rock Creek oil field: Dobbin, 683.

Economic geology.

Elk Basin oil and gas field, Park County: Bartram, 140.

Frannie oil field, Park County: Lup-ton, 1635.

Grass Creek dome, Hot Springs County: Harrison, 1075.

Hanna and Carbon basins, Carbon County: Dobbin, 682.

Iron-ore deposits, Carbon County: Lovering, 1609.

Lance Creek oil and gas field, Niobrara County: Emery, 754.

Map of oil and gas fields: Richardson, 2151.

Mineral resources: Dietz, 679.

Oil and gas fields, Lost Soldier district: Irwin, 1223.

Rock Creek oil field: Dobbin, 683.

Rock River oil field, Carbon County: Emery, 755.

Rock Springs coal field, Sweetwater County: Swann, 2561.

Salt Creek oil field, Natrona County: Beck, 161.

Vermilion Creek gas area: Nightingale, 1911.

Wyoming—Continued.

Historical geology.

- Big Horn Basin: Jepsen, 1251.
 Bighorn formation, correlation: Miller, 1793.
 Cambrian: Resser, 2139.
 Erosion interval at Beaver Divide: Wood, 2909.
 Fountain and Casper formations: Knight, 1457.
 Fox Hills-Lance contact: Dobbin, 685.
 Green River valley: Reeside, 2125.
 Hanna and Carbon basins, Carbon County: Dobbin, 682.
 Jurassic-Triassic contact, western Wyoming: Branson, 300.
 Marmaton and Cherokee formations, Mid-Continent region: Roth, 2212.
 Minnelusa formation near Beulah: Brady, 284.
 Paleocene: Jepsen, 1249.
 Park County, northeastern: Jepsen, 1251.
 Phosphoria formation: Branson, 295.
 South-central Wyoming: Lovering, 1609.
 Triassic-Jurassic red beds of Rocky Mountain region: Bartram, 142.
 Varves and climate of Green River epoch: Bradley, 280.
 Vermillion Creek gas area: Nightingale, 1911.

Mineralogy.

- Fibrous magnetite after chrysotile: Perry, 2019.

Paleontology.

- Ancylocidaris, Sundance formation: Miller, 1792.
 Big Horn Basin: Jepsen, 1251; Troxell, 2683.
 Dinosaurs: Moodie, 1823.
 Dinosaur footprints, Superior and Reliance districts: Swann, 2562.
 Eocene, lower, Big Horn Basin: Troxell, 2681.
 Eocene vertebrates: Troxell, 2682.
 Equisetites, Sundance limestone: Black, 226.
 Fishes, Devonian: Branson, 302.
 Flora, Frontier formation: Berry, 207.
 Foraminifera, Niobrara and Benton formations: Carman, 449.
 Green River flora in Wind River Basin: Berry, 216.
 Mammalia, Lance formation: Simpson, 2388.
 Multituberculata, Tertiary: Granger, 987.
 Palaeonictis: Sinclair, 2399.
 Park County, northeastern: Jepsen, 1251.
 Phosphoria formation: Branson, 295.
 Reef-forming phormidoid alga, Medicine Bow: Wieland, 2865.

Wyoming—Continued.

Paleontology—Continued.

- Rooted plants in Sundance formation, Thermopolis: Black, 225.
 Titanotheres: Osborn, 1942.
 Triassic Amphibia: Branson, 297.
 Uintathere, Paleocene: Simpson, 2391.
 Upper Cretaceous dinosaur faunas: Russell, 2242.
 Vertebrata, lower Eocene, Big Horn Basin: Jepsen, 1250.

Petrology.

- Cretaceous sedimentary rocks, Black Hills region, lithology: Rubey, 2224.

Physical geology.

- Algae reefs and oolites, Green River formation: Bradley, 277.
 Analcite beds, Green River formation: Bradley, 279.
 Dreikanter: Delo, 665.
 Fault near Lander: Branson, 303.
 Fountain and Casper formations: Knight, 1457.
 Xenohelix: Mansfield, 1705.
 Xenoliths, recrystallization at Cornucopia, Oreg: Goodspeed, 961.
 X-raying the earth: Daly, 629.
 Yates oil field, Pecos County, Tex: Gester, 911.
 Yellowstone National Park.
 Grand Canyon of Yellowstone, history: Jones, 1297-1299.
 "Hoodooos": Hole, 1178.
 Pityoxylon: Conard, 538.
 Yosemite Valley, geologic history: Matthes, 1731.

Yukon.

Areas described.

- Little Salmon area: Cockfield, 506.

Economic geology.

- Mining industry, 1929: Cockfield, 507.

Historical geology.

- Pre-Cambrian: Mertie, 1782.

Zinc.

- British Columbia, Bear River and Stewart map areas: Hanson, 1060.
 Lardeau map area: Gunning, 1018.
 California, foothill belt: Farrel, 788.
 Canada: Alcock, 21.
 Colorado, Ouray district: Burbank, 376.
 Idaho, Lava Creek district: Anderson, 46.
 south-central, mining districts: Ross, 2202.
 Mackenzie, Great Slave Lake, Pine Point: Bell, 176.
 Manitoba, Cold Lake area: Wright, 2934.
 Klississing Lake area: Wright, 2933.
 Sherritt-Gordon deposit: Bruce, 337.
 Missouri, Potosi and Edgehill quadrangles: Dake, 623.

Zinc--Continued.

Montana, New World district: Lovering, 1608.

Nevada, mining districts: Ferguson, 809.

New Jersey, Franklin and Sterling Hill: Tarr, 2593.

Nova Scotia: Messervey, 1788.

Ontario, Algoma: Hurst, 1211.

Cartier-Stralak area: Osborne, 1959.

Rush River area, Woman River district: Bannerman, 107.

Zinc--Continued.

Ontario--Continued.

Sudbury Basin area: Burrows, 381.

Thunder Bay district of Dorion and McTavish Townships: Hawley, 1087.

Woman River district: Bannerman, 108.

Quebec, Gaspé, Berry Mountain area: Jones, 1294.

Tennessee, Mascot: Newman, 1905.

