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BIBLIOGRAPHY
OF
NORTH AMERICAN GEOLOGY
1933 AND 1934

BY

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CONTENTS

	Page
Introduction.....	1
Serials examined.....	3
Bibliography.....	11
Index.....	265

BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY 1933 AND 1934

By EMMA M. THOM

INTRODUCTION

The bibliography of North American geology, including paleontology, petrology, and mineralogy, for the years 1933 and 1934 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 1932 is contained in Bulletins 746 (Bibliography) and 747 (Index), covering the period 1785-1918; Bulletin 823, covering the period 1919-1928, in which previous bibliographies and cumulations of the United States Geological Survey have been combined; Bulletin 834 (1929 and 1930); and Bulletin 858 (1931 and 1932).

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SERIALS EXAMINED

- Academy of Natural Sciences of Philadelphia: Proceedings, vols. 84, 85. Philadelphia, Pa.
- Academy of Science of St. Louis: Transactions, vol. 28. St. Louis, Mo.
- Alabama Geological Survey: Special Report no. 16 (pt. I, text). University Ala.
- Alberta, University of. Research Council; Report no. 30. Edmonton, Alberta.
- American Academy of Arts and Sciences: Proceedings, vols. 68, 69 (nos. 1-10); Memoirs, vol. 17 (no. 2). Boston, Mass.
- American Association of Petroleum Geologists: Bulletin, vols. 17, 18. Tulsa, Okla.
- American Ceramic Society: Bulletin, vols. 12, 13; Journal, vols. 16, 17. Easton, Pa.
- American Chemical Society: Monographs, no. 67. New York.
- American Geophysical Union: Transactions, 14th and 15th Annual Meetings. Washington, D. C.
- American Institute of Mining and Metallurgical Engineers: Contributions, nos. 1-74; Technical Publications 493-586, 589, 597; Transactions, vols. 105-111, 113, Year Book Section of Bulletin, 1933, 1934. New York. See also Mining and Metallurgy.
- American Journal of Science, 5th ser., vols. 25-28. New Haven, Conn.
- American Journal of Surgery, vols. 8-25, 1930-34. New York.
- American Midland Naturalist, vols. 14, 15. Notre Dame, Ind.
- American Mineralogist, vols. 18, 19. Menasha, Wis.
- American Museum of Natural History: Bulletin, vols. 57, 58, 59, 61, 66 (part), 67 (part), 68 (part); American Museum Novitates, nos. 537-763. New York. See also Natural History.
- American Naturalist, vols. 67, 68. New York.
- American Philosophical Society: Proceedings, vols. 72-74; Transactions, new ser., vols. 23 (pt. 2), 24 (pt. 1). Philadelphia, Pa.
- American Water Works Association: Journal, vols. 25, 26. Baltimore, Md.
- American Year Book, Record of the Year 1933. 1934. New York.
- Annales de paléontologie, t. 22 (fasc. 2), 23 (fasc. 1, 2). Paris.
- Annales des mines, 13^e sér., t. 3, 4, 5 (livr. 1-6), 6 (livr. 7-11). Paris.
- Annals and Magazine of Natural History, 10th ser., vols. 11-14. London.
- Annals of Botany, vols. 47, 48. London.
- Appalachia, vol. 20. Boston, Mass.
- Arizona Bureau of Mines: Bulletins 134-137. Tucson, Arizona.
- Arkansas Geological Survey: Information Circulars 4, 5. Little Rock, Ark.
- Association of American Geographers: Annals, vols. 23, 24. Lancaster, Pa.
- Association of American State Geologists: Journal, vol. 5. Charlottesville, Va.
- Augustana Library: Publications, no. 13. Rock Island, Ill.
- Auk, vols. 43-51, 1926-34. Lancaster, Pa.
- Barbados Museum and Historical Society: Journal, vols. 1, 2 (no. 1). Bridgetown, Barbados, British West Indies.

- Bernice Pauahi Bishop Museum: Bulletin, nos. 105-107, 113, 114, 117, 119, 120, 124-129; Occasional Papers, vol. 10 (nos. 10-17). Honolulu, Hawaii.
- Bibliographie des sciences géologiques, 2^e sér., Annual, vol. 4. Paris.
- Biological Abstracts, vols. 7, 8. Baltimore, Md.
- Biological Society of Washington: Proceedings, vols. 38, pp. 149-166, 46, 47. Washington, D. C.
- Black Hills Engineer, vols. 21, 22 (nos. 1-3). Rapid City, S. Dak.
- Boletín minero, vols. 34, 35. Mexico City.
- Boletín del petróleo, vols. 34, 35, Mexico City.
- Boletín de petróleo y minas, vols. 1, 2, 3 (nos. 1, 2). Mexico City.
- Boston Society of Natural History: Bulletins 66-73; Occasional Papers, vol. 8, pp. 55-198; Proceedings, vol. 40, nos. 1-3. Boston, Mass.
- Botanical Gazette, vols. 94 (nos. 3, 4), 95, 96 (nos. 1, 2). Chicago, Ill.
- British Columbia, Department of Mines: Annual Reports of Minister of Mines, 1932, 1933; Bulletins 1-3; Summary and Review, Bulletin 1. Victoria, B. C.
- Bryologist, vols. 36, 37 (nos. 1, 2). Brooklyn, N. Y.
- Buffalo Society of Natural Sciences: Bulletin, vol. 15 (no. 3), vol. 16, Buffalo, N. Y.
- Bulletins of American Paleontology, vols. 18, 20, 21 (nos. 66, 67, 69-72). Ithaca, N. Y.
- California Academy of Sciences: Proceedings, 4th ser., vols. 20, 21 (nos. 1-18). San Francisco.
- California, Department of Natural Resources, Division of Mines: Bulletins 104, 109; California Journal of Mines and Geology, vols. 29, 30 (nos. 1-3), Sacramento. California Oil Fields, vols. 17 (nos. 3, 4), 18, 19 (no. 1). San Francisco.
- California, University of, Department of Geological Sciences: Bulletin, vols. 21 (no. 8), 23 (nos. 1-8); Publications in Geography, vol. 6 (nos. 4, 5); Publications in Mathematical and Physical Sciences, vol. 1 (no. 1); Publications in Zoology, vol. 32 (no. 4); Scripps Institution of Oceanography, Bulletin, Technical ser., vol. 3 (nos. 9-14); Seismographic Stations, Bulletin, vol. 3 (nos. 2, 3). Berkeley, Calif.
- Canada, Department of Mines, Geological Survey: Summary Reports, 1932, 1933; Economic Geology ser., nos. 5 (2d ed.), 13; Memoirs 168, 171-174. Ottawa, Ontario.
- Canada, Department of Mines, Mines Branch: Annual Reports, 1933, 1934; Investigations, nos. 725, 726, 732-737, 743. Ottawa, Ontario.
- Canada, Department of Mines, National Museum: Bulletins 53, 55, 57, 71, 73. Ottawa, Ontario.
- Canada, Dominion Observatory: Bibliography of Seismology, vols. 10 (nos. 15-20), 11 (no. 1), 12 (nos. 1-3). Ottawa, Ontario.
- Canadian Alpine Journal, vols. 21, 22. Banff, Alberta.
- Canadian Field Naturalist, vols. 47, 48. Ottawa, Ontario.
- Canadian Geographical Journal, vol. 6 (nos. 1-5, 7-12). Montreal, Quebec.
- Canadian Institute of Mining and Metallurgy: Transactions, vols. 35, 36; Canadian Mining and Metallurgical Bulletins, 249-272. Montreal, Quebec.
- Canadian Journal of Research, vol. 10 (nos. 3, 4, 5), special no. 11 (nos. 1-6). Ottawa, Ontario.
- Canadian Mining Journal, vols. 54, 55. Gardenvale, Quebec.
- Carnegie Institution of Washington: Year Book, nos. 32, 33; Contributions to Paleontology, nos. 390, 412, 415, 416, 439-441, 447; Papers from the Tortugas Laboratories, vol. 28, Pub. no. 435. Washington, D. C.

- Carnegie Museum: *Annals*, vols. 21 (no. 4), 22, 23. Pittsburgh, Pa.
- Colorado Museum of Natural History: *Proceedings*, vol. 13 (nos. 1-3). Denver, Colo.
- Colorado Scientific Society: *Proceedings*, vol. 13 (nos. 4, 5). Denver, Colo.
- Colorado School of Mines: *Mines Magazine*, vols. 23, 24. Denver, Colo. *Quarterly*, vols. 28, 29. Golden, Colo.
- Colorado, University of: *Studies*, vols. 20 (nos. 2-4), 21, 22 (no. 1). Boulder, Colo.
- Colorado-Wyoming Academy of Science: *Journal*, vol. 1 (nos. 1-6). Boulder, Colo.
- Condor, vols. 30-36, 1928-34. Santa Clara, Calif.
- Connecticut Academy of Arts and Sciences: *Transactions*, vol. 31, pp. 299-425; 32, pp. 1-109. New Haven, Conn.
- Connecticut State Geological and Natural History Survey: *Bulletin* 52. Hartford, Conn.
- Contributions from the Cushman Laboratory for Foraminiferal Research, vols. 9, 10. Sharon, Mass.
- Copenhagen, Museum de minéralogie et de géologie, de l'Université de Copenhague: *Communications paléontologiques*, nos. 41, 44-46, 48-50; *Contributions minéralogiques*, no. 24. København, Denmark.
- Denison University, Scientific Laboratories: *Journal*, vols. 28, 29. Granville, Ohio.
- Earthquake Notes. See Seismological Society of America.
- Economic Geology, vols. 28, 29. Lancaster, Pa.
- Elisha Mitchell Scientific Society: *Journal*, vols. 48 (no. 2), 49, 50. Chapel Hill, N. C.
- Engineering and Mining Journal, vols. 134, 135. New York.
- Engineers' Society of Western Pennsylvania: *Proceedings*, vol. 49 (no. 1). Pittsburgh, Pa.
- Field and Laboratory (Southern Methodist University), vols. 1, 2, 3 (no. 1). Dallas, Texas.
- Field Museum of Natural History: *Publications*, Geological Leaflet no. 14; *Geological Series*, vol. 6 (nos 3-8). Chicago, Ill.
- Florida State Geological Survey: *Annual Report*, 23d-24th; *Bulletin* 11. Tallahassee, Fla.
- Forestry-Geological Review, vols. 2-4. Atlanta, Ga.
- Franklin Institute: *Journal*, vols. 215-218. Philadelphia, Pa.
- Geographical Review, vols. 23, 24. New York.
- Geographical Society of Philadelphia: *Bulletin*, vols. 31, 32. Philadelphia, Pa.
- Geological Magazine, vols. 70, 71. London.
- Geological Society of America: *Bulletin*, vols. 44, 45; *Memoirs*, nos. 1, 2; *Proceedings*, 1933; *Special Papers*, no. 1. Washington, D. C.
- Georgia, Department of Forestry and Geological Development, Division of Geology: *Information Circulars*, nos. 1-3. Atlanta, Ga.
- Grand Canyon Nature Notes, vols. 7 (nos. 4-12), 8, 9 (nos. 1-9). Grand Canyon National Park, Ariz.
- Harvard College, Museum of Comparative Zoology: *Annual Reports*, 1932-33, 1933-34; *Bulletin*, vols. 72 (nos. 1-11), 73, 74 (nos. 1-4, 6-10), 75, (nos. 1-10), 76 (no. 1), 77 (nos. 1-8); *Memoirs*, vols. 52, 54 (nos. 1, 2). Cambridge, Mass.
- Hobbies, vols. 13, 14, 15 (nos. 1, 2). Buffalo, N. Y.
- Idaho, *Annual Report of the Mining Industry*: 34th, 35th. Boise, Idaho.
- Idaho, Bureau of Mines and Geology: *Pamphlets* 38-41. Moscow, Idaho.

- Illinois State Academy of Science: Transactions, vols. 25, 26, 27 (nos. 1, 2). Springfield, Ill.
- Illinois State Geological Survey: Bulletin 61; Press Bulletin series no. 25; Information Circulars, 1-8; Reports of Investigation, nos. 26-32, 34, 36. Springfield, Ill.
- Indiana Academy of Science: Proceedings, vols. 42, 43. Indianapolis, Ind.
- Indiana, Department of Conservation: Annual Reports, 14th, 15th; Publication no. 123, Indianapolis, Ind.
- Instituto de Geología, Universidad Nacional Autónoma, México: Anuario, 1932. Mexico City.
- Iowa Academy of Sciences: Proceedings, vols. 39, 40. Des Moines, Iowa.
- Iowa, University, Studies in Natural History, new series, vols. 14 (no. 8), 15 (nos. 1-4), 16 (nos. 1-4). Iowa City, Iowa.
- Irrigación en México, Revista mensual, vols. 6-9. Mexico City.
- Johns Hopkins University, Studies in Geology, no. 11. Baltimore, Md.
- Journal of Geography, vols. 32, 33. Menasha, Wis.
- Journal of Geology, vols. 41, 42. Chicago, Ill.
- Journal of Mammalogy, vols. 12-15. Baltimore, Md.
- Journal of Paleontology, vols. 7, 8. Fort Worth, Tex.
- Journal of Sedimentary Petrology, vols. 3, 4. Menasha, Wis.
- Kansas Academy of Sciences: Transactions, vols. 36, 37. Topeka, Kans.
- Kansas Geological Society, Annual Field Conference Guidebooks, 2d-8th, 1928-34.
- Kansas State Geological Survey: Bulletin 19; Circular 5; Mineral Resources Circulars, 2, 3. Lawrence, Kans.
- Kansas University, Science Bulletin, vol. 20 (pt. 1), vol. 21. Lawrence, Kans.
- Kentucky Academy of Science: Transactions, vol. 5. Lexington, Ky.
- Kentucky, University, Bureau of Mineral and Topographic Survey: Bulletin, ser. 7, nos. 1-6. Lexington, Ky.
- Louisiana, Department of Conservation: Bulletin 22; Geological Bulletin, 3, 4; Biennial Reports, 10th, 11th. New Orleans, La.
- Maryland Bureau of Mines: Annual Reports, 10th, 11th. Baltimore, Md.
- Meddelelser om Grönland, Bände 72, 73, 84-88, 91-97, 102-105, 110 (parts only, none complete). Copenhagen, Denmark.
- Metals Technology. See American Institute of Mining and Metallurgical Engineers, Technical Papers.
- México, Instituto de geología: Anuario, 1932. Mexico City.
- México, Instituto geológico, Folleto de divulgación, nos. 37, 38. Mexico City.
- Michigan Academy of Science, Arts, and Letters: Papers, vols. 17-19. Ann Arbor, Mich.
- Michigan College of Mining and Technology: Bulletin, new ser., vol. 6 (nos. 3, 4); 7 (no. 3); 8 (no. 1). Houghton, Mich.
- Michigan Geological and Biological Survey, Department of Conservation, Geological Survey Division: Publication no. 38, Geol. ser. 32; Summary Report, 1927-31. Lansing, Mich.
- Michigan, University of, Museum of Paleontology: Contributions, vol. 4 (nos. 6-12). Ann Arbor, Mich.
- Military Engineer, vols. 25, 26. Washington, D. C.
- Milwaukee Public Museum: Bulletin, vol. 12 (nos. 2, 3). Milwaukee, Wis.
- Mineralogical Society of Southern California: Bulletin, vol. 2 (nos. 5-9); 3, 4 (nos. 1, 2). Altadena, Calif.

- Mining and Metallurgical Society of America: Bulletin, vols. 26, 27; Proceedings, vol. 25. New York City.
- Mining and Metallurgy (American Institute of Mining and Metallurgical Engineers), vols. 14, 15; Year Book. New York.
- Mining Congress Journal, vols. 19, 20. Washington, D. C.
- Mining Journal, vols. 16-18. Phoenix, Ariz.
- Mining Review, vols. 35, 36. Salt Lake City, Utah.
- Minnesota Geological Survey: Bulletins 23, 24. Minneapolis, Minn.
- Minnesota, University, Minnesota School of Mines Experiment Station: Bulletin, vols. 36, 37. Minneapolis, Minn.
- Mississippi State Geological Survey: Bulletins 24, 25. University, Miss.
- Missouri Botanical Garden: Annals, vols. 20, 21. Fulton, Mo.
- Missouri Bureau of Geology and Mines: Biennial Reports, 57th, 58th. Jefferson City, Mo.
- Missouri, University of: Studies, vols. 8, 9 (no. 1). Columbia, Mo.
- Montana State Bureau of Mines and Geology: Memoir, nos. 4-10, 12; Miscellaneous Contributions, nos. 2, 5, 6. Butte, Mont.
- Monthly Weather Review, vols. 61, 62. Washington, D. C.
- Museum of Northern Arizona: Museum Notes, vols. 2-7 (part); Bulletin no. 2. Flagstaff, Ariz.
- National Academy of Sciences: Biographical Memoirs, vols. 15, 16 (no. 1); Memoirs, vols. 22 (no. 4), 23 (no. 1); Proceedings, vols. 19, 20. Washington, D. C.
- National Geographic Magazine, vols. 63-66. Washington, D. C.
- National Research Council, Division of Geology and Geography: Annual Reports, 1932-33, 1933-34. Washington, D. C.
- National Research Council: Bulletins 90-95. Washington, D. C.
- Natural History; the journal of the American Museum of Natural History, vols. 33, 34. New York.
- Nautilus, vols. 46 (nos. 3, 4), 47, 48 (nos. 1, 2). Philadelphia, Pa.
- Nebraska Geological Survey: Bulletins, 2d ser., 7-9; Papers, 1-6. Lincoln, Nebr.
- Nebraska State Museum: Bulletin, vol. 1 (nos. 1-41). Lincoln, Nebr.
- Nebraska University, Nebraska Conservation and Soil Survey: Bulletins 3-8, 10, 11, 14, 15. Lincoln, Nebr.
- Nevada State Bureau of Mines and Mackay School of Mines: Bulletins, vols. 25 (no. 5), 26 (nos. 5, 7), 27 (nos. 1, 3), 28 (nos. 2, 5). Reno, Nev.
- Newfoundland, Department of Natural Resources, Geological Section: Bulletin 1; Information Circular 1. St. Johns, Newfoundland.
- New Jersey, Department of Conservation and Development, State of New Jersey: Geological ser., Bulletins 40, 41. Trenton, N. J.
- New Mexico, School of Mines: Bulletins 7, 9, 10. Socorro, N. Mex.
- New Phytologist, vols. 32, 33. London.
- New York Academy of Sciences: Annals, vols. 34, 35; Scientific Survey of Puerto Rico and the Virgin Islands, vol. 3 (pt. 3). New York.
- New York State Museum: Bulletin 298; Circulars 8-10, 12, 14; Handbooks 12, 14. Albany, N. Y.
- Northwest Science, vols. 7, 8. Cheney, Wash.
- Nova Scotia, Department of Public Works and Mines: Annual Reports, 1932, 1933. Halifax, Nova Scotia.
- Nova Scotia Institute of Science: Proceedings and Transactions, vol. 18 (pts. 2, 3). Halifax, Nova Scotia.
- Ohio Journal of Science, vols. 32 (no. 4), 33, 34. Columbus, Ohio.

- Ohio State University Bulletin, vol. 38 (no. 5); Engineering Experiment Station News, vols. 5, 6. Columbus, Ohio.
- Oil and Gas Journal, vols. 31 (nos. 31-52), 32, 33 (nos. 1-32). Tulsa, Okla.
- Oil Weekly, vols. 68-75, 76 (nos. 1-3). Houston, Tex.
- Oklahoma Academy of Science: Proceedings, vols. 12-14. Stillwater, Okla.
- Oklahoma Agricultural and Mechanical College, Division of Engineering: Publications, vol. 3 (no. 5).
- Ontario Department of Mines: Annual Reports, vols. 41 (pts. 4-7), 42, 43 (pt. 4); Bulletins 89, 90, 92. Toronto, Ontario.
- Oregon Mineralogist, vols. 1, 2. Portland, Oreg.
- Pacific Dental Gazette, vols. 36-42. San Francisco, Calif.
- Pacific Mineralogist, vol. 1 (no. 1). Los Angeles, Calif.
- Palaeontologisches Zentralblatt (Geologische Zentralblatt, Abt. B), Bände 3, 4, 5 (Nr. 1-5). Leipzig, Germany.
- Pan-American Geologist, vols. 59-62. Des Moines, Iowa.
- Peabody Museum of Natural History: Memoirs, vol. 3 (pt. 3). New Haven, Conn.
- Pennsylvania Academy of Science: Proceedings, vols. 7, 8. Harrisburg, Pa.
- Pennsylvania Geological Survey: Fourth Series; Atlas, no. 36; Bulletins G 4, G 6, G 7, M 16, M 19, M 20, W 1, W 2. Harrisburg, Pa.
- Pennsylvania, Department of Forests and Waters, Water Resources Service: Stream-flow records, 1928-32, 1932-33. Harrisburg, Pa.
- Pennsylvania State College, Mineral Industries Experiment Station: Bulletins 12-16; Technical Papers 4-13. State College, Pa.
- Pennsylvania Topographic and Geologic Survey: Bulletins 101, 102-A, 105-112. Harrisburg, Pa.
- Physical Review, vols. 43-46. Lancaster, Pa.
- Pittsburgh University, Mellon Institute of Industrial Research: Bibliographic ser., Bulletin 2, 6th and 7th Supplement. Pittsburgh, Pa.
- Popular Astronomy, vols. 41, 42. Northfield, Minn.
- Puerto Rico, Report of Committee on Mineral Resources: 1933. San Juan, P. R.
- Quebec (Province), Bureau of Mines: Annual Reports, 1932, 1933, Parts A, B. Quebec, Canada.
- Revista de obras públicas de Puerto Rico: Año 12 (no. 2). San Juan, P. R.
- Revista Industrial, Secretaría de la economía nacional, vols. 1, 2. Mexico City.
- Revue de géologie, vols. 13, 14. Liege, Belgium.
- Rhodora, vols. 34-36. Boston, Mass.
- Rocks and Minerals, vols. 8, 9. Peekskill, N. Y.
- Royal Canadian Institute: Transactions, vols. 19, 20 (pt. 1). Toronto, Ontario.
- Royal Society of Canada: Proceedings and Transactions, 3d ser., vols. 27, 28. Ottawa, Ontario.
- San Diego Society of Natural History: Transactions, vols. 7 (nos. 19-39), 8 (nos. 1-4). San Diego, Calif.
- Santa Barbara Museum of Natural History: Annual Report, 1933; Occasional Papers 2, 3. Santa Barbara, Calif.
- Science, new ser., vols. 77-80. New York.
- Scientific Monthly, vols. 36-39. New York.
- Seismological Society of America: Bulletin, vols. 23, 24. Stanford University, Calif.
- Seismological Society of America, Eastern Section: Earthquake Notes, vols. 4 (no. 4), 5, 6 (nos. 1-3). Washington, D. C.
- Shore and Beach, vols. 1, 2. New Orleans, La.

- Shreveport Geological Society: Annual Field Trips, 9th, 11th. Shreveport, La.
- Smithsonian Institution: Annual Report, 1932; Exploration and Field Work, 1932, 1933; Miscellaneous Collections, vols. 87, (nos. 16-20), 88, 89 (nos. 1-15), 90, 91 (nos. 1-18), 92 (nos. 1-13), 93 (no. 1); Washington, D. C.
- Smithsonian Scientific Series, vols. 7-12. New York.
- Sociedad científica "Antonio Alzate": Memorias y revista, vols. 51 (nos. 11, 12), 52 (nos. 1-10). Mexico City.
- Sociedad cubana de historia natural: Memorias de la Museo Poey, vol. 8 (no. 2). Habana, Cuba.
- Sociedad cubana de ingenieros: Revista, vols. 25, 26. Habana, Cuba.
- Société de géographie de Québec: Bulletin, vols. 27, 28. Quebec, Quebec.
- South Dakota State Geological Survey: Reports of Investigations 15-23. Vermillion, S. Dak.
- Southern California Academy of Sciences: Bulletin, vols. 32, 33. Los Angeles, Calif.
- Staten Island Institute of Arts and Sciences: Proceedings, vols. 6 (pts. 2-4), 7 (pts. 1, 2). Staten Island, N. Y.
- Tennessee Academy of Science: Journal, vols. 8, 9. Nashville, Tenn.
- Tennessee, Department of Education, Division of Geology: Bulletin 39. Nashville, Tenn.
- Tennessee Valley Authority, General Engineering and Geology Division: Geologic Bulletins 1, 2. Knoxville, Tenn.
- Texas, Academy of Science: Proceedings, vols. 15, 16, 18. Austin, Tex.
- Texas, University, Bureau of Economic Geology: Bulletins 3232, 3302; Mineral Resources Circulars 5-7. Austin, Tex.
- Toronto University, Studies: Geological series, nos. 33-35. Toronto, Ontario.
- Torrey, vols. 33, 34. Lancaster, Pa.
- Torrey Botanical Club: Bulletin, vols. 60, 61. Menasha, Wis.
- Trinidad and Tobago, Mines Department: Report of the Inspector of Mines, Council Paper no. 47, 1934. Port-of-Spain, Trinidad.
- Tufts College Studies, vol. 5 (nos. 7-9). Tufts College, Mass.
- Tulsa Geological Society: Digest, 1933; Summaries and Abstracts of Technical Papers. 1932. Tulsa, Okla.
- United States Bureau of Mines: Bulletins 368-380, 382; Economic Papers 16, 17; Monograph 5; Technical Papers 544-557, 559-561. Washington, D. C.
- United States Coast and Geodetic Survey: Special Publication no. 185; Serial 563, 569, 570. Washington, D. C.
- United States Department of Agriculture: Miscellaneous Publications, 60 revised, 186, 196; Technical Bulletins, nos. 430, 439. Washington, D. C.
- United States Geological Survey: Annual Report, 54th, 55th; Bulletins 817, 2d edition, 830, 836, 840-842, 844-846, 849, 850, 857, 858; Circulars 1-11; Geologic Atlas of the United States, folio 224; Memorandum for the Press, nos. 77516, 83105, 85246, 20674; Professional Papers 175, 176, 185; Water-Supply Papers 636, 638, 639, 656, 658-660, 710-739. Washington, D. C.
- United States National Museum: Annual Report 1933; Bulletins B 100, vol. 6, pt. 8, vol. 12, 161, 165; Proceedings, vols. 82, 83 (part). Washington, D. C.
- Utah Academy of Sciences, Arts, and Letters: Proceedings, vols. 9-11. Provo, Utah.

10 BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1933 AND 1934

- Utah State Agricultural College, Agricultural Experiment Station: Circular 106; Technical Bulletin 252. Logan, Utah.
- Vermont Geological Survey: Report of State Geologist, 17th, 18th. Burlington, Vt.
- Virginia Academy of Science: Proceedings, 1932-33, 1933-34. Charlottesville, Va.
- Virginia Geological Survey: Bulletins 35, 40-42. Charlottesville, Va.
- Volcano Letter, nos. 395-418. Hawaii National Park, Hawaii.
- Wagner Free Institute of Science: Bulletin, vols. 8, 9. Philadelphia, Pa.
- Washington Academy of Sciences: Journal, vols 23, 24. Washington, D. C.
- Washington Geological Survey, Division of Geology: Biennial Report, 1933-34. Olympia, Wash.
- Washington, University, Engineering Experiment Station series: Bulletins 69, 72-76. Seattle, Wash.
- Western Society of Engineers: Bulletin, vol. 5; Journal, vols. 38, 39. Evanston, Ill.
- West Virginia Academy of Sciences: Proceedings (W. Va. Univ. Bull.), vols. 6, 7, 9, 11. Morgantown, W. Va.
- West Virginia Geological Survey, Mimeographed series I: Bulletins 1-5. Morgantown, W. Va.
- Wisconsin Academy of Science, Arts, and Letters: Transactions, vol. 28, Madison, Wis.
- World Petroleum, vols. 4, 5. New York.
- Wyoming, Geological Survey: Bulletins 24, 25; Report of Investigations, no. 1. Laramie, Wyo.

BIBLIOGRAPHY

A double dagger (‡) indicates material reproduced by other means than ordinary printing

Abbot, Charles Greeley. See Bishop, 310.

Adams, Frank Dawson.

1. Further note on the earliest use of the word "geology": *Geol. Soc. America, Bull.*, vol. 44, no. 4, pp. 821-826, August 31, 1933; abstract, vol. 44, pt. 1, pp. 67-68, February 28, 1933.
2. Sir Charles Lyell, his place in geological science and his contributions to the geology of North America: *Science*, new ser., vol. 78, no. 2018, pp. 177-183, September 1, 1933.
3. Biographical memoir of Thomas Sterry Hunt, 1826-92: *Nat. Acad. Sci., Biog. Mem.*, vol. 15, pp. 205-238, 1934.
4. Biographical memoir of James Furman Kemp, 1859-1926: *Nat. Acad. Sci., Biog. Mem.*, vol. 16, no. 1, 21 pp., port., 1934.
5. Origin and nature of ore deposits, an historical study: *Geol. Soc. America, Bull.*, vol. 45, no. 3, pp. 375-424, 1 pl., June 30, 1934; abstract, *Proc.*, 1933, p. 60, June 1934.

Adams, George Irving, 1870-1932.

6. General geology of the crystallines of Alabama: *Jour. Geology*, vol. 41, no. 2, pp. 159-173, 2 figs. (maps), February-March 1933.
7. The development of mineral resources: *Mississippi Geol. Survey, Bull.*, no. 24, pp. 7-11, March 1933.

Adams, John Emery.

8. Island in Permian sea: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 11, pp. 1391-1393, 1 fig., November 1933.
9. Origin, migration, and accumulation of petroleum in limestone reservoirs in the western United States and Canada: *Problems of petroleum geology* (Sidney Powers memorial volume), pp. 347-363, *Am. Assoc. Petroleum Geologists*, 1934.

Adams, Leason Heberling.

10. Velocities of wave transmission in rocks (abstract): *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 286-287, *Nat. Research Council*, June 1933; *Seismol. Soc. America, Eastern Sec., Earthquake Notes*, vol. 5, nos. 1, 2, pp. 286-287, June 1933.

Adams, W. Claude.

11. Secrets of mountains read from fossils: *Oregon Mineralogist*, vol. 2, no. 1, pp. 7, 20-21, 24, January 1934.

Addison, C. C. See Willis, 3717.

Adkins, Walter Scott. See also Kansas Geol. Soc., 1744; Sellards, 3028.

12. New ammonite fauna from Mexican Turonian (abstract): Pan-Am. Geologist, vol. 59, no. 3, p. 238, April 1933.

13. The geology of Texas, Part 2, The Mesozoic systems in Texas: Texas Univ., Bull. no. 3232, pp. 239-518, 15 figs., [July 1933].

Adler, Joseph Leopold. See Rosaire, 2808.

Agar, William A.

14. The value of a State geological survey to a nonmining community (abstract): Assoc. Am. State Geologists, Jour., vol. 5, no. 2, p. 7 (+), April 1, 1934.

Agar, William Macdonough. See also Berkey, 263; Fowler, 1144.

15. Danbury granodiorite gneiss of Connecticut: Am. Jour. Sci., 5th ser., vol. 25, no. 145, pp. 1-19, 8 figs., January 1933.

16. Further notes on the Salisbury district of Connecticut: Am. Jour. Sci., 5th ser., vol. 25, no. 149, pp. 385-389, May 1933.

17. The granites and related intrusives of western Connecticut: Am. Jour. Sci., 5th ser., vol. 27, no. 161, pp. 354-373, 6 figs. (incl. map), May 1934.

18. Thermally metamorphosed diorite near Brookfield, Connecticut: Am. Jour. Sci., 5th ser., vol. 28, no. 168, pp. 401-411, 4 figs., December 1934.

Aguayo, C. G. See Clench, 663.

Airth, W. B.

19. Cape Smith sulphide deposits: Canadian Min. Jour., vol. 54, no. 2, pp. 53-55, 3 figs., February 1933.

Alcock, Frederick James.

20. Middle River gold field, Victoria County, Nova Scotia: Canada, Geol. Survey, Summary Rept., 1932, pt. D, pp. 58-68, 3 figs., 1933. (Pub. no. 2330.)

21. Report of the National Committee on Stratigraphical Nomenclature: Roy. Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 113-122, May 1934.

Alden, William Clinton. See also Reeside, 2725.

22. (and others). Glacial geology of the Central States: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 26, Excursion C-3, 54 pp., 4 figs. (maps), 4 pls. (incl. maps), 1932. Contains the following:

Alden, William Clinton. Quaternary period in the Mississippi River Basin, pp. 1-12, 1 fig. (map), 1 pl.

Leighton, Morris Morgan (and Ekblaw, George Elbert). Annotated guide across Illinois, pp. 13-23, 1 pl. (map); (and Ekblaw, George Elbert). Annotated guide across northeastern Illinois, pp. 47-51.

Kay, George Frederick. Annotated guide of eastern Iowa, pp. 24-31, 1 fig. (map).

Bean, Ernest F. (and Thwaites, Fredrik Turville, and Alden, William Clinton). Annotated guide of southern Wisconsin, pp. 31-47, 2 figs., 2 pls. (incl. map).

Aldinger, Hermann.

23. Ueber einen Eugnathiden aus der unteren Wolgastufe von Oströnland: Meddelelser om Grönland, Band 86, Nr. 4; Copenhagen, Univ., Mus. minéralogie et géologie, Comm. paléont., no. 46, 51 pp., 9 figs., 3 pls., 1932.

Aldrich, H. R. See Hotchkiss, 1563.

Alexander, Alexandre Emil.

24. Petrology of the great dust fall of November 13, 1933: *Monthly Weather Rev.*, vol. 62, no. 1, p. 15, January 1934.
25. A petrographic and petrologic study of some continental shelf sediments: *Jour. Sedimentary Petrology*, vol. 9, no. 1, pp. 12-22, 4 figs., April 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 443, June 1934.
26. The dust fall of November 13, 1933: *Am. Mineralogist*, vol. 19, no. 5, pp. 230-231, May 1934.
27. The dust fall of November 13, 1933, at Buffalo, N. Y.: *Jour. Sedimentary Petrology*, vol. 4, no. 2, pp. 81-82, August 1934.
28. Recent developments in high-index resins: *Am. Mineralogist*, vol. 19, no. 8, p. 385, August 1934.

Alexander, C. W. See Alexander, C. I., 30.

Alexander, Charles Ivan.

29. Preparation and study of fossil Ostracoda: *Micropaleontology Bull.*, vol. 4, no. 1, pp. 1-11 (†), 5 figs., March 15, 1933.
30. (and Alexander, C. W.). Reversal of valve size and hinge structure in a species of the genus *Cytherida*: *Am. Midland Naturalist*, vol. 14, no. 3, pp. 280-283, 4 figs., May 1933; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 236, April 1933.
31. Shell structure of the ostracode genus *Cytheropteron*, and fossil species from the Cretaceous of Texas: *Jour. Paleontology*, vol. 7, no. 2, pp. 181-214, 3 pls., June 1933; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 238, April 1933.
32. Ostracoda of the genera *Monoceratina* and *Orthonotacythere* from the Cretaceous of Texas: *Jour. Paleontology*, vol. 8, no. 1, pp. 57-67, 1 pl., March 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 376, June 1934.
33. Ostracoda of the Midway (Eocene) of Texas: *Jour. Paleontology*, vol. 8, no. 2, pp. 206-237, 1 fig., 4 pls., June 1934.

Alexander, Herbert. See Happ, 1394.

Alexander, Hugh Stuart.

34. A laboratory manual for physical geology. 80, xii pp., 21 figs., St. Paul, Minn., 1934.

Alexander, William DeWitt.

35. Mauna Loa's greatest eruption: *Mid-Pacific Mag.*, vol. 45, no. 4, pp. 302-328, 4 figs., 1 pl., April 1933.

Allan, John Andrew.

36. (and Rutherford, Ralph Leslie). Geology of central Alberta: Alberta, Research Council, Rept. no. 30, 41, v pp., 3 pls. (incl. geol. map), 1934.
37. A new deposit of gypsum in the Rocky Mountains, Alberta: *Canadian Inst. Min. Metallurgy, Trans.*, 1933, vol. 36, pp. 619-635, 10 figs. [1934].
38. Bentonites and related clays in western Canada (abstract): *Geol. Soc. America, Proc.*, 1933, p. 382, June 1934.

14 BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY, 1933 AND 1934

Allen, Eugene Thomas. See also Field, 1077.

39. Neglected factors in the development of thermal springs: *Nat. Acad. Sci., Proc.*, vol. 20, no. 6, pp. 345-349, June 1934; abstract, *Science*, new ser., vol. 79, no. 2055, p. 461, May 18, 1934.

40. Geyser basins and igneous emanations (abstract): *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 1, p. 240, *Nat. Research Council*, June 1934.

41. The agency of algae in the deposition of travertine and silica from thermal waters: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 167, pp. 373-389, November 1934.

Allen, Glover T.

42. A Pleistocene bat from Florida: *Jour. Mammalogy*, vol. 13, no. 3, pp. 256-259, 1 fig., August 1932.

Allen, Maxwell Wilford. See Wood, 3762.

Allen, Victor Thomas.

43. Mineral composition and origin of the Porters Creek formation of southeastern Missouri (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 380-381, June 1934.

44. Petrography and origin of the fuller's earth of southeastern Missouri: *Econ. Geology*, vol. 29, no. 6, pp. 590-598, 4 figs., September-October 1934.

Alling, Harold Lattimore. See also Newland, 2476.

45. Quantitative microscopic methods: *Econ. Geology*, vol. 28, no. 7, pp. 695-696, November 1933.

Allison, Ira Shimmin.

46. New version of the Spokane flood: *Geol. Soc. America, Bull.*, vol. 44, no. 4, pp. 675-722, 24 figs. (incl. maps), August 31, 1933; abstract, vol. 44, pt. 1, p. 68, February 28, 1933.

47. Glacial erratics in Willamette Valley, Oregon (abstract): *Pan-Am. Geologist*, vol. 61, no. 5, p. 377, June 1934.

Alter, J. Cecil. See Boutwell, 356.

Alty, Stella West.

48. Secondary crystallization of tourmaline in Lower Devonian sediments in Michigan, U. S. A. (abstract): *British Assoc. Adv. Sci., Rept. Ann. meeting, 1932 (102d year)*, p. 330, 1932.

49. Report of an investigation of Sylvania rocks in oil wells of the Michigan Basin: *Michigan Acad. Sci., Papers*, vol. 18, 289-300, 2 pls., 1933.

50. Some properties of authigenic tourmaline from Lower Devonian sediments: *Am. Mineralogist*, vol. 18, no. 8, pp. 351-355, 1 fig., August 1933.

Amberg, Charles Rhodimer. See Warren, 3552.

Ambrose, J. W. See also Tolman, 3397.

51. A discussion of the movement of fault blocks: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 156, pp. 552-563, 3 figs., December 1933.

American Institute of Mining and Metallurgical Engineers.

52. Ore deposits of the Western States (Lindgren volume) [foreword by George Otis Smith, preface by John Wellington Finch], 797 pp., illus., New York, 1933.

Amick, Harold Clyde. See Hall, 1372.

Anderson, Alfred Leonard.

53. Genesis of the mica pegmatite deposits of Latah County, Idaho: *Econ. Geology*, vol. 28, no. 1, pp. 41-58, 2 figs., January-February 1933.
54. An occurrence of giant hornblendite: *Jour. Geology*, vol. 41, pt. 1, pp. 89-98, 4 figs., January-February 1933.
55. (and Rasor, Alfred C.) Composition of the Idaho batholith in Boise County, Idaho: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 160, pp. 287-294, April 1934.
56. Contact phenomena associated with the Cassia batholith, Idaho: *Jour. Geology*, vol. 42, no. 4, pp. 376-392, 8 figs. (incl. geol. map), May-June 1934.
57. A preliminary report on recent block faulting in Idaho: *Northwest Sci.*, vol. 8, no. 2, pp. 17-28, 1 fig. (map), June 1934.
58. (and Rasor, Alfred C.). Silver mineralization in the Banner district, Boise County, Idaho: *Econ. Geology*, vol. 29, no. 4, pp. 371-387, 6 figs., June-July 1934.
59. Some pseudo-eutectic ore textures: *Econ. Geology*, vol. 29, no. 6, pp. 577-589, 7 figs., September-October 1934.
60. Geology of the Pearl-Horseshoe Bend gold belt, Idaho: *Idaho Bur. Mines and Geology*, Pamph. no. 41, 36 pp. (†), 6 pls. (incl. geol. sketch map), December 1934.

Anderson, C. S.

61. Gold mining in Georgia: *Am. Inst. Min. Met. Eng., Contr.* no. 57, 8 pp., 4 figs., 1933.

Anderson, Charles Alfred.

62. Tuscan formation of northern California, with a discussion concerning the origin of volcanic breccias: *California, Univ., Dept. Geol. Sci., Bull.*, vol. 23, no. 7, pp. 215-276, 13 figs., 4 pls., 1933.
63. Volcanic history of Glass Mountain, northern California: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 155, pp. 485-506, 5 figs., November 1933.
64. Alteration of lavas surrounding hot springs in Lassen Volcanic National Park (abstract): *Pan-Am. Geologist*, vol. 61, no. 5, p. 373, June 1934.

Anderson, Doris L. M.

65. Prospecting for placer gold in South Dakota: *South Dakota State Geol. Survey, Rept. Investigations* no. 15, 16 pp. (†), March 1933.

Anderson, Frank Marion.

66. Jurassic and Cretaceous divisions in the Knoxville-Shasta succession of California: *Mining in California* (California, Dept. Nat. Res., Div. Mines), vol. 28, nos. 3, 4, pp. 311-328, 5 figs., 2 pls., correl. table, July and October, 1932.
67. Type area of Jurassic Knoxville series of California: *Pan-Am. Geologist*, vol. 60, no. 3, pp. 175-188, 3 figs. (incl. maps), 1 pl., October 1933.
68. Knoxville-Shasta succession in California: *Geol. Soc. America, Bull.*, vol. 44, no. 6, pp. 1237-1270, 2 figs., 3 pls., December 31, 1933; abstract, vol. 44, pt. 1, pp. 68-69, February 28, 1933.

Anderson, George Harold. See also Nolan, 2507.

69. (and Maxson, John Haviland). Physiography of northern Inyo Range (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, pp. 314-315, May 1934.

Anderson, George Harold—Continued.

70. Pseudo-cataclastic texture of replacement origin in igneous rocks: *Am. Mineralogist*, vol. 19, no. 5, pp. 185-193, 2 figs., May 1934; abstract, *Pan-Am. Geologist*, vol. 59, no. 4, pp. 317-318, May 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 316, June 1934.

Anderson, Gustavus Edwin.

71. The Permian-Triassic problem in western Oklahoma: *Jour. Geology*, vol. 41, no. 8, pp. 834-839, November-December 1933.

Anderson, Harold Victor.

72. (and Chesley, Kenneth G.). X-ray study of the transformation of marcasite into pyrite: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 148, pp. 315-324, 3 figs., April 1933.

Anderson, John August.

73. The principle of the seismograph: *Nat. Research Council, Bull.*, no. 90, pp. 137-153, October 1933.

Antevs, Ernst Valdemar.

74. Late glacial correlations and ice recession in Manitoba: *Canada, Geol. Survey, Memoir* 168, 76 pp., 7 figs. (incl. maps), 1 pl., 1931. (No. 2283.)
75. Climaxes of the last glaciation in North America: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 166, pp. 304-311, October 1934; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 449-450, June 1934.

Anthony, R. See Pontier, 2646.

Antonius, Otto.

76. Ueber einen Pferdeschädel aus dem Rancho La Brea: *Zool.-bot. Gesell., Wien, Verh.*, Band 83, Heft 3-4, pp. 39-40, December 31, 1933.

Appel, J. E.

77. A film method for studying textures: *Econ. Geology*, vol. 28, no. 4, pp. 383-388, 4 figs., June-July 1933.

Applin, Esther Richards.

78. A microfossiliferous Upper Cretaceous section from South Dakota: *Jour. Paleontology*, vol. 7, no. 2, pp. 215-220, June 1933.
79. Correlation of California *Turritella andersoni* zone with Gulf coast Eocene (abstract): *Pan-Am. Geologist*, vol. 62, no. 1, p. 78, August 1934.

Arnold, Benjamin Walworth, 1865-1932.

80. (and Clark, Hubert Lyman). Some additional fossil echini from Jamaica: *Harvard Coll., Mus. Comp. Zoology, Mem.*, vol. 54, no. 2, pp. 139-156, 5 pls., December 1934.

Arnold, Chester Arthur.

81. Microfossils from Greenland coal: *Michigan Acad. Sci., Papers*, vol. 15, pp. 51-61, 4 pls., 1932.
82. Fossil plants from the Pocono (Oswayo) sandstone of Pennsylvania: *Michigan Acad. Sci., Papers*, vol. 17, pp. 51-56, 1 fig., 1 pl., 1933.
83. A sphenopterid fructification from the Pennsylvanian of Michigan: *Bot. Gazette*, vol. 94, no. 4, pp. 821-825, 3 figs., 1933.
84. A lycopodiaceous strobilus from the Pocono sandstone of Pennsylvania: *Am. Jour. Botany*, vol. 20, no. 2, pp. 114-117, 7 figs., February 1933.

Arnold, Chester Arthur—Continued.

85. A preliminary study of the fossil flora of the Michigan coal basin: Michigan, Univ., Mus. Paleontology, Contr., vol. 4, no. 11, pp. 177-204, 1 fig. (map), 7 pls., January 15, 1934.
86. The so-called branch impressions of *Callixylon newberryi* (Dn) Elkins and Wieland and the conditions of their preservation: Jour. Geology, vol. 42, no. 1, pp. 71-76, 4 figs., January-February 1934.
87. *Callixylon whiteanum* sp. nov., from the Woodford chert of Oklahoma: Bot. Gazette, vol. 96, no. 1, pp. 180-185, 3 figs., September 1934.

Arsандаux, H.

88. Sur l'évolution morphologique du dôme de la Montagne Pelée: Acad. sci. Paris, Comptes rendus, t. 194, no. 3, pp. 294-295, January 18, 1932.
89. Sur l'origine du dôme secondaire de la Montagne Pelée: Acad. sci. Paris, Comptes rendus, t. 196, no. 1, pp. 57-60, January 3, 1933.
90. L'éruption de la Montagne Pelée en 1929: Rev. scientifique, année 72, no. 8, pp. 248-251, April 28, 1934.

Ashley, George Hall. See also Berkey, 262; Sisler, 3107; Stose, 3260.

91. The scenery of Pennsylvania, its origin and development, based on recent studies of physiographic and glacial geology: Pennsylvania Geol. Survey, 4th ser., Bull. G 6, 91 pp., 90 figs. (incl. maps), 1 pl. (map), 1933.
92. (and others). Classification and nomenclature of rock units: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 423-459, April 30, 1933; (in part) Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 7, pp. 843-863, 1933.
93. The functions of State surveys (abstract): Assoc. Am. State Geologists, Jour., vol. 5, no. 2, p. 7 (†), April 1, 1934.
94. Studies in Appalachian mountain structure (abstract, with discussion): Geol. Soc. America, Proc., 1933, pp. 61-62, June 1934.

Ashley, James F. See Miller, 2317.

Athy, Lawrence Ferdinand.

95. Compaction and its effect on local structure: Problems of petroleum geology (Sidney Powers memorial volume), pp. 811-823, 2 figs., Am. Assoc. Petroleum Geologists, 1934.

Atkinson, William H. See Bale, 148.

Atwater, Gordon I. See also Tester, 3340; Trowbridge, 3413.

96. (and Clement, George M.). Pre-Mount Simon age of the Hinckley sandstone (abstract): Geol. Soc. America, Proc., 1933, p. 384, June 1934.

Atwood, Wallace Walter.

97. Is there tillite in the Triassic of Massachusetts? (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 70, February 28, 1933.
98. Lake Atitlan: Geol. Soc. America, Bull., vol. 44, no. 3, pp. 661-668, 5 figs., June 30, 1933; abstract, vol. 44, pt. 1, p. 70, February 28, 1933.
99. Correlation in geomorphic events of San Juan and Front Ranges of Colorado (abstract): Geol. Soc. America, Proc., 1933, pp. 54-55, June 1934.

Atwood, Wallace Walter, Jr.

100. Glaciation of the Park Range, Colorado (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 70-71, February 28, 1933.

Atwood, Wallace Walter, Jr.—Continued.

101. Alternating layers of lava and glacial till in the rim rocks surrounding Crater Lake (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 214, February 28, 1933.
102. Glaciation and land utilization of the Park Range in Colorado (abstract): *Assoc. Am. Geographers, Annals*, vol. 24, no. 1, p. 41, March 1934.
103. Warped peneplains and glacial features of the Medicine Bow and Park Ranges of Colorado and Wyoming (abstract): *Geol. Soc. America, Proc.*, 1933, p. 53, June 1934.

Aubert de la Rue, Edgar.

104. Étude préliminaire de la géologie des îles Saint-Pierre et Miquelon: *Acad. sci. Paris, Comptes rendus*, vol. 195, no. 25, pp. 1292-1294, December 19, 1932.
105. Esquisse géologique des îles Saint-Pierre et Miquelon: *Mus. nat. hist. nat.*, Paris, *Bull.*, 2^e sér., t. 5, no. 1, pp. 93-96, January 1933.
106. Les îles Saint-Pierre et Miquelon: La Terre et la vie, année 3, no. 1, pp. 3-33, illus., January 1933.
107. Sur quelques gîtes minéraux des îles Saint-Pierre et Miquelon: *Acad. sci. Paris, Comptes rendus*, vol. 196, no. 1, pp. 55-57, January 3, 1933.
108. Les îles Saint-Pierre et Miquelon: *Assoc. française adv. sci.*, *Bull.*, nouv. sér., année 62, no. 116, pp. 197-202, November 1933.
109. Sur la présence d'un minéral de manganèse à Langlade (îles St-Pierre et Miquelon): *Soc. française minéralogie*, *Bull.*, t. 56, nos. 6-7-8, p. 276, June-December 1933.
110. La géologie et les gîtes minéraux des îles Saint-Pierre et Miquelon: *Mines, carrières, grandes entreprises*, année 13, no. 138, pp. 1-6, 2 figs., April 1934.

Auer, Väinö.

111. Peat bogs of southeastern Canada: *Handbuch der Moorkunde*, Band 7 (American peat deposits), pp. 141-223, 19 figs., Berlin, Gebrüder Borntraeger, 1933.
112. William Morris Davis [1850-1934]: *Terra, Geog. Sällsk. Finland, Tidskr.*, vol. 46, no. 3, pp. 134-135, 1934.

Aurand, Harry A.

113. Present development in Greasewood area, Weld and Morgan Counties, Colo.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 4, pp. 433-435, 1 fig., April 1933.

Austin, A. C.

114. Pennsylvania anthracite, a general description: *Mines Mag. (Colorado School of Mines)*, vol. 24, no. 2, pp. 16-19, 27, 2 figs., February 1934.

Averill, Charles V.

115. Gold deposits of the Redding and Weaverville quadrangles: *California Jour. Mines and Geology*, vol. 29, nos. 1, 2, pp. 2-73, 18 figs., 3 pls. (incl. geol. map), January and April 1933.

Avery, C. Dwight.

116. (and Miller, John Charles). Relationship of geology to unit operation of oil and gas fields, involving government lands: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 11, pp. 1454-1492, 8 figs. (incl. maps), November 1934.

Axelrod, Daniel I.

117. A Pliocene flora from the Eden beds: *Am. Mus. Novitates*, no. 729, 4 pp. June 6, 1934.

Backlund, Helge Götrik.

118. (and Malmquist, D.). *Zur Geologie und Petrographie der nordostgrönländischen Basaltformation; Teil I, Die basische Reihe: Meddelelser on Grönland, Band 87, Nr. 5, 61 pp., 7 figs., 6 pls. (incl. geol. map), 1932.*

Backman, O. L. See Canada, G. S., 569.

Bacon, Charles S., Jr.

119. Geology of Riverside area, California (abstract): *Pan-Am. Geologist*, vol. 59, no. 4, pp. 313-314, May 1933; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 311-312, June 1934.

Bagg, Rufus Mather.

120. Underground water in human affairs: *Am. Water Works Assoc., Jour.*, vol. 25, no. 7, pp. 1000-1006, July 1933.

Bailey, H. D.

121. Ore genesis at Meadow Creek mine: *Eng. and Min. Jour.*, vol. 135, no. 4, pp. 162-163, 1 fig., April 1934.

Bailey, Reed W.

122. Floods and accelerated erosion in northern Utah: *U. S. Dept. Agr., Misc. Pub.* no. 196, 21 pp., 9 figs., August 1934.

Bailey, Thomas Laval.

123. Lower Pleistocene lateral change of fauna near Ventura (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, p. 309, May 1934.

Bain, George William. See also Longwell, 2085.

124. Calcite marble: *Econ. Geology*, vol. 29, no. 2, pp. 121-139, 8 figs., March-April 1934.
125. Land and sea on the Canadian Shield in pre-Cambrian time, H. C. Cooke: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 160, pp. 303-306, April 1934.
126. Service of the surveys (abstract): *Assoc. Am. State Geologists, Jour.*, vol. 5, no. 2, pp. 7-8 (+), April 1, 1934.
127. Relieved and strained rock (abstract, with discussion): *Geol. Soc. America, Proc.*, 1933, pp. 62-64, June 1934.
128. Serpentinization; origin of certain asbestos, talc, and soapstone deposits: *Econ. Geology*, vol. 29, no. 4, pp. 397-400, June-July 1934.
129. Problems of serpentinization: *Econ. Geology*, vol. 29, no. 7, p. 703, November 1934.

Bain, Harry Foster. See also Gregg, 1315.

130. Memorial of Ulysses Sherman Grant [1867-1932]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 328-337, port., April 30, 1933.

Baker, Arthur Alan.

131. Geology and oil possibilities of the Moab district, Grand and San Juan Counties, Utah: *U. S. Geol. Survey, Bull.* 841, 95 pp., 3 figs., 11 pls. (incl. map), 1933.
132. (and Dane, Carle Hamilton, and Reeside, John Bernard, Jr.). Paradox formation of eastern Utah and western Colorado: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 8, pp. 963-980, 2 figs., August 1933; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 234, April 1933.

Baker, Charles Laurence. See also Reed, 2713.

133. Gold in Texas: Texas, Univ., Bur. Econ. Geology, Min. Res. Circ., no. 5, 6 pp. (‡), March 1932.
134. Rotational stress as possible cause of fundamental crustal deformation: Pan-Am. Geologist, vol. 59, no. 1, pp. 19-32, February 1933.
135. Disseminated galena in the Upper Cambrian of the Central Mineral Region, Texas: Econ. Geology, vol. 28, no. 2, pp. 163-170, March-April 1933.
136. Sulphur in Texas: Texas, Univ., Bur. Econ. Geology, Min. Res. Circ., no. 6, 4 pp. (‡), April 1933.
137. Memorial of Johan August Udden [1859-1932]: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 402-413, port., April 30, 1933.
138. Reynosa problem of south Texas and origin of caliche (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 12, p. 1534, December 1933.
139. A genetic classification and description of the natural regions of Mexico (abstract): Texas Acad. Sci., Proc., 1933-34, vol. 18, pp. 20-21, 1934.

Baker, Frank Collins.

140. Ecological relationship of the genus *Pomatiopsis* with special reference to *Pomatiopsis lapidaria*: Ecology, vol. 12, no. 3, pp. 489-496, 2 figs., July 1931.
141. Description of a new species of *Gyraulus*: Canadian Field Naturalist, vol. 48, no. 2, p. 37, 3 figs., February 1934.
142. The variation and distribution, recent and fossil, of the snail *Polygyra profunda* Say, in Illinois: Am. Midland Naturalist, vol. 15, no. 2, pp. 178-186, 17 figs., March 1934; abstract, Illinois State Acad. Sci., Trans., vol. 25, no. 4, p. 189, June 1933.
143. A new mammoth record for Illinois: Science, new ser., vol. 80, no. 2066, p. 118, August 3, 1934.

Baker, Howard Bigelow.

144. The Atlantic rift and its meaning, 1st ed., 305 pp. (‡), figs. and pls. [privately printed?], c. 1932.

Baker, M. B. See Rickaby, 2767.

Baker, Manley Benson.

145. (and Johnston, A. Walfred). Glacial lake stages about the east end of Lake Ontario; Roy. Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 75-80, May 1934.

Baker, Oliver Edwin.

146. Memoir of Albert Perry Brigham [1855-1932]: Assoc. Am. Geographers, Annals, vol. 23, no. 1, pp. 27-32, March 1933.

Baldwin, Harry L. See also Brainerd, 378; Kansas Geol. Soc., 1743.

147. (and Brainerd, Arthur E., and Keyte, I. Allen). The Pennsylvanian section at Lost Lake, Colo.: Kansas Geol. Soc., Guide Book, 4th Ann. Field Conf., pp. 97-105 (‡), September 1930.

Baldwin, Harry L., Jr. See Brainerd, 379.

Bale, Hubert E.

148. (and Atkinson, William H., and McFarland, L. R.). Some characteristics of the pre-Pennsylvanian detrital zone in the Oklahoma City field: Oklahoma Acad. Sci., Proc., 1930, vol. 10, pp. 89-91, 1930.

- Balk, Robert. See also Barth, 202; Grout, 1337, 1340; Longwell, 2085.
149. Structure of metamorphic rocks in southeastern New York (abstract): Pan-Am. Geologist, vol. 61, no. 2, pp. 144-145, March 1934.
150. (and Grout, Frank Fitch). Structural study of the Snowbank stock: Geol. Soc. America, Bull., vol. 45, no. 4, pp. 621-636, 8 figs., 6 pls. (incl. map), August 31, 1934.
- Ball, Clayton G.
151. Kaolinite in Illinois coal: Econ. Geology, vol. 29, no. 8, pp. 767-776, 2 figs., December 1934; abstract, Geol. Soc. America, Proc., 1933, p. 445, June 1934.
- Ball, John Rice.
152. *Bainbridgia typicalis*; new genus and species of Siluric Auloporidae (abstract): Pan-Am. Geologist, vol. 59, no. 3, pp. 239-240, April 1933.
153. Some Pennsylvanian limestones of the Carlinville quadrangle, Illinois (abstract): Illinois State Acad. Sci., Trans., vol. 26, no. 3, p. 97, March 1934.
154. (and Dunn, Paul Heaney). Tentative Silurian correlations in the Mississippi Basin (abstract): Geol. Soc. America, Proc., 1933, pp. 342-343, June 1934.
155. Problematical rhynchonelloid from the Silurian of southeastern Missouri (abstract): Geol. Soc. America, Proc., 1933, p. 343, June 1934.
- Ball, Sydney Hobart.
156. Diamond deposits of magmatic origin: Ore deposits of the Western States (Lindgren volume), pp. 524-526, Am. Inst. Min. and Met. Eng., 1933.
- Balliet, Letson.
157. Below the Cambrian, a thesis: Min. Rev., vol. 36, no. 36, pp. 5-6, September 4, 1934.
- Banfield, A. F.
158. The micrography of the lead and zinc ores of the upper Mississippi Valley: Illinois State Acad. Sci., Trans., vol. 26, no. 3, p. 98, March 1934.
- Bannerman, Harold MacColl. See also Canada, G. S., 567.
159. Rush Lake area, Sudbury district, Ontario: Canada, Geol. Survey, Summary Rept., 1933, pt. D, pp. 38-82, 1934. (Pub. no. 2351.)
- Barbat, William Franklin.
160. (and Von Estorff, Fritz E.) Lower Miocene Foraminifera from the southern San Joaquin Valley, California: Jour. Paleontology, vol. 7, no. 2, pp. 164-174, 1 pl., June 1933.
161. (and Johnson, Floyd L.) Stratigraphy and Foraminifera of the Reef Ridge shale, upper Miocene, California: Jour. Paleontology, vol. 8, no. 1, pp. 3-17, 1 pl., March 1934; abstract, Pan-Am. Geologist, vol. 59, no. 3, p. 239, April 1933.
162. (and Galloway, John.). San Joaquin clay, California: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 4, pp. 478-499, 2 figs., April 1934.
- Barbour, Erwin Hinckley. See also Meserve, 2301.
163. The mandibular tusks of *Amebelodon fricki*: Nebraska State Mus., Bull., vol. 1, no. 14, pp. 135-138, 1 fig., December 1929.

Barbour, Erwin Hinckley—Continued.

164. The mandible of *Amebelodon fricki*: Nebraska State Mus., Bull., vol. 1, no. 15, pp. 139-146, 4 figs., December 1929.
165. *Torynabelodon loomisi*, gen. et sp. nov.: Nebraska State Mus., Bull., vol. 1, no. 16, pp. 147-153, 3 figs., 1929.
166. *Amebelodon sinclairi*, sp. nov.: Nebraska State Mus., Bull., vol. 1, no. 17, pp. 155-158, 1 fig., January 1930.
167. A morning's consignment of proboscidian freight: Nebraska State Mus., Bull., vol. 1, no. 18, pp. 159-162, 1 fig., 1930.
168. The American mastodon with mandibular tusks: Nebraska State Mus., Bull., vol. 1, no. 19, pp. 163-170, 6 figs., March 1931.
169. The giant beaver, *Castoroides*, and the common beaver, *Castor*, in Nebraska: Nebraska State Mus., Bull., vol. 1, no. 20, pp. 171-186, 12 figs., June 1931.
170. Evidence of dinosaurs in Nebraska: Nebraska State Mus., Bull., vol. 1, no. 21, pp. 187-190, 2 figs., July 1931.
171. A new amebelodont, *Torynabelodon barnambrowni*, sp. nov.; a preliminary report: Nebraska State Mus., Bull., vol. 1, no. 22, pp. 191-198, 4 figs., August 1931.
172. A new crinoid slab, a bit of Mississippian sea bottom: Nebraska State Mus., Bull., vol. 1, no. 23, pp. 199-202, 3 figs., August 1931.
173. The Milford mastodon, *Mastodon moodiei*, sp. nov., a preliminary report: Nebraska State Mus., Bull., vol. 1, no. 24, pp. 203-210, 5 figs., December 1931.
174. The musk oxen of Nebraska: Nebraska State Mus., Bull., vol. 1, no. 25, pp. 211-233, 15 figs., December 1931.
175. The articulated skeleton of a *Titanotherium*: Nebraska State Mus., Bull., vol. 1, no. 26, pp. 235-238, 1 fig., January 1932.
176. The articulated skeleton of *Eubelodon morrilli*: Nebraska State Mus., Bull., vol. 1, no. 28, pp. 243-246, 2 figs., March 1932.
177. The skull and mandible of *Mastodon moodiei*: Nebraska State Mus., Bull., vol. 1, no. 29, pp. 247-250, 2 figs., October 1932.
178. The mandible of *Platybelodon barnumbrowni*: Nebraska State Mus., Bull., vol. 1, no. 30, pp. 251-258, 6 figs., October 1932.
179. (and Schultz, Charles Bertrand). A new oreodont slab: Nebraska State Mus., Bull., vol. 1, no. 31, pp. 259-262, 1 fig., October 1932.
180. (and Schultz, Charles Bertrand). The mounted skeleton of *Bison occidentalis* and associated dart points: Nebraska State Mus., Bull., vol. 1, no. 32, pp. 263-270, 6 figs., October 1932.
181. (and Schultz, Charles Bertrand). The Scottsbluff bison quarry and its artifacts: Nebraska State Mus., Bull., vol. 1, no. 34, pp. 283-286, December 1932.
182. *Mastodon grangeri*, sp. nov.: Nebraska State Mus., Bull., vol. 1, no. 35, pp. 287-290, 1 fig., May 1934.
183. (and Schultz, Charles Bertrand). A new giant camel, *Titanotylopus nebraskensis*, gen. et sp. nov.: Nebraska State Mus., Bull., vol. 1, no. 36, pp. 291-294, 2 figs., May 1934.
184. A new ovibovine, *Symbos convexifrons*, sp. nov.: Nebraska State Mus., Bull., vol. 1, no. 37, pp. 295-298, 2 figs., May 1934.
185. A new rhinoceros mount, *Trigonias osborni*: Nebraska State Mus., Bull., vol. 1, no. 38, pp. 299-302, 2 figs., May 1934.
186. A mounted skeleton of *Megabelodon lulli*: Nebraska State Mus., Bull., vol. 1, no. 39, pp. 303-308, 5 figs., June 1934.

Barbour, Erwin Hinckley—Continued.

187. (and Schultz, Charles Bertrand). A new antilocaprid and a new cervid from the late Tertiary of Nebraska: *Am. Mus. Novitates*, no. 734, 4 pp., 4 figs., August 3, 1934.
188. (and Schultz, Charles Bertrand). The Nebraska meteor and meteorite of August 8, 1933: *Nebraska State Mus., Bull.*, vol. 1, no. 40, pp. 311-317, September 1934.

Barbour, Thomas.

189. (and Stetson, Henry C.). The squamation of *Homocosaurus*: *Harvard Coll., Mus. Comp. Zoology, Bull.*, vol. 69, no. 4, pp. 97-104, 1 pl., February 1929.

Barden, William J.

190. A summary of the interim report of the Beach Erosion Board (with discussion): *Shore and Beach*, vol. 2, no. 1, pp. 8-18, 2 figs., January 1934.

Barker, R. Wright.

191. Some notes on the genus *Helicolepidina* Tobler (abstract): *Geol. Soc. America, Proc.*, 1933, p. 374, June 1934.

Barksdale, Henry C.

192. A 10-year record of water-table fluctuations near Runyon, New Jersey: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 466-471, 5 figs., *Nat. Research Council*, June 1933.

Barnes, R. M.

193. D. Bruce Seymour [1902-34]: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 9, p. 1222, September 1934.

Barnes, Virgil Everett.

194. Metallic minerals in anhydrite cap rock, Winnfield salt dome, Louisiana: *Am. Mineralogist*, vol. 18, no. 8, pp. 335-340, 1 pl., August 1933.

Barrabé, Louis.

195. Sur les formations sédimentaires de la Guadeloupe et leur substratum: *Soc. géol. France, Compte rendu séances*, fasc. 4, pp. 50-51, February 19, 1934.
196. Sur l'affleurement du socle ancien des Petites Antilles dans l'île de la Désirade (Guadeloupe): [France], *Office nat. combustibles liquides*, année 19, no. 3, pp. 551-553, May-June 1934.
197. Rapport sur les résultats d'une mission pour la recherche du pétrole à la Guadeloupe (juillet-octobre 1933): [France], *Office nat. combustibles liquides*, année 19, no. 4, pp. 625-661, 3 figs., 3 pls. (incl. geol. map), July-August 1934.

Barrera, Tomás.

198. Los orígenes de la morfología terrestre a los ojos de los geólogos: *Ingeniería*, vol. 7, no. 3, pp. 101-109, 9 figs., March 1933.

Barrell (Bernard), Ruth. See Fisher, 1105.

Barrett, Richard L.

199. A comparison of ultraviolet sources for production of fluorescence in minerals: *Am. Mineralogist*, vol. 19, no. 12, pp. 578-585, 2 figs., December 1934.

Barth, Thomas Frederik Weybye. See also Donnay, 914.

200. An occurrence of iso-orthoclase in Virginia: *Am. Mineralogist*, vol. 18, no. 11, pp. 478-479, 1 fig., November 1933.
201. Polymorphic phenomena and crystal structure: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 160, pp. 273-286, 4 figs., April 1934.
202. (and Balk, Robert). Chloritoid from Dutchess County, N. Y.: *Am. Mineralogist*, vol. 19, no. 8, pp. 345-350, 1 fig., August 1934.

Bartle, Glenn G.

203. The geology of the Blue Springs gas field, Jackson County, Mo.: *Missouri, Bur. Geology and Mines*, 57th Bienn. Rept., app. 3, 64 pp., 1 fig. (map), 5 pls. (incl. maps), 1933.
204. Geology of Blue Springs gas field, Jackson County, Mo. (discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 12, pp. 1536-1537, December 1933.

Barton, Donald Clinton. See also Krejci-Graf, 1944.

205. Methods of geophysical prospecting: *Military Eng.*, vol. 24, no. 137, pp. 489-497, 6 figs., September-October 1932.
206. The Iberian structural axis: *Jour. Geology*, vol. 41, no. 3, pp. 225-242, 4 figs. (incl. sketch maps), April-May 1933.
207. (and Hickey, Maude). The continental margin at Texas-Louisiana Gulf coast: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 16-20, 4 figs. (incl. sketch map), Nat. Research Council, June 1933.
208. Mechanics of formation of salt domes with special reference to Gulf coast salt domes of Texas and Louisiana: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 9, pp. 1025-1083, 9 figs., September 1933.
209. Surface fracture system of south Texas: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 10, pp. 1194-1212, 6 figs., October 1933; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, pp. 232-233, April 1933.
210. (and Ritz, C. H., and Hickey, Maude). Gulf coast geosyncline: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 12, pp. 1446-1458, 4 figs., December 1933; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 230, April 1933.
211. Variation in physical properties, foreword: Problems of petroleum geology (Sidney Powers memorial volume), pp. 97-99, *Am. Assoc. Petroleum Geologists*, 1934.
212. Natural history of the Gulf coast crude oil: Problems of petroleum geology (Sidney Powers memorial volume), pp. 109-155, 12 figs., *Am. Assoc. Petroleum Geologists*, 1934.
213. Evolution of petroleum: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 1, pp. 143-148, 2 figs., January 1934.

Bartram, John Greer. See also Field, 1077.

214. Oil gravities in the Rocky Mountain States: Problems of petroleum geology (Sidney Powers memorial volume), pp. 157-176, 7 figs. (maps), *Am. Assoc. Petroleum Geologists*, 1934.

Bascom, Florence. See Campbell, 555; Johnson, 1676.

Bass, Nathan Wood.

215. Origin of Bartlesville shoestring sands, Greenwood and Butler Counties, Kans. (with discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 10, pp. 1313-1345, 16 figs. (incl. maps), October 1934; abstract, *Tulsa Geol. Soc., Digest*, p. 20, 1933.

Bassett, Charles F.

216. Stratigraphy and paleontology of the Dundee limestone of southeastern Michigan (abstract): *Geol. Soc. America, Proc.*, 1933, p. 379, June 1934.

Bassler, Ray Smith. See also Canu, 575.

217. Harvesting fossil sea lilies in the Ohio Valley: *Smithsonian Inst., Explorations and Field Work in 1932* (Pub. 3213), pp. 1-4, 4 figs., 1933.
218. Report on the department of geology: *U. S. Nat. Mus., Rept.*, 1933, pp. 108-117, 1933.
219. Development of invertebrate paleontology in America: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 265-286, April 30, 1933.
220. (and Kellett, Betty). Bibliographic index of Paleozoic Ostracoda: *Geol. Soc. America, Special Papers*, no. 1, 500 pp., 24 figs., 1934.
221. *Hedereleidea*, a new order of Paleozoic cyclostomatous *Bryozoa* (abstract): *Geol. Soc. America, Proc.*, 1933, p. 346, June 1934.
222. Notes on fossil and recent *Bryozoa*: *Washington Acad. Sci., Jour.*, vol. 24, no. 9, pp. 404-408, September 15, 1934.

Bastin, Edson Sunderland. See also Singewald, 3101.

223. Relations of cherts to stylolites at Carthage, Mo.: *Jour. Geology*, vol. 41, no. 4, pp. 371-381, 10 figs., May-June 1933.
224. The chalcocite and native-copper types of ore deposits: *Econ. Geology*, vol. 28, no. 5, pp. 407-446, 4 figs., August 1933.

Bather, Francis Arthur, 1863-1934.

225. *Chelonechinus*, n. g., a Neogene urchinid: *Geol. Soc. America, Bull.*, vol. 45, no. 5, pp. 799-874, 18 figs., 3 pls., October 31, 1934; abstract, *Proc.*, 1933, pp. 64-65, June 1934.

Bauer, Clyde Max.

226. Early Tertiary glaciation in central Wyoming (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 3, p. 27, April 1931.
227. Further studies on the boulder beds at the base of the White River formation in central Wyoming (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 4, p. 34, August 1932.
228. Wind River Basin [Wyoming]: *Geol. Soc. America, Bull.*, vol. 45, no. 4, pp. 665-696, 2 figs. (incl. map), 9 pls. (incl. geol. map), August 31, 1934; abstract, vol. 44, pt 1, pp. 71-72, February 28, 1933.

Bauer, Lawson H.

229. (and Berman, Harry). Barium-muscovite from Franklin, N. J.: *Am. Mineralogist*, vol. 18, no. 1, p. 30, January 1933.

Bayley, William Shirley.

230. Memorial of Samuel Washington McCallie [1856-1933]: *Geol. Soc. America, Proc.*, 1933, pp. 227-243, port., June 1934.

Bean, Ernest F. See Alden, 22; Wisconsin Geol. and Nat. History Survey, 3748.

Beane, B. H. See also Keyes, 1860.

231. Some recent Iowa finds of Carbonic Echinodermata (abstract): *Pan-Am. Geologist*, vol. 62, no. 2, p. 139, September 1934.

Beavan, A. P. See also Hawley, 1427.

232. (and Hawley, James Edwin). Mineralogy and genesis of the Mayville iron ore of Wisconsin (abstract): *Geol. Soc. America, Proc.*, 1933, p. 442, June 1934.

Beck, George F.

233. Tertiary floras of central Washington (abstract): *Northwest Sci.*, vol. 8, no. 3, p. 3, September 1934.

Becker, Clyde M.

234. Western Oklahoma, basement rocks and structural trends (abstract): *Tulsa Geol. Soc., Summaries and Abstracts*, 1932, *Tulsa Daily World*, April 18, 1932.

Becker, Hans.

235. Das "Hochgebirgsproblem" in den südlichen Appalachen im Vergleich zu europäischen Gebirgen: *Min. pet. Mitt.*, n. F., Band 44, Heft 2-3, pp. 193-198, 1933.

236. Die Beziehungen zwischen Felsengebirge und Grosse Becken im westlichen Nordamerika: *Deutsche geol. Gesell., Zeitschr.*, Band 86, Heft 2, pp. 115-120, 3 figs., March 17, 1934; abstract, Band 85, Heft 3, p. 238, April 4, 1933.

Becket, Frederick Mark. See Leith, 2044.

Becksmann, Ernest. See Waibel, 3532.

Beckwith, Radcliffe Harold.

237. The kyanite deposits of the Encampment district, Wyoming (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 4, p. 32, August 1932.

238. The structure of the Alcova area (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 5, p. 36, June 1933.

239. The fault system of the southern part of the Laramie Basin (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 6, p. 35, June 1934.

Beebe, James Wilbur.

240. Geological information for petroleum investors; with special reference to the San Joaquin Valley, California, including chapter on Dudley Ridge gas area. 24 pp., 5 figs. (maps), 1934. [Private publication.]

Beeth, Donald. See *Kansas Geol. Soc.*, 1743; Miller, 2329.

Behre, Charles Henry, Jr. See also Berkey, 262; Henderson, 1455; Loughlin, 2102, 2104, 2106; Powers, 2660; Rainwater, 2687; Scott, 3008.

241. Slate in Pennsylvania: *Pennsylvania Geol. Survey*, 4th ser., Bull. M 16, 400 pp., 89 figs., 70 pls., 1933.

242. (and Johnson, Jesse Harlan). Ordovician and Devonian fish horizons in Colorado: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 150, pp. 477-486, June 1933.

243. Talus behavior above timber in the Rocky Mountains: *Jour. Geology*, vol. 41, no. 6, pp. 622-635, 10 figs., August-September 1933.

244. Physiographic history of the upper Arkansas and Eagle Rivers, Colo.: *Jour. Geology*, vol. 41, no. 8, pp. 785-814, 16 figs. (incl. sketch map), November-December 1933.

245. The origin and economic importance of bedding-plane movements (abstract): *Illinois State Acad. Sci., Trans.*, vol. 26, no. 3, p. 99, March 1934.

Belknap, Ralph Leroy.

246. The Michigan-Pan American Airways Greenland expedition; preliminary results: *Geog. Rev.*, vol. 24, no. 2, pp. 205-218, 9 figs. (incl. map), April 1934.

Bell, A. M. See also Bell, L. V., 253.

247. The Assup River map area; with prospects in Vauquelin and Tiblemont Townships, Abitibi County: Quebec, Bur. Mines, Ann. Rept., 1932, pt. B, pp. 61-92, 1 fig., 1 pl. (both geol. maps), 1933.

Bell, Alfred Hannam.

248. Origin of the oil and gas reservoirs of the Eastern Interior coal basin in relation to the accumulation of oil and gas: Problems of petroleum geology (Sidney Powers memorial volume), pp. 557-569, 1 fig. (map), Am. Assoc. Petroleum Geologists, 1934.

Bell, Harvey Wesley.

249. Discovery of rock-salt deposit in deep well in Union County, Ark.: Arkansas Geol. Survey, Inf. Circ. 5, 21 pp. (+), 2 figs., 1933.

Bell, James Mackintosh, 1877-1934.

250. Canada's great physical barrier (abstract): Roy. Soc. Canada, Trans., vol. 27, p. cxlii, 1933.

Bell, Leslie Victor.

251. Mining properties of the Pascalis-Louvicourt area: Quebec, Bur. Mines, Ann. Rept., 1932, pt. B, pp. 3-59, 4 pls. (incl. map), 1933.
252. Granitic gneisses in the Foch area, County of Abitibi: Quebec, Bur. Mines, Ann. Rept., 1932, pt. B, pp. 93-103, 2 pls. (incl. geol. map), 1933.
253. (and Bell, A. M.). Senneterre map area, Abitibi district: Quebec, Bur. Mines, Ann. Rept., 1933, pt. B, 80 pp. 4 figs., 6 pls. (incl. geol. map), 1934.

Benn, James Harrison.

254. Explorations for rocks and minerals in the Eastern States: Smithsonian Inst., Explorations and Field Work in 1932 (Pub. 3213), pp. 21-24, 4 figs., 1933.

Bennett, Hugh Hammond.

255. The quantitative study of erosion technique and some preliminary results: *Geog. Rev.*, vol. 23, no. 3, pp. 423-432, 7 figs., July 1933.
256. Dynamic action of rains in relation to erosion in the humid region: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 474-488, 8 figs., Nat. Research Council, June 1934.

Bennett, W. R. See Lane, 1993.

Benson, Frances M.

257. The brachiopods of the Greenbrier limestone near Uniontown, Pa.: Pennsylvania Acad. Sci., Proc., vol. 8, pp. 62-65, 1934.

Bentz, Alfred.

258. Geologische Studienreise in nordamerikanischen Erdölfeldern: *Petroleum*, vol. 30, no. 22, pp. 1-16, 16 figs. (incl. maps), June 1, 1934; no. 27, pp. 5-12, 7 figs. (incl. maps), July 4, 1934; no. 31, pp. 7-14, 8 figs., August 1, 1934; no. 35, pp. 5-15, 8 figs., September 1, 1934.

Berger, Walter R.

259. (and Fash, Ralph H.). Relation of water analyses to structure and porosity in the west Texas Permian basin: Problems of petroleum geology (Sidney Powers memorial volume), pp. 869-889, 4 figs. (incl. maps), Am. Assoc. Petroleum Geologists, 1934.

Bernard, Ruth Barrell. See Fisher, 1105.

Bergquist, Stanard Gustaf.

260. Unconformities in the valley-train deposition cycle in northern Michigan (abstract): Geol. Soc. America, Proc., 1933, p. 65, 1934.

Berkey, Charles Peter.

261. Report of consulting board (consisting of C. P. Berkey, M. C. Hinderlider, G. D. Louderback, J. L. Savage, and I. A. Williams) on safety of the proposed Pine Canyon dam, Los Angeles County, Calif., 22 pp. (†), 9 pls., California, Div. Water Resources, May 1931.
262. (and others). Mineral deposits of New Jersey and eastern Pennsylvania: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 8, Excursion A-8, 54 pp., 13 figs. (incl. geol. map), 8 pls. (incl. geol. map), 1933. Contains the following:

Berkey, Charles Peter. Introduction, pp. 1-2.

Kerr, Paul Francis. Zinc deposits near Franklin, N. J., pp. 2-14, 3 figs., 1 pl. (geol. map); Franklin Furnace, N. J., to Easton, Pa., pp. 14-15.

Behre, Charles Henry, Jr. The Bangor-Pen Argyl slate region, Pennsylvania, pp. 15-30, 8 figs. (incl. maps), 2 pls.

Miller, Benjamin Leroy. The Lehigh portland-cement district, Pennsylvania, pp. 30-39, 2 pls.; Bethlehem to Nesquehoning, p. 40.

Campbell, Marius Robinson. The anthracite field of Pennsylvania, pp. 41-44.

Ashley, George Hall. Anthracite field—Mauch Chunk to Lebanon, pp. 44-48, 3 pls.

Cummings, W. L. The Cornwall iron mines, near Lebanon, Pa., pp. 48-54, 1 fig.; Lebanon to Harrisburg, p. 54.

263. (and others). New York City and vicinity: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 9, New York excursions, 151 pp., 31 figs. (incl. geol. maps), 16 pls. (incl. geol. map), 1933. Contains the following:

Berkey, Charles Peter. Introduction, pp. 1-3; Engineering geology of the City of New York, pp. 77-122, 6 figs. (incl. maps), 7 pls. (incl. maps).

Lobeck, Armin Kohl. Geography of New York City, pp. 3-9.

Finlay, George I. Geologic features of New York City, pp. 10-18, 2 figs., 2 pls. (maps).

Colony, Roy Jed. Structural geology between New York and Schunemunk Mountain, pp. 19-44, 4 figs., 2 pls. (maps).

Hayes, Albert Orion. Geologic features from the Watchung Mountains to Sandy Hook, pp. 45-52, 1 fig. (map), 2 pls. (maps).

Reeds, Chester Albert. The varved clays and other glacial features in the vicinity of New York City, pp. 52-63, 5 figs.

Kümmel, Henry Barnard. Glacial history of the Passiac Valley and related geologic features, pp. 64-77, 6 figs. (maps).

Agar, William Macdonough. The pegmatites of Bedford, N. Y., pp. 123-128, 1 fig. (map), 2 pls.

Hawkins, Alfred Cary (and Whitlock, Herbert Percy). Minerals of the trap-rock quarries of Paterson, N. J., pp. 128-139, 2 figs. (maps).

Kerr, Paul Francis. Zinc deposits near Franklin, N. J., pp. 139-151, 3 figs.

264. Recent development of geology as an applied science: Am. Philos. Soc., Proc., vol. 72, no. 1, pp. 25-37, 1933.

265. Proceedings of the forty-fifth annual meeting of the Geological Society of America, held at Cambridge, Mass., Wednesday, Thursday, and Friday, December 28, 29, and 30, 1932: Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 1-144, February 28, 1933.

Berl, E.

266. Origin of asphalts, oil, natural gas and bituminous coal: Science, new ser., vol. 80, no. 2071, pp. 227-228, September 7, 1934.

Berman, Harry. See Bauer, 229; Larsen, 2001; Palache, 2552.

Berry, Charles T.

267. Miocene and Recent *Ophiura* skeletons: Johns Hopkins Univ., Studies in Geology, no. 11, pp. 11-136, 9 figs., 6 pls., 1934.
268. A Talbot cypress swamp at Greenbury Point, Md.: Torreya, vol. 34, no. 4, pp. 85-91, 2 figs., July-August 1934.

Berry, E. G.

269. (and Crawford, Arthur Lorenzo). Preliminary notes on the Mollusca of Lake Bonneville: Utah Acad. Sci., Proc., vol. 9, pp. 53-54, June 1932.

Berry, Edward Wilber. See also Woodworth, 3779.

270. New occurrences of Pleistocene plants in the District of Columbia: Washington Acad. Sci., Jour., vol. 23, no. 1, pp. 1-25, 77 figs., January 15, 1933.
271. A *Protolpidodendron* from the Devonian of Virginia: Torrey Bot. Club, Bull., vol. 60, no. 2, pp. 73-75, 1 pl., February 1933.
272. Fossil plants from Morrison, Colo.: Washington Acad. Sci., Jour., vol. 23, no. 6, pp. 308-312, 1 fig., June 15, 1933.
273. A *Knowltonella* from the Black Hills Cretaceous: Washington Acad. Sci., Jour., vol. 23, no. 11, pp. 503-505, 1 fig., November 15, 1933.
274. The cuticle of an Eocene *Combretum*: Washington Acad. Sci., Jour., vol. 23, no. 11, pp. 505-508, 5 figs., November 15, 1933.
275. Miocene plants from Idaho: U. S. Geol. Survey, Prof. Paper 185, pp. 97-125, 6 pls., 1934.
276. A lower Lance florule from Harding County, South Dakota: U. S. Geol. Survey, Prof. Paper 185, pp. 127-134, 3 pls., 1934.
277. A pine from the Potomac Eocene: Washington Acad. Sci., Jour., vol. 24, no. 4, pp. 182-183, 1 fig., April 15, 1934.
278. Pleistocene plants from Cuba: Torrey Bot. Club, Bull., vol. 61, no. 5, pp. 237-240, 1 pl., May 1934.
279. A walnut from the Chesapeake Miocene: Washington Acad. Sci., Jour., vol. 24, no. 5, pp. 227-229, 2 figs., May 15, 1934.
280. (and Hawkins, Alfred Cary). Flora in the Pensauken formation (abstract): Geol. Soc. America, Proc., 1933, p. 65, June 1934.
281. Three additions to the Pleistocene flora of Tennessee: Washington Acad. Sci., Jour., vol. 24, no. 11, pp. 482-483, November 15, 1934.

Berry, Edward Willard.

282. A remarkable specimen of *Callixylon newberryi* (Dawson) Elkins et Wieland, from the Ohio shale: Ohio Jour. Sci., vol. 32, no. 4, pp. 385-388, 2 figs., July 1932.
283. Range and distribution of the genus *Lepidocyclina* Gümbel (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 205, February 28, 1933.
284. *Cytheridea brightscattensis* Berry, a new name for *C. truncata* Berry: Jour. Paleontology, vol. 7, no. 1, p. 112, March 1933.
285. Flora in the roof of the Upper Freeport coal at Callahan's mine, Teegarden, Ohio: Ohio Jour. Sci., vol. 33, no. 3, pp. 208-209, May 1933.
286. A fossil willow from Ohio: Am. Midland Naturalist, vol. 15, no. 6, pp. 781-783, 3 figs., November 1934.

Berry, Elmer. See Chamberlain, 618.

Berthiaume, Sheridan A.

287. Middle Eocene Foraminifera in western Oregon (abstract): *Pan-Am. Geologist*, vol. 62, no. 1, p. 78, August 1934.

Bertrand, Paul. See Darrah, 844.

Beutner, E. L. See Eardley, 971.

Bevan, Arthur Charles. See also Field, 1077; *Kansas Geol. Soc.*, 1745.

288. (and others). Northern Virginia: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 11, Excursions B-4, B-5, B-6, 43 pp., 5 figs. (incl. maps), 6 pls. (incl. geol. map), 1932. Contains the following:

Bevan, Arthur Charles. Introduction, pp. 1-5, 1 fig. (map); Itinerary, pp. 10-12, 1 pl. (map).

Campbell, Marius Robinson. The composite peneplain of the Virginia Piedmont (Excursion B-4), pp. 6-9, 1 fig.

Butts, Charles (and Roberts, Joseph Kent). Charlottesville to West Virginia by way of Waynesboro, Staunton, and Monterey (Pre-Cambrian, by Anna Isabel Jonas, pp. 13-15, 1 fig. (map)) (Excursion B-5), pp. 13, 15-28, 1 fig., 2 pls.

Ross, Clarence Samuel. Titanium deposits of Roseland district (Excursion B-6), pp. 29-36, 2 pls.

Burfoot, James Dabney, Jr. Talc and soapstone deposits of Virginia (Excursion B-6), pp. 36-43, 2 figs. (maps), 1 pl. (geol. map).

289. Outline of the Pennsylvanian of the Appalachian region: *Kansas Geol. Soc.*, Guidebook, 6th Ann. Field Conf., pp. 121-124, September 1932.

290. Gold in Virginia (abstract): *Virginia Acad. Sci., Proc.*, 1932-33, p. 51 [1933].

291. Geology of the hot-springs district, Virginia (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 72, February 28, 1933.

292. Coastal erosion during the storm of August 23, 1933 (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, p. 52, 1934.

293. Mineral resources of Virginia: *Am. Chem. Soc., Virginia section, Bull.*, vol. 11, no. 4, pp. 47-49, January 1934.

294. Structural pattern of Virginia (abstract): *Pan-Am. Geologist*, vol. 61, no. 2, pp. 143-144, March 1934.

295. Coastal erosion in Virginia (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 65-66, June 1934.

296. New geologic map of the Appalachian Valley in Virginia (abstract): *Geol. Soc. America, Proc.*, 1933, p. 66, June, 1934.

297. Research on the Paleozoic formations in Virginia (abstract): *Illinois Acad. Sci., Trans.*, vol. 27, no. 2, p. 109, December 1934.

Beverly, Burt, Jr.

298. Graphite deposits in Los Angeles, Calif.: *Econ. Geology*, vol. 29, no. 4, pp. 346-355, 3 figs., June-July 1934.

Bigelow, Edwin L.

299. The last lake of the Stowe Valleys: *Vermont, State Geologist, 18th Rept.*, 1931-32, pp. 358-362, 1 map [1933].

Billings, Marland Pratt.

300. Thrusting younger rocks over older: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 146, pp. 140-165, 13 figs., February 1933.

Billings, Marland Pratt—Continued.

301. (and Cleaves, Arthur Bailey). Silurian and Devonian strata of the Littleton quadrangle, New Hampshire (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 196, February 28, 1933.
302. (and Roy, Chalmer J.). Weathering of the Medford diabase—pre- or postglacial? (discussion with reply by Lane, Alfred Church, and Wolf, Arthur): *Jour. Geology*, vol. 41, no. 6, pp. 654-666, August-September 1933.
303. Paleozoic age of the rocks of central New Hampshire: *Science, new ser.*, vol. 79, no. 2038, pp. 55-56, January 19, 1934.
304. (and Cleaves, Arthur Bailey). Paleontology of the Littleton area, New Hampshire: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 168, pp. 412-438, 1 fig. (geol. map), 2 pls., December 1934.

Billingsley, J. E.

305. Occurrence of oil and gas in West Virginia, eastern Ohio, and eastern Kentucky: Problems of petroleum geology (Sidney Powers memorial volume), pp. 485-514, 11 figs. (incl. maps), *Am. Assoc. Petroleum Geologists*, 1934.

Billingsley, Paul. See also Boutwell, 356; Locke, 2074.

306. The utilization of geology in Tintic, Utah: Ore deposits of the Western States (Lindgren volume), pp. 716-722, 1 fig., *Am. Inst. Min. and Met. Eng.*, 1933.
307. (and Locke, Augustus). Tectonic position of ore districts in the Rocky Mountain region: *Am. Inst. Min. and Met. Eng., Tech. Pub.* no. 501, 12 pp., 5 figs., February 1933.

Birch, Raymond E.

308. Entrapped gases as a factor in stratification: *Am. Jour. Sci.*, 5th. ser., vol. 25, no. 149, pp. 406-414, 4 figs., May 1933.

Bisat, W. S.

309. (and Duncan, C., and Moore, E. W. J.). On the occurrence of a British Coal Measure goniatite in Missouri: *Yorkshire Geol. Soc., Proc.*, new ser., vol. 22, pt. 1, pp. 1-8, 5 figs., 1 pl., November 1931.

Bishop, Carl Whiting.

310. (and Abbot, Charles Greeley, and Hrdlička, Aleš). Man from the farthest past: *Smithsonian Sci. Series*, vol. 7, 375 pp., 112 figs., 100 pls., 1930.

Bjorge, Guy N.

311. (and Shoemaker, A. H.). Applied geology at the Old Dominion mine, Globe, Gila County, Ariz.: Ore deposits of the Western States (Lindgren volume), pp. 709-716, *Am. Inst. Min. and Met. Eng.*, 1933.

Black, Maurice.

312. The algal sedimentation of Andros Island, Bahamas: *Royal Soc. London, Philos. Trans.*, ser. B, vol. 222, B 488, pp. 165-192, 16 figs. 2 pls., February 2, 1933.
313. The precipitation of calcium carbonate on the Great Bahama Bank: *Geol. Mag.*, no. 832 (vol. 70, no. 10), pp. 455-466, 1 fig., 1 pl., October 1933.

Blackstone, Donald L.

314. Geological reconnaissance of the Pryor Mountains, Montana (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 168-169, February 28, 1933.

Blackstone, Donald L., Jr. See Thom, 3359.

Blackwelder, Eliot. See also Field, 1077; Jenkins, 1654.

315. Pleistocene glaciation in the Sierra Nevada and Basin Ranges: Geol. Soc. America, Bull., vol. 42, no. 4, pp. 865-922, 31 figs. (incl. sketch maps), 2 pls. (incl. map), December 31, 1931.
316. Glacial and associated stream deposits of the Sierra Nevada: Mining in California (California, Dept. Nat. Res., Div. Mines), vol. 28, nos. 3, 4, pp. 303-310, 5 figs., 1 pl., glacial map, July and October, 1932.
317. Age of Meteor Crater, Arizona (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 156, February 28, 1933.
318. Grooving of rock surfaces by sand-laden currents (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 167, February 28, 1933.
319. Lake Manly, an extinct lake of Death Valley: Geog. Rev., vol. 23, no. 3, pp. 464-471, 1 fig. (map), July 1933.
320. The insolation hypothesis of rock weathering: Am. Jour. Sci., 5th ser., vol. 26, no. 152, pp. 97-113, August 1933; abstract, Pan-Am. Geologist, vol. 60, no. 4, p. 319, November 1933.
321. Yardangs: Geol. Soc. America, Bull., vol. 45, no. 1, pp. 159-166, 7 pls., February 28, 1934; abstract, Proc., 1933, p. 305, June 1934; abstract, Pan-Am. Geologist, vol. 59, no. 4, p. 309, May 1933.
322. Talus slopes in Basin Range province (abstract): Pan-Am. Geologist, vol. 61, no. 4, p. 313, May 1934.
323. Supplementary notes on Pleistocene glaciation in the Great Basin: Washington Acad. Sci., Jour., vol. 24, no. 5, pp. 217-222, May 15, 1934.
324. Terraces along the lower course of the Colorado River (abstract): Geol. Soc. America, Proc., 1933, pp. 66-67, June 1934.
325. Origin of the Colorado River: Geol. Soc. America, Bull., vol. 45, no. 3, pp. 551-566, 3 figs. (incl. maps), June 30, 1934.

Blackwelder, Richard E. See Frizzell, 1168.

Blair, Charles Scofield.

326. Relation of the mining geologist to the mining industry in the Birmingham district, Alabama: Am. Inst. Min. Met. Eng., Contr., no. 31, 17 pp. 3 figs., 1933.

Blake, A.

327. The recording of strong seismic motion: Seismol. Soc. America, Bull., vol. 23, no. 3, pp. 111-127, 2 figs., July 1933.
328. On the location of deep-focus earthquakes (abstract): Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 6, no. 1-2, pp. 19-20 (†), September 1934.

Blake, Charles H.

329. The ostracode genus *Hollinella*: Jour. Paleontology, vol. 4, pp. 297-298, 1930.

Blanchard, Raoul.

330. *Études Canadiennes*; IV, *Le Saguenay et le Lac St.-Jean*: Rev. géographie alpine (Grenoble, Univ., Inst. géographie alpine), vol. 21, fasc. 1, pp. 5-174, 9 figs. (incl. maps), 15 pls., 1933.

Blanchard, Roland.

331. (and Boswell, P. F.). Additional limonite types of galena and sphalerite derivation: *Econ. Geology*, vol. 29, no. 7, pp. 671-690, 5 figs., November 1934.

Blank, Eugene W.

332. The opal: *Rocks and Minerals*, vol. 8, no. 1, pp. 24-26, March 1933.
333. Diamond finds in the United States: *Rocks and Minerals*, vol. 9, no. 10, pp. 147-150, October 1934; no. 11, pp. 163-166, November 1934; no. 12, pp. 179-182, December 1934.

Blixt, John E.

334. Geology and gold deposits of the North Moccasin Mountains, Fergus County, Mont: *Montana, Bur. Mines and Geology, Mem. no. 8*, 25 pp. (†), 1 fig., 4 pls. (incl. map), 1933.

Boak, C. C.

335. Largest petrified tree in world found in Nevada by mineral collector: *Oregon Mineralogist*, vol. 2, no. 6, pp. 22-23, June 1934.

Bode, Francis D. See also Findlay, 1097.

336. Characters useful in determining the position of individual teeth in the permanent cheek-tooth series of merychippine horses: *Jour. Mammalogy*, vol. 12, no. 2, pp. 118-129, 13 figs., May 1931.
337. Merychippine species of western United States and their stratigraphic relationships (abstract): *Pan-Am. Geologist*, vol. 59, no. 5, p. 377, June 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 392, June 1934.
338. Anchitheriine horses from the *Merychippus* zone of the north Coalinga district, California: *Carnegie Inst. Washington, Pub. 440, Contr. Paleontology*, pp. 43-58, 5 pls., November 1933; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 219, February 28, 1933; abstract, *Pan-Am. Geologist*, vol. 62, no. 1, p. 68, August 1934.

Bodle, Ralph Robinson.

339. Epicenter-determination—a discussion of methods: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 261-268, 11 figs., Nat. Research Council, June 1933; *Seismol. Soc. Am., Eastern Sec., Earthquake Notes*, vol. 5, nos. 1, 2, pp. 261-268, 16 figs., June 1933.

Bøggild, Ove Balthasar.

340. Igalikite and naujakasite, two new minerals from south Greenland: *Meddelelser om Grönland, Band 92, Nr. 2*, 12 pp., 2 pls., 1933.

Boegvad, Richard.

341. New minerals from Ivigtut, southwest Greenland: *Meddelelser om Grönland, Band 92, Nr. 8*; Copenhagen, Univ., Mus. minéralogie et géologie, *Contr. minéralogie no. 24*, 11 pp., 1 fig., 3 pls., 1933.
342. (and Rosenkrantz, Alfred). Beiträge zur Kenntnis der unteren Kreide Ostgrönlands: *Meddelelser om Grönland, Band 93, Nr. 1*, 28 pp., 3 figs. (incl. map), 5 pls., 1934.

Boissevain, Hugo.

343. (and Mac Gillavry, H. J.). Some remarks on *Barretta sparcilirata* Whitfield and *Chiapasella radiolitiformis* (Trechmann): K. Akad. Wetensch., Amsterdam, Proc., vol. 35, no. 10, pp. 1303-1312, 5 figs., 1932.

Bondarenko, B.

344. William Morris Davis [1850-1934]: *Zemlevedenie* (Geog. Zhur., Moskva), t. 36, no. 2, pp. 194-200, 1 fig. (port.), 1934.

Bonnell, Clarence.

345. A 400-acre lake disappears (abstract): Illinois Acad. Sci., Trans., vol. 27, no. 2, p. 110, December 1934.

Boos, C. Maynard. See also Boos, M. F., 347, 348, 350.

346. Cone-in-cone structure in the Fox Hills formation (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 4, p. 32, August 1932.

Boos, Margaret Fuller.

347. (and Boos, C. Maynard). "Iron Dike" [Front Range, Colo.] (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 73, February 28, 1933.

348. (and Boos, C. Maynard). Granites of the Front Range—the Longs Peak-St. Vrain batholith: Geol. Soc. America, Bull., vol. 45, no. 2, pp. 303-322, 6 figs. (incl. maps), 9 pls., April 30, 1934; abstract, vol. 44, pt. 1, pp. 72-73, February 28, 1933.

349. Granites of the Front Range; the heavy minerals (abstract, with discussion): Geol. Soc. America, Proc., 1933, pp. 67-68, June 1934.

350. (and Boos, C. Maynard). Granites of the Front Range; the Log Cabin batholith (abstract): Geol. Soc. America, Proc., 1933, p. 69, June 1934.

Booth, R. T. See Coryell, 759.

Born, Axel.

351. Periodicity in movement of the earth's crust (abstract): Pan-Am. Geologist, vol. 61, no. 2, pp. 154-155, March 1934.

Born, Kendall E.

352. Fibrous pyrite from the lead-zinc district of Illinois: Am. Mineralogist, vol. 19, no. 8, pp. 385-388, 1 fig., August 1934.

Born, W. T. See Weatherby, 3576.

Bostock, Hugh Samuel.

353. The mining industry of Yukon, 1932: Canada, Geol. Survey, Summary Rept., 1932, pt. A II, pp. 1-14, 2 figs., 1933. (No. 2333.)

354. The mining industry of Yukon, 1933, and notes on the geology of Carmacks map area: Canada, Geol. Survey, Summary Rept., 1933, pt. A, pp. 1-8, 1 fig. (map), 1934. (No. 2350.)

Boswell, P. F. See Blanchard, 331.

Boswell, P. G. H. See Wentworth, 3612.

Botkin, C. W.

355. White Sands National Monument (abstract): Pan-Am. Geologist, vol. 60, no. 4, pp. 304-305, November 1933.

Botset, Holbrook Gorham. See Wyckoff, 3803.

Boutwell, John Mason.

356. (and others). The Salt Lake region: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 17, Excursion C-1, 149 pp., 22 figs. (incl. maps), 20 pls. (incl. geol. maps), 1933. Contains the following:

Alter, J. Cecil. Geography, pp. 1-6.

Davis, William Morris. Geomorphology, pp. 6-14, 2 figs.

Mathews, Asa A. Lee. Stratigraphy, pp. 14-19, 2 figs. (maps), 2 pls. (incl. geol. map).

Billingsley, Paul. Geologic structure and geologic history, pp. 19-24, 1 fig. (map), 1 pl. (map); (and Crane, Guy Walter). Excursion 7, Tintic mining district, pp. 101-124, 11 figs. (incl. maps), 3 pls. (incl. geol. maps).

Boutwell, John Mason. Economic geology, pp. 25-32; Excursion 1, Wasatch front, pp. 32-45, 3 figs., 2 pls.; Excursion 3, Stratigraphy of the central Wasatch and western Uinta Mountains, pp. 56-69, 1 pl.; Excursion 4, Park City mining district, pp. 69-82, 2 pls. (incl. geol. map); Excursion 5, Cottonwood region, pp. 82-94, 98.

Calkins, Frank Cathcart. Itinerary of side trip on foot, pp. 95-97.

Mansfield, George Rogers. Excursion 8, Salt Lake City to Montpelier, Idaho, pp. 125-146, 6 pls. (incl. geol. maps).

Pack, Frederick James. Excursion 9, The dinosaur quarry of eastern Utah, pp. 146-149, 1 pl. (geol. map).

Bowen, Norman Levi. See also Grout, 1337; Schairer, 2959.

357. The broader story of magmatic differentiation, briefly told: Ore deposits of the Western States (Lindgren volume), pp. 106-128, 1 fig., Am. Inst. Min. and Met. Eng., 1933.

358. Nonexistence of echellite: Am. Mineralogist, vol. 18, no. 1, p. 31, January 1933.

359. (and Schairer, John Frank, and Posnjak, Eugen). The system $\text{Ca}_2\text{SiO}_4\text{-Fe}_2\text{SiO}_4$: Am. Jour. Sci., 5th ser., vol. 25, no. 148, pp. 273-297, 7 figs., Apr. 1933.

360. (and Schairer, John Frank, and Posnjak, Eugen). The system CaO-FeO-SiO_2 : Am. Jour. Sci., 5th ser., vol. 26, no. 153, pp. 193-284, September 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 74, February 28, 1933.

361. Viscosity data for silicate melts: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. I, pp. 249-255, 2 figs., Nat. Research Council, June 1934.

Bowie, William. See also Field, 1077.

362. A comparison of isostasy in India and in the United States and southern Canada: Gerlands Beitr. Geophysik. Band 41, Heft 2, pp. 250-259, 2 figs. (maps), 1934; abstract, Zeitschr. Geophysik, Jahrg. 10, Heft 5/6, pp. 93-94, 1934.

Bowles, Edgar. See Gardner, 1210.

Bowles, Oliver.

363. The stone industries. 1st ed., xi, 519 pp., 73 figs., 1 pl. (front.), New York, McGraw-Hill Book Co., 1934.

Bowling, Leslie.

364. (and Wendler, Arno P.). Detailed study of some beds, commonly known as Catahoula formation, in Fayette County, Tex., with particular reference to their age: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 5, pp. 526-547, 4 figs., May 1933.

Bowman, Isaiah. See also Leith, 2044.

365. Correlation of sedimentary and climatic records: *Nat. Acad. Sci., Proc.*, vol. 19, no. 3, pp. 376-386, March 15, 1933.

366. William Morris Davis [1850-1934]: *Geog. Rev.*, vol. 24, no. 2, pp. 177-181, 1 pl., port., April, 1934.

367. William Morris Davis [1850-1934]: *Soc. geog. nac., Madrid, Bol.*, vol. 74, no. 5, pp. 280-286, May 1934.

Boyle, Rockwell S.

368. (and Ford, Joe H.) Heavy minerals of the Oriskany formation of the Gaspé Peninsula, Province of Quebec, Canada, compared with those of the Oriskany of Virginia (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, p. 56, 1934.

Brace, O. L.

369. Factors governing estimation of recoverable oil reserves in sand fields: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 3, pp. 343-357, March 1934; discussion, no. 8, pp. 1078-1083, August 1934.

Bradford, Charles E.

370. The structure of the Sheep Mountain area (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 5, pp. 34-35, June 1933.

371. Genesis of the saline lake deposits of Wyoming (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 6, pp. 35-36, June 1934.

Bradford, Donald C. See also Waters, 3570.

372. (and Waters, Aaron Clement.). The Tolt River earthquake and its bearing on the structure of the Cascade Range: *Seismol. Soc. America, Bull.*, vol. 24, no. 1, pp. 51-62, 2 figs. (incl. map), January 1934.

Bradley, Wilmot Hyde.

373. Factors that determine the curvature of mud-cracked layers: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 151, pp. 55-71, 5 figs., July 1933; abstract, *Washington Acad. Sci., Jour.*, vol. 23, no. 2, pp. 114-115, February 15, 1933.

Brady, L. F.

374. A mounted skeleton of a ground sloth: *Mus. Northern Arizona, Mus. Notes*, vol. 6, no. 4, pp. 19-21, 1 fig., Flagstaff, October 1933.

375. New Devonian area in northern Arizona (abstract): *Pan-Am. Geologist*, vol. 60, no. 4, pp. 303-304, November 1933.

376. Elden Mountain: *Mus. Northern Arizona, Mus. Notes*, vol. 7, no. 3, pp. 9-12, 2 figs., Flagstaff, September 1934.

Bragg, William Lawrence.

377. Exploration of mineral world by X-rays: *Pan-Am. Geologist*, vol. 62, no. 4, pp. 273-282, 5 figs., 1 pl. November 1934.

Brainerd, Arthur E. See also Baldwin, 147; Johnson, 1697; *Kansas Geol. Soc.*, 1743.

378. (and Baldwin, Harry L., and Keyte, I. Allen). Stratigraphic sections in southern Rocky Mountains of Colorado: *Kansas Geol. Soc., Guidebook*, 4th Ann. Field Conf., pp. 74-96 (†), September 1930.

379. (and Baldwin, Harry L., Jr., and Keyte, I. Allen). Pre-Pennsylvanian stratigraphy of Front Range in Colorado: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 4, pp. 375-396, 10 figs., April 1933.

Brainerd, Arthur E.—Continued.

380. (and Johnson, Jesse Harlan). Mississippian of Colorado: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 4, pp. 531-542, 3 figs., April 1934; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 235, April 1933.

Bramkamp, Richard A.

381. Molluscan fauna of Imperial formation of San Geronio Pass (abstract): *Pan-Am. Geologist*, vol. 62, no. 1, pp. 70-71, August 1934.

Bramlette, Milton Nunn.

382. (and Posnak, Eugen). Zeolitic alteration of pyroclastics: *Am. Mineralogist*, vol. 18, no. 4, pp. 167-171, April 1933.
383. Heavy mineral studies on correlation of sands at Kettleman Hills, California: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 12, pp. 1559-1576, 2 figs., December 1934; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 235, April 1933.
384. Rhythmic bedding in the Monterey rocks of California (abstract): *Washington Acad. Sci., Jour.*, vol. 23, no. 12, p. 575, December 15, 1934.

Brand, L. S.

385. Some notes on the Pleistocene history of the Cincinnati region: *Ohio Jour. Sci.*, vol. 34, no. 2, pp. 67-85, March 1934.

Branner, George Caspar. See also Singewald, 3101.

386. (and Hansell, James Myron). Earthquake risks in Arkansas: *Arkansas Geol. Survey, Inf. Circ.* no. 4, 13 pp. (†), 4 pls., 1933.
387. State geological surveys: *Am. Year Book*, 1933, pp. 251-254, 1934.
388. State geological surveys: *Assoc. Am. State Geologists, Jour.*, vol. 5, no. 1, pp. 4-11 (†), 1 pl., January 1, 1934.

Branson, Carl Colton. See also Branson, E. B., 399.

389. Fish fauna of the middle Phosphoria formation: *Jour. Geology*, vol. 41, no. 2, pp. 174-183, 1 fig., February-March 1933.
390. Permian sharks of Wyoming and of East Greenland: *Science*, new ser., vol. 79, no. 2054, p. 431, May 11, 1934.
391. Age of the shale series at Bedford, Ill. (abstract): *Geol. Soc. America, Proc.*, 1933, p. 365, June 1934.
392. Morrison invertebrate fauna from Wyoming (abstract): *Geol. Soc. America, Proc.*, 1933, p. 367, June 1934.

Branson, Edwin Bayer.

393. (and Mehl, Maurice Goldsmith). Conodont studies no. 1; Conodonts from Harding sandstone of Colorado; from the Bainbridge (Silurian) of Missouri; from the Jefferson City (Lower Ordovician) of Missouri: *Missouri, Univ., Studies*, vol. 8, no. 1, pp. 1-72, 1 fig., 4 pls., January 1, 1933.
394. (and Mehl, Maurice Goldsmith). Conodont studies no. 2; Conodonts from Joachim (middle Ordovician) of Missouri; from the Plattin (middle Ordovician) of Missouri; from the Maquoketa-Thebes (upper Ordovician) of Missouri; a study of Hinde's types of conodonts preserved in the British Museum. *Missouri, Univ., Studies*, vol. 8, no. 2, pp. 77-167, 7 pls., April 1, 1933.
395. (and Mehl, Maurice Goldsmith). Conodont studies no. 3; Conodonts from the Grassy Creek shale of Missouri: *Missouri, Univ., Studies*, vol. 8, no. 3, pp. 171-259, 3 figs. (incl. map), 9 pls., July 1, 1933.

Branson, Edwin Bayer—Continued.

396. (and Mehl, Maurice Goldsmith.) Conodont studies no. 4; Conodonts from the Bushberg sandstone and equivalent formations of Missouri: Missouri Univ., Studies, vol. 8, no. 4, pp. 265-300, 3 pls., October 1, 1933.
397. Kinderhookian of Missouri (abstract): Geol. Soc. America, Proc., 1933, p. 352, June 1934.
398. (and Mehl, Maurice Goldsmith). Notes on the ecology of the conodonts (abstract): Geol. Soc. America, Proc., 1933, p. 362, June 1934.
399. (and Branson, Carl Colton). Triassic-Jurassic contact in central Wyoming (abstract): Geol. Soc. America, Proc., 1933, pp. 366-367, June 1934.

Branson, E. R.

400. Conodonts from the Hannibal formation of Missouri: Missouri, Univ., Studies, vol. 8, no. 4, pp. 301-343, 4 pls., October 1, 1933.

Breen, Ralph C. See Israelsky, 1638.

Bremner, Carl St. J.

401. Geology of San Miguel Island, Santa Barbara County, Calif.: Santa Barbara Mus. Nat. History, Occasional Papers no. 2, 23 pp., 10 figs., 4 pls., (incl. map), June 1, 1933.

Bretz, J. Harlan.

402. The channeled scabland: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 22, Excursion C-2, 16 pp., 9 pls. (incl. geol. map), 1932.
403. How Chicagoland was made: Western Soc. Eng., Jour., vol. 38, no. 3, pp. 135-141, June 1933.

Brewer, Charles, Jr.

404. Oil and gas geology of the Allegany State Park, 1931: New York State Mus., Circ. 10, 22 pp., 1 pl. (map), May 1933.

Bridge, Josiah. See also Reeside, 2725; Ulrich, 3447.

405. Restudy of the genotype of *Pterocephalia* (abstract): Geol. Soc. America, Proc., 1933, p. 338, June 1934.

Britton, Nathaniel Lord, 1859-1934.

406. (and Meyerhoff, Howard Augustus, and others). Report of the Committee on mineral resources of Puerto Rico, 16 pp., San Juan, 1933; Informe de los progresos realizados por el comité de recursos minerales de Puerto Rico, 19 pp., San Juan, 1933; also issued in Rev. obras públicas de Puerto Rico, año 10, no. 1, January 1933, and no. 2, February 1933.

Britton, Wilton Everett.

407. Fifteenth biennial report of the Geological and Natural History Survey of Connecticut: Connecticut, State Geol. and Nat. History Survey, Bull., no. 52, 24 pp., 1933.

Brock, B. B.

408. The metamorphism of the Shuswap terrane of British Columbia: Jour. Geology, vol. 42, no. 7, pp. 673-699, 6 figs. (incl. maps), October-November 1934.

Brock, C. L.

409. Rose-pink calcite in Texas: Rocks and Minerals, vol. 9, no. 9, p. 135, September 1934.

Broderick, Thomas Monteith. See also Hotchkiss, 1563.

410. Application of geology to problems of iron-ore concentration: Am. Inst. Min. Met. Eng., Contr. no. 20, 17 pp., 7 figs., 1933.

411. Quantitative studies of differentiation in lava flows (abstract with discussion): Geol. Soc. America, Proc., 1933, pp. 67-70, June 1934.

Brøgger, Waldemar Christopher.

412. On several Archaean rocks from the south coast of Norway—[including] Nodular granite from Pine Lake, Ontario, Canada; Nodular granite from "Russell quadrangle", St. Lawrence County, N. Y.: Norske vidensk.-akad., Oslo, Skr., 1933, Bind 2, no. 8, pp. 52-56, 1934.

Brooks, A. B.

413. Notes on extinct and living mammals of West Virginia: West Virginia Acad. Sci., Proc., vol. 4 (West Virginia Univ., Bull., ser. 31, no. 2), pp. 57-60, October 1930.

Broughton, M. N.

414. Secondary selenite crystals in Tertiary strata in Texas: Am. Mineralogist, vol. 19, no. 10, pp. 466-473, 15 figs., October 1934.

Brown, Barnum.

415. A Miocene camel bed ground: Nat. History, vol. 29, no. 6, pp. 658-662, 5 figs., November-December 1929.

416. Stratigraphy and fauna of the Fuson-Cloverly formation in Montana, Wyoming, and South Dakota (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 74, February 28, 1933.

417. An ancestral crocodile: Am. Mus. Novitates, no. 638, 4 pp., 3 figs., June 29, 1933.

418. A new genus of Stegocephalia from the Triassic of Arizona: Am. Mus. Novitates, no. 640, 4 pp. 2 figs., June 30, 1933.

419. A gigantic ceratopsian dinosaur, *Triceratops maximus*, new species: Am. Mus. Novitates, no. 649, 9 pp., 6 figs., July 25, 1933.

420. A new long-horned Belly River ceratopsian: Am. Mus. Novitates, no. 669, 3 pp., 3 figs., October 26, 1933.

421. Folsom culture; an occurrence of prehistoric man with extinct animals near Folsom, N. Mex. (abstract): Pan-Am. Geologist, vol. 60, no. 5, p. 378, December 1933.

422. A change of name [*Archaeosuchus* preoccupied, renamed *Protosuchus*]: Science, new ser., vol. 79, no. 2039, p. 80, January 26, 1934.

Brown, Calvin Smith.

423. Dr. E[phraim] N[oble] Lowe [1864-1933]: Science, new ser., vol. 78, no. 2028, p. 428, November 10, 1933.

Brown, Frederick Martin.

424. The age of Meteor Crater: Science, new ser., vol. 77, no. 1992, pp. 239-240, March 3, 1933.

Brown, Levi Stanley.

425. Age of Gulf border salt deposits (with discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 10, pp. 1227-1296, 8 figs., October 1934.

Brown, Roland Wilbur. See also Read, 2709.

426. Fossil plants from the Aspen shale of southwestern Wyoming: U. S. Nat. Mus., Proc., vol. 82, art. 12, 10 pp., 2 pls., 1933.

Brown, Roland Wilbur—Continued.

427. A Cretaceous sweet gum [*Liquidambar fontanella*, from Aspen shale, Wyoming]: Bot. Gazette, vol. 94, no. 3, pp. 611-615, 1 fig., March 1933.
428. The recognizable species of the Green River flora: U. S. Geol. Survey, Prof. Paper 185, pp. 45-77, 8 pls., 1934.
429. The pronunciation of geologic terms (abstract): Washington Acad. Sci., Jour., vol. 24, no. 11, p. 493, November 15, 1934.
430. *Celliforma spirifer*, the fossil larval chambers of mining bees: Washington Acad. Sci., Jour., vol. 24, no. 12, pp. 532-539, 5 figs., December 15, 1934.

Brown, S. M. See Woodford, 3774.

Brown, Thomas Clachar, 1882-1934.

431. Glacial lakes and ice movements in Millers River Valley, Mass. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 74-75, February 28, 1933.
432. Changes in level indicated by marginal terraces and other glacial lake deposits in central Massachusetts (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 175-176, February 28, 1933.
433. The waning of the last ice sheet in central Massachusetts: Jour. Geology, vol. 41, no. 2, pp. 144-158, 8 figs., February-March 1933.
434. History of the Nashua and Millers Rivers Valleys in late Wisconsin time (abstract): Geol. Soc. America, Proc., 1933, p. 70, June 1934.
435. Evidence of stagnant ice in glacial Lakes Hadley and Montague in the Connecticut Valley (abstract): Geol. Soc. America, Proc., 1933, p. 450, June 1934.

Brown, W. Horatio.

436. Quantitative study of zoning of ores at Austinville mine, Wythe County, Va. (abstract): Pan-Am. Geologist, vol. 60, no. 2, pp. 158-159, September 1933.

Brown, W. L.

437. Photophorescence in minerals: Toronto, Univ., Studies, Geol. ser., no. 35, pp. 19-35, 3 pls., 3 figs., 1933.

Bruce, Everend Lester.

438. Mineral deposits of the Canadian Shield. 428 pp., 161 figs., Toronto, Macmillan Co. of Canada, 1933.
439. Arntfield-Aldermac mines map area, Beauchastel Township: Quebec, Bur. Mines, Ann. Rept., 1932, pt. C, pp. 29-87, 10 figs., 5 pls. (incl. geol. map), 1933.
440. Geology of the Townships of Janes, McNish, Pardo, and Dana: Ontario, Dept. Mines, 41st Ann. Rept. (vol. 41, pt. 4), 1932, pp. 1-28, illus., map, 1933.
441. The background of economic geology: Royal Soc. Canada, Trans., 3d ser., vol. 27, sec. 4, pp. 1-5, May 1933.
442. The Canadian Shield, its character and economic influence: Zbiór Prac, E. Romer (Towarz. Geog. Lwów), pp. 160-179, 12 figs., 1934.
443. A spectrographic examination of quartz from some gold-bearing veins: Royal Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 7-12, 2 pls., May 1934.
444. Geology of the Red Lake area [Ontario]: Canadian Min. Jour., vol. 55, no. 10, pp. 438-441, 2 figs. (maps), October 1934.

Brues, Charles Thomas.

445. Progressive change in the insect population of forests since the early Tertiary: *Am. Naturalist*, no. 712, vol. 67, pp. 385-406, 1933.

Brunet, M. J. M.

446. Algunas notas sobre el petróleo en México: *Rev. industrial, Mexico*, vol. 1, no. 6, pp. 663-668, 4 figs., December 1933.

Brunner, G. J.

447. The earthquake of September 6, 1933, and its bearing on the problem of the deep earthquake: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 1, pp. 72-77, 10 figs., Nat. Research Council, June 1934.
448. A method for the simultaneous determination of focal depth, epicentral distance, and focal time from the seismograms of a single station by means of a graphic chart (abstract): *Seismol. Soc. America, Eastern Sec., Earthquake Notes*, vol. 6, no. 1-2, p. 19 (†), September 1934.
449. The extraordinarily deep earthquake of May 26, 1932: *Seismol. Soc. America, Eastern Sec., Earthquake Notes*, vol. 6, no. 1-2, p. 19 (†), September 1934.

Bryan, Frank.

450. Recent movements on a fault of Balcones system, McLennan County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 4, pp. 439-442, 1 fig., April 1933.

Bryan, Joseph J. See also Tarr, 3315.

451. Pyrite concretions from the Chuar: *Grand Canyon Nature Notes*, vol. 9, no. 9, pp. 350-353, 3 figs., December 1934.

Bryan, Kirk. See also Woodworth, 3779.

452. (and others). Reviews of papers on the geomorphology of North America: *Zeitschr. Geomorphologie*, Band 7, Heft 1, pp. 50-68, January 1932; Heft 4-5, pp. 250-253, December 1932; Heft 6, pp. 312-320, April 1933; also separate, 41 pp., 1933.
453. Paleoclimatology in North America as a result of the study of peat bogs: *Zeitschr. Gletscherkunde*, Band 20, Heft 1/3, pp. 76-81, March 1932.
454. (and Cleaves, Arthur B., and Smith, H. T. U.). The present status of the Appalachian problem [Discusses divergent views in regard to Appalachian erosion surfaces.]: *Zeitschr. Geomorphologie*, Band 7, Heft 6, pp. 312-320, 1933.
455. Formation of pediments (abstract): *Pan-Am. Geologist*, vol. 60, no. 4, pp. 318-319, November 1933.
456. (and Cady, Richard Carlyle). The Pleistocene climate of Bermuda: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 160, pp. 241-264, 3 figs., April 1934.
457. Geomorphic processes at high altitudes: *Geog. Rev.*, vol. 24, no. 4, pp. 655-656, October 1934.

Bryant, William L.

458. The fish fauna of Beartooth Butte, Wyoming: *Am. Philos. Soc., Proc.*, vol. 72, no. 5, pp. 285-314, 8 figs., 21 pls., 1933; vol. 73, no. 3, pp. 127-162, 8 figs., 26 pls., February 1934.
459. New fishes from the Triassic of Pennsylvania: *Am. Philos. Soc., Proc.*, vol. 73, no. 5, pp. 319-326, 8 pls., May 1934.

Buchanan, George S.

460. Discovery of Valentine (LaRose) dome, Louisiana, by reflection seismograph: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 4, p. 543, April 1934.

Bucher, Walter Hermann. See also Field, 1077.

461. The deformation of the earth's crust. 518 pp., 99 figs. (incl. maps), 2 pls. Princeton, Princeton Univ. Press, 1933.
462. (and others). Catalogue of small-scale geologic maps useful for broader regional studies (with chief emphasis on modern maps) (preliminary edition). 132 pp. (†), Washington, Nat. Research Council, 1933.
463. Ueber eine typische kryptovulkanische Störung im südlichen Ohio: *Geol. Rundschau*, Band 23a (Salomon-Calvi Festschrift), pp. 65-80, 3 figs., 1933.
464. (and Chamberlin, Rollin Thomas, and Thom, William Taylor, Jr.). Results of structural research work in Beartooth-Big Horn region, Montana and Wyoming: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 6, pp. 680-693, 5 figs., (incl. sketch map), June 1933; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 75-77, February 28, 1933; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, pp. 233-234, April 1933.
465. Volcanic explosions and overthrusts: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 238-242, 1 fig., Nat. Research Council, June 1933.
466. (and Thom, William Taylor, Jr., and Chamberlin, Rollin Thomas). Geologic problems of the Beartooth-Big Horn region: *Geol. Soc. America, Bull.*, vol. 45, no. 1, pp. 167-188, 5 figs., 3 pls., February 28, 1934.
467. Problem of the Heart Mountain thrust (abstract): *Geol. Soc. America, Proc.* 1933, p. 57, June 1934.
468. Cryptovolcanic structures of United States (abstract): *Pan-Am. Geologist*, vol. 62, no. 2, pp. 159-160, September 1934.

Buck, L. A. See Hawkins, 1422.

Buddington, Arthur Francis. See also Grout, 1337.

469. Correlation of kinds of igneous rocks with kinds of mineralization: Ore deposits of the Western States (Lindgren volume), pp. 350-385, 1 fig., *Am. Inst. Min. Met. Eng.*, 1933.
470. Gravity stratification as criterion in interpretation of structure of certain intrusives of northwestern Adirondacks (abstract): *Pan-Am. Geologist*, vol. 60, no. 2, pp. 151-152, September 1933.

Buehler, Henry Andrew. See also Singewald, 3101.

471. (and McQueen, Henry Silliman). Magnetometer results and siliceous residues in Missouri (abstract): *Tulsa Geol. Soc., Summaries and Abstracts*, 1932, *Tulsa Daily World*, May 2, 1932.
472. Biennial report of the State geologist [57th, for 1931 and 1932], 50 pp., 4 figs. (incl. map), 1 pl., *Missouri Bur. Geology and Mines*, 1933.

Buerger, Martin Julian. See also Buerger, N. W., 476.

473. The optical properties of ideal solution immersion liquids: *Am. Mineralogist*, vol. 18, no. 8, pp. 325-334, 3 figs., August 1933.

Buerger, Martin Julian—Continued.

474. The pyrite-marcasite relation: *Am. Mineralogist*, vol. 19, no. 2, pp. 37-61, 1 fig., February 1934.

475. Fluid inclusions in pyrite: *Am. Mineralogist*, vol. 19, no. 12, p. 605, December 1934.

Buerger, N. W.

476. (and Buerger, Martin Julian). Crystallographic relations between cubanite segregation plates, chalcopyrite matrix, and secondary chalcopyrite twins: *Am. Mineralogist*, vol. 19, no. 7, pp. 289-303, 5 figs., July 1934.

477. The unmixing of chalcopyrite from sphalerite: *Am. Mineralogist*, vol. 19, no. 11, pp. 525-530, 1 fig., November 1934.

Buffam, Basil Scott Whyte. See Canada G. S., 571, 574.

Bullard, Fred Mason.

478. (and Cuyler, Robert H.). Pennsylvanian section of Colorado River Valley, Tex. (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, p. 233, April 1933.

Bullitt, J. B.

479. Early man: *Elisha Mitchell Sci. Soc., Jour.*, vol. 49, no. 1, pp. 42-56, 1 pl., September 1933.

Bump, James.

480. A South Dakota camel: *Black Hills Engineer*, vol. 21, no. 1, pp. 28-29, 2 figs., 1933.

Burbank, Benj. B.

481. Ruggles mica mine, Grafton, N. H.: *Mineralog. Soc. Southern California, Bull.*, vol. 2, no. 5, pp. 1-2, January 1933.

482. Topaz and herderite at Topsham, Maine: *Rocks and Minerals*, vol. 9, no. 9, pp. 126-131, 5 figs., September 1934.

Burbank, Wilbur Swett. See also Henderson, 1455; Loughlin, 2104.

483. Vein systems of the Arrastre Basin and regional geologic structure in the Silverton and Telluride quadrangles, Colorado: *Colorado Sci. Soc., Proc.*, vol. 13, no. 5, pp. 135-214, 4 figs., 5 pls. (incl. geol. maps), 2 tables, 1933.

484. (and Lovering, Thomas Seward). Relation of stratigraphy, structure, and igneous activity to ore deposition of Colorado and southern Wyoming: Ore deposits of the Western States (Lindgren volume), pp. 272-316, 7 figs., *Am. Inst. Min. Met. Eng.*, 1933.

485. Epithermal base-metal deposits: Ore deposits of the Western States (Lindgren volume), pp. 641-652, *Am. Inst. Min. Met. Eng.*, 1933.

486. The manganese minerals of the Sunnyside veins, Eureka Gulch, Colorado: *Am. Mineralogist*, vol. 18, no. 12, pp. 513-527, 3 figs., December 1933.

Burchard, Ernest Francis. See also Singewald, 3101.

487. Iron ore in the Red Mountain formation in Greasy Cove, Alabama: *U. S. Geol. Survey, Circ.* 1, 49 pp. (†), 5 figs., 1 pl. 1933.

488. Fluorspar deposits in western United States: *Am. Inst. Min. Met. Eng., Tech. Pub.* no. 500, 26 pp., 5 figs., February 1933.

489. Memorial of George Irving Adams [1870-1932]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 288-301, port., April 30, 1933.

Burchard, Ernest Francis—Continued.

490. (and others). The brown iron ores of the western Highland Rim, Tennessee: Tennessee, State, Dept. Education, Div. Geology, Bull. 39, 227 pp., 21 figs. (incl. maps), 33 pls. (incl. maps), 1934.

491. Fluorspar deposits in western United States (with discussion): Am. Inst. Min. Met. Eng., Trans., vol. 109, pp. 370-396, 5 figs., 1934.

Burden, J. W. See Roosevelt, 2806.

Burdick, Edward H.

492. Gold in the Juratrias of southwestern Colorado: Mining and Metallurgy, vol. 15, no. 329, pp. 217-219, 2 figs., May 1934.

Burfoot, James Dabney, Jr. See Bevan, 288.

Burgess, C. H.

493. Change of name of a fossil brachiopod: Canadian Field Naturalist, vol. 46, no. 5, p. 111, May 1932.

Burke, J. J.

494. Eocene Lagomorpha: Science, new ser., vol. 77, p. 191, February 17, 1933.

495. New Duchesne River rodents and a preliminary survey of the Adjidau-midae: Carnegie Mus., Annals, vol. 23, pp. 391-398, 5 figs., 1934.

496. *Mytonolagus*, a new leporine genus from the Uinta Eocene series in Utah: Carnegie Mus., Annals, vol. 23, pp. 399-420, 1 pl., 1934.

Burri, Conrad.

497. (and Sonder, Richard A.). Ueber vulkanische Gesteine von Nicaragua: Schweizer. min. pet. Mitt., Band 14, Heft 2, pp. 526-527, 1934.

498. (and Sonder, Richard). Ueber vulkanische Gesteine von Nicaragua (abstract): Schweizer. naturf. Gesell., Verh., 115 Jahresvers., September 6-9, 1934, pp. 325-327, 1934.

Burroughs, Wilbur Greeley.

499. Physiographic history of North Branch of the Susquehanna River in northern Pennsylvania and south-central New York (abstract): Kentucky Acad. Sci., Trans., vol. 5 (1931-32), pp. 56, 58, 1933.

Burrows, A. G. See Graton, 1304.

Burt, Frederick Arthur.

500. (and Zeller, P. J. A.). Geologic and chemical data on concretions in the Manning beds (abstract): Texas Acad. Sci., Proc., 1933-34, vol. 18, p. 21, 1934.

Burton, Fred R.

501. Commercial granites of Quebec; Part 1, South of the St. Lawrence River: Quebec, Bur. Mines, Ann. Rept., 1931, pt. E, 140 pp., 29 figs., 14 pls. (incl. maps), 1932.

Burwash, Edward Moore Jackson.

502. Atigogama and Dillabough Lakes area: Canadian Min. Jour., vol. 54, no. 11, pp. 435-436, 1 fig. (map), November 1933.

503. Geology of the Kakagi Lake area: Ontario, Dept. Mines, 42d Ann. Rept. (vol. 42, pt. 4), 1933, pp. 41-92, 27 figs., 1 pl. (geol. map), 1934.

504. Structural bearings and time determinations (abstract): Pan-Am. Geologist, vol. 61, no. 2, p. 149, March 1934.

Busby, E. C. See Condra, 715.

Bush, Frederick A. See also Kansas Geol. Soc., 1744.

505. Conodonts in Oklahoma sediments (abstract): Oklahoma Acad. Sci., Proc., 1930, vol. 10, p. 87, 1930.

Buss, Walter R.

506. A progress report on a study of the physiographic types of Utah: Utah Acad. Sci., Proc., vol. 10, p. 47, July 1933.

Butler, Bert Sylvenus. See also Loughlin, 2104; Singewald, 3105.

507. (and Vanderwilt, John W.). The Climax molybdenum deposit, Colorado, with a section on history, production, metallurgy, and development by Charles W. Henderson: U. S. Geol. Survey, Bull. 846, pp. 195-237, 5 figs., 17 pls. (incl. geol. map), 1933.

508. Ore deposits related to stratigraphic, structural, and igneous geology in the western United States, part 1, Summary: Ore deposits in the Western States (Lindgren volume), pp. 198-240, 9 figs., Am. Inst. Min. Met. Eng., 1933.

509. Report on the cooperative geological survey in Colorado for the year 1932: Min. Year Book, 1933, pp. 3-5, Colorado Min. Assoc., 1933.

510. Ore deposits of the United States in their relation to geologic cycles: Econ. Geology, vol. 28, no. 4, pp. 301-328, 7 figs., June-July 1933.

511. Public geological surveys and education (abstract): Assoc. Am. State Geologists, Jour., vol. 5, no. 2, p. 8 (\$), April 1, 1934.

Butler, Gurdon Montague. See Wilson, 3725.

Butterfield, Howard M.

512. Geology of the Horne mine [Rouyn Township, Quebec]: Canadian Min. Jour., vol. 55, no. 4, pp. 148-154, 3 figs. (incl. geol. sketch maps), 1 pl., April 1934.

Butts, Charles. See also Bevan, 288, 296.

513. (and Stose, George Willis, and Jonas, Anna Isabel). Southern Appalachian region: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 3, Excursion A-3, 94 pp., 10 figs., 27 pls., 1932.

514. Geologic map of the Appalachian Valley of Virginia with explanatory text: Virginia Geol. Survey Bull. 42, 56 pp., 1 pl. (geol. map), in pocket, 1933; abstract, Virginia Acad. Sci., Proc., 1932-33, p. 54 [1933].

515. Volume and source of the sediments of the Appalachian Valley in Virginia (abstract): Virginia Acad. Sci., Proc., 1933-34, p. 55, 1934.

516. Geology and physiography in the vicinity of Harrisonburg, Va. (abstract): Virginia Acad. Sci., Proc., 1933-34, p. 57, 1934.

517. Hiatus between the Lemont member of the Carlisle limestone and the Lowville limestone in central Pennsylvania: Am. Jour. Sci., 5th ser., vol. 28, no. 167, p. 390, November 1934.

Buwalda, John Peter. See also Gutenberg, 1359; Wood, 3757.

518. William Morris Davis [1850-1934], an appreciation: Sci. Monthly, vol. 38, no. 4, pp. 384-387, 1 fig., port., April 1934.

519. Tertiary tectonic activity in Tehachapi region (abstract): Pan-Am. Geologist, vol. 61, no. 4, pp. 309-310, May 1934.

Byerly, Perry.

520. (and Sparks, Neil R.). Earthquakes in northern California and the registration of earthquakes at Berkeley, Mount Hamilton, Palo Alto, from October 1, 1931, to March 31, 1932: California, Univ. Seismog. Sta., Bull., vol. 3, no. 2, pp. 54-96, 1933.

Byerly, Perry—Continued.

521. (and Sparks, Neil R.). Earthquakes in northern California and the registration of earthquakes at Berkeley, Mount Hamilton, Palo Alto, San Francisco, from April 1, 1932, to September 30, 1932: California, Univ., Seismog. Sta., Bull., vol. 3, no. 3, pp. 97-150, 1933.
522. (and Sparks, Neil R.). The first preliminary waves of the California earthquake of June 6, 1932: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 254-256, 1 fig., Nat. Research Council, June 1933; Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 5, nos. 1, 2, pp. 254-256, 1 fig., June 1933.
523. The analysis of seismograms of near earthquakes: Nat. Research Council, Bull., no. 90, pp. 154-170, 7 figs., October 1933.
524. The records of earthquakes at intermediate and great distances: Nat. Research Council, Bull., no. 90, pp. 171-188, 6 figs., October 1933.
525. Time-distance curves: Nat. Research Council, Bull., no. 90, pp. 188-197, 2 figs., October 1933.
526. Reduction of trace amplitudes: Nat. Research Council, Bull., no. 90, pp. 198-205, 2 figs., October 1933.
527. Seismic geography: Nat. Research Council, Bull., no. 90, pp. 206-215, October 1933.
528. Northern California earthquakes, April 1, 1932, to April 1, 1933: Seismol. Soc. America, Bull., vol. 24, no. 2, pp. 115-117, April 1934.
529. The Texas earthquake of August 16, 1931: Seismol. Soc. America, Bull., vol. 24, no. 2, pp. 81-99, 2 figs. (incl. map), 6 pls., April 1934; no. 3, pp. 303-325, July 1934.

Cable, Emmett James.

530. A note on a fossil elk's head: Iowa Acad. Sci., Proc., 1932, vol. 39, p. 195 [1932].
531. Hampton tusk of mastodon: Pan-Am. Geologist, vol. 62, no. 3, pp. 187-192, 1 pl., October 1934; abstract, vol. 62, no. 2, p. 135, September 1934.

Cady, Gilbert Haven. See also McCabe, 2136.

532. Alternative interpretation of the subdivision of the Pennsylvanian series in the Eastern Interior province (abstract): Geol. Soc. America, Proc., 1933, p. 71, June 1934.

Cady, Richard Carlyle. See also Bryan, 456.

533. Preliminary report on ground-water resources of northern Virginia: Virginia Geol. Survey, Bull. 41, 48 pp., 3 figs., 1 pl. (geol. map), 1933.
534. The upward trend of the ground-water level in northern Virginia: U. S. Dept. Interior [U. S. Geol. Survey], Press Mem., 72602, 2 pp. (†), June 20, 1933.

Cahill, Edgar D. See also Cushman, 818.

Cahn, Alvin Robert.

535. Records and distribution of the fossil beaver, *Castoroides ohioensis*: Jour. Mammalogy, vol. 13, no. 3, pp. 229-241, 2 figs., August 1932.

Cairnes, Clive Elmore.

536. Mineral occurrences in the vicinity of Cranbrook, British Columbia: Canada, Geol. Survey, Summary Rept., 1932, pt. A 2, pp. 74-105, 1 pl., 1933. (No. 2333.)

Cairnes, Clive Elmore—Continued.

537. Slocan mining camp, British Columbia: Canada, Dept. Mines, Geol. Survey, Mem. 173, 137 pp., 9 figs., 15 pls. (incl. geol. maps), 1934. (No. 2358.)

Calkins, Frank Cathcart.

538. Transfer of grains from one liquid to another: *Am. Mineralogist*, vol. 19, no. 4, pp. 143-149, 1 fig., April 1934.

Callaghan, Eugene. See also Gianella, 1232, 1235, 1237.

539. Brucite deposit, Paradise Range, Nevada: Nevada, Univ., Bull., vol. 27, no. 1, 34 pp., 9 figs., 1 pl. (map), January 16, 1933.

540. Some features of the volcanic sequence in the Cascade Range in Oregon: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 243-249, 1 fig., Nat. Research Council, June 1933.

541. Some aspects of the geology of the Cascade Range in Oregon (abstract): *Washington Acad. Sci., Jour.*, vol. 24, no. 4, pp. 190-191, April 15, 1934.

Calvert, Earl L.

542. Boron in California: *Mineralog. Soc. Southern California, Bull.*, vol. 2, no. 6, pp. 1-2, February 1933.

543. Kernite supplies the world with borax: *Oregon Mineralogist*, vol. 2, no. 12, pp. 18-19, December 1934.

Cameron, Eugene N.

544. Notes on the synthetic resin hyrax: *Am. Mineralogist*, vol. 19, no. 8, pp. 375-383, 10 figs., August 1934.

Camp, Charles Lewis.

545. New reptile fauna from Chinle Triassic of Arizona (abstract): *Pan-Am. Geologist*, vol. 59, no. 5, p. 378, June 1933; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 392-393, June 1934.

546. (and Vander Hoof, Vertres Lawrence). Bipedal dinosaur from Jurassic of northern Arizona (abstract): *Pan-Am. Geologist*, vol. 62, no. 1, p. 70, August 1934.

Campbell, Arthur Shackleton. See Cushman, 819.

Campbell, C. D. See Waters, 3572.

Campbell, Charles D.

547. Kruger alkaline syenites of southern British Columbia (abstract): *Pan-Am. Geologist*, vol. 61, no. 5, p. 370, June 1934.

Campbell, Henry Donald, 1872-1934.

548. Two diabase dikes near Lexington, Va. (abstract): *Virginia Acad. Sci., Proc.*, 1932-33, p. 51 [1933].

Campbell, Ian. See also Gibson, 1240; Maxson, 2259, 2261.

549. (and Maxson, John Haviland). Geological studies of the Archean rocks at Grand Canyon: *Carnegie Inst. Washington, Year Book* no. 32, pp. 305-306, 1933.

550. Some interrelations between phases of alteration and types of rocks in the Tonopah mining district, Nevada (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 164, February 28, 1933.

Campbell, Ian—Continued.

551. (and Maxson, John Haviland). Some observations on the Archean metamorphics of the Grand Canyon: *Nat. Acad. Sci., Proc.*, vol. 19, no. 9, pp. 806-809, 2 figs., September 1933; abstract, *Science*, new ser., vol. 77, no. 2002, p. 460, May 12, 1933.
552. (and Maxson, John Haviland). Geological studies of the Archean rocks at Grand Canyon: *Carnegie Inst. Washington, Year Book* no. 33, pp. 284-285, 1934.

Campbell, Marius Robinson. See also Berkey, 262; Bevan, 288.

553. Origin of gravel plateau on the Northern Neck (abstract): *Virginia Acad. Sci., Proc.*, 1932-1933, p. 53, [1933].
554. Chambersburg (Harrisburg) peneplain in the Piedmont of Maryland and Pennsylvania: *Geol. Soc. America, Bull.*, vol. 44, no. 3, pp. 553-573, 4 figs., June 30, 1933; abstract, vol. 44, pt. 1, p. 77, February 28, 1933.
555. (and Bascom, Florence). Origin and structure of the Pensauken gravel: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 153, pp. 300-318, 2 figs., September 1933.

Campbell, Stewart.

556. Thirty-fourth annual report of the mining industry of Idaho, for the year 1932. 303 pp., illus. [1933].

Camsell, Charles.

557. Report of the Department of Mines [of Canada] for the fiscal year ending March 31, 1933. 43 pp., Ottawa, 1933. (No. 2338.)
558. Report of the Department of Mines [of Canada] for the fiscal year ending March 31, 1934. 44 pp., Ottawa, 1934. (No. 2360.)

Canada, Geological Survey.

559. [Map showing] distribution of early pre-Cambrian sedimentary formations in the Canadian Shield. Scale 1 inch to 60 miles. Canada, *Geol. Survey*, 1933.
560. Desmeloizes sheet, Abitibi County, Quebec. Geology by J. B. Mawdsley. Map 284A. Scale 1:63,360, or 1 inch to 1 mile. Canada, *Geol. Survey*, Pub. no. 2310, 1933.
561. Duparquet sheet, Abitibi and Témiscamingue Counties, Quebec. Map 281A. Scale 1:63,360, or 1 inch to 1 mile. Canada, *Geol. Survey*, Pub. no. 2295, 1933.
562. Great Bear Lake (McTavish Arm), between Richardson Island and Hornby Bay, District of Mackenzie, Northwest Territories. Geology by D. F. Kidd. Map 296A. Scale 1:253,440, or 1 inch to 4 miles. Canada, *Geol. Survey*, Pub. no. 2328, 1933.
563. Lake Ainslie sheet, Inverness County, Nova Scotia. Geology by G. W. H. Norman. Map 282A. Scale 1:63,360, or 1 inch to 1 mile. Canada, *Geol. Survey*, Pub. no. 2302, 1933.
564. Lake Huron sheet, Ontario. Geological compilation by W. H. Collins. Map 155A (3d ed.). Scale 1:506,880, or 1 inch to 8 miles. Canada, *Geol. Survey*, Pub. no. 1553, 1933.
565. Prince Rupert sheet, British Columbia. Map 278A. Scale 1:506,880, or 1 inch to 8 miles. Canada, *Geol. Survey*, Pub. no. 2286, 1933.
566. Quesnel Forks sheet, Cariboo District, British Columbia. Geology by John Fortune Walker and William Egbert Cockfield. Map 294A (provisional ed.). Scale 1:63,360, or 1 inch to 1 mile. Canada, *Geol. Survey*, Pub. no. 2326, 1933.

Canada, Geological Survey—Continued.

567. Rush Lake sheet, Sudbury District, Ontario. Geology by H. M. Bannerman. Map 290A. Scale 1:63,360, or 1 inch to 1 mile. Canada, Geol. Survey, Pub. no. 2321, 1933.
568. Little Long Lac area, Thunder Bay District, Ontario. Geology by T. L. Tanton. Map 313A. Scale 1:126,720, or 1 inch to 2 miles. Canada, Geol. Survey, Pub. no. 2369, 1934.
569. Macamic sheet, Abitibi County, Quebec. Geology by O. L. Backman. Map 298A. Scale 1:63,360, or 1 inch to 1 mile. Canada, Geol. Survey, Pub. no. 2336, 1934.
570. Oxford House sheet, Manitoba. Geology by J. F. Wright. Map 305A (provisional ed.). Scale 1:253,440, or 1 inch to 4 miles. Canada, Geol. Survey Pub. no. 2357, 1934.
571. Palmarolle sheet, Abitibi County, Quebec. Geology by B. S. W. Buffam, 1925, 1926, revised by A. H. Lang, 1932. Map 293A. Scale 1:63,360, or 1 inch to 1 mile. Canada, Geol. Survey, Pub. no. 2325, 1934.
572. The Pas sheet, Manitoba and Saskatchewan. Geology by John Frank Wright. Map 268A. Scale 1:506,880, or 1 inch to 8 miles. Canada Geol. Survey, Pub. no. 2272, 1934.
573. Sturgeon River area, Thunder Bay district, Ontario. Geology by T. L. Tanton. Map 312A. Scale 1:126,720, or 1 inch to 2 miles. 1934.
574. Taschereau sheet, Abitibi County, Quebec. Geology by B. S. W. Buffam, 1925, 1926, revised by A. H. Lang, 1932. Map 285A. Scale 1:63,360, or 1 inch to 1 mile. Canada, Geol. Survey, Pub. no. 2311, 1934.

Canu, Ferdinand, 1863-1932.

575. (and Bassler, Ray Smith). The Bryozoan fauna of the Vincentown limestone: U. S. Nat. Mus., Bull. 165, 108 pp., 1 fig., 21 pls., 1933.

Capps, Stephen Reid.

576. Mineral investigations in the Alaska Railroad belt, 1931: U. S. Geol. Survey, Bull. 844, pp. 119-135, 1 pl., 1933.
577. An air reconnaissance of Middleton Island, Alaska: Jour. Geology, vol. 41, no. 7, pp. 728-736, 4 figs., October-November 1933; abstract, Washington Acad. Sci., Jour., vol. 23, no. 8, pp. 402-403, August 15, 1933.
578. Notes on the geology of the Alaska Peninsula and Aleutian Islands: U. S. Geol. Survey, Bull. 857, pp. 141-153, 1 pl. (map), 1934.

Carder, Dean S.

579. Seismic surface waves, and the crustal structure of the Pacific region: Seismol. Soc. America, Bull., vol. 24, no. 3, pp. 231-302, 3 figs., 6 pls., July 1934.

Carlston, G. M.

580. (and Woolley, Ralf Rumel). Some historical earthquakes in Utah (abstract): Utah Acad. Sci., Proc., vol. 11, p. 171, July 1934.

Carman, Joel Ernest.

581. (and Stout, Wilber). Relationship of accumulation of oil to structure and porosity in the Lima-Indiana field: Problems of petroleum geology (Sidney Powers memorial volume), pp. 521-529, 2 figs. (maps), Am. Assoc. Petroleum Geologists, 1934.

Carman, Katherine Woodley. See Cushman, 819.

Carmer, A. M. See Miller, 2324.

Carnochan, R. K. See Cole, 696.

Carpenter, Frank Morton.

582. A review of our present knowledge of the geological history of the insects: *Psyche*, vol. 37, no. 1, pp. 15-34, 1 fig., March 1930.
583. The lower Permian insects of Kansas; pt. 3, The Protohymenoptera: *Psyche*, vol. 37, no. 4, pp. 343-374, 4 figs., 2 pls., December 1930.
584. The affinities of *Holcorpa maculosa* Scudder and other Tertiary Mecoptera, with descriptions of new genera: *New York Entomol. Soc. Jour.*, vol. 39, no. 3, pp. 405-415, 2 figs., 1 pl., September 1931.
585. The lower Permian insects of Kansas; Part 6, Delopteridae, Protelytrop-tera, Plectoptera and a new collection of Protodonata, Odonata, Megasecoptera, Homoptera, and Psocoptera: *Am. Acad. Arts and Sci., Proc.*, vol. 68, no. 11, pp. 411-503, 29 figs., 1 pl., October 1933.
586. A new megasecopteron from the Carboniferous of Kansas: *Kansas Univ., Sci. Bull.*, vol. 21, no. 10, pp. 365-367, 1 fig., March 15, 1934.
587. Carboniferous insects from Pennsylvania in the Carnegie Museum and the Museum of Comparative Zoology: *Carnegie Mus., Annals*, vol. 22, 1933-34, nos. 2-4, pp. 323-341, 13 figs., 1 pl., May 1934.
588. Fossil Chrysopidae (abstract): *Geol. Soc. America, Proc.*, 1933, p. 71, June 1934.

Carson, Carlton M.

589. A method of concentrating Foraminifera: *Jour. Paleontology*, vol. 7, no. 4, p. 439, December 1933.

Case, Ermine Cowles. See also Wetmore, 3642.

590. Progressive chondrification in the Stegocephalia: *Am. Philos. Soc., Proc.*, vol. 72, no. 4, pp. 265-283, 12 figs., 1933.
591. A specimen of a long-nosed dolphin from the Bone Valley gravels of Polk County, Fla.: *Michigan, Univ., Mus. Paleontology, Contr.*, vol. 4, no. 6, pp. 105-113, 2 pls., January 15, 1934.
592. (and White, T. E.). Two new specimens of phytosaurs from the Upper Triassic of western Texas: *Michigan, Univ., Mus. Paleontology, Contr.*, vol. 4, no. 9, pp. 133-142, 4 figs., 3 pls., January 15, 1934.

Case, E. E.

593. *Cognathus* proposed for *Xenognathus*, preoccupied: *Washington Acad. Sci., Jour.*, vol. 23, no. 1, p. 65, January 15, 1933.

Case, Leslie Cline. See also Irwin, 1636.

594. Origin of petroleum, review of E. McKenzie Taylor's hypothesis (abstract): *Tulsa Geol. Soc., Summaries and Abstracts*, 1932, *Tulsa Daily World*, May 16, 1932.
595. Base-replacement studies of Oklahoma shales—critique of Taylor hypothesis: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 1, pp. 66-79, January 1933.
596. Subsurface water characteristics in Oklahoma and Kansas: Problems of petroleum geology (Sidney Powers memorial volume), pp. 855-868, 4 figs. (incl. map), *Am. Assoc. Petroleum Geologists*, 1934.

Cassell, Dorothy.

597. (and Tieje, Arthur Jerrold). Megafauna and microfauna of the Pleistocene and Pliocene formations of southern California as revealed in a deep well near Ventura (abstract): *Pan-Am. Geologist*, vol. 59, no. 5, p. 376, June 1933; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 390-391, June 1934.

Caster, Kenneth E.

- 598. Upper Devonian rocks at Ithaca, N. Y. (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 201-202, February 28, 1933.
- 599. Stratigraphic relationships in northwestern Pennsylvania (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 202-203, February 28, 1933.
- 600. Facies nomenclature and the Upper Devonian (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 348-349, June 1934.
- 601. The stratigraphy and paleontology of northwestern Pennsylvania; Part 1, *Stratigraphy*: *Bull. Am. Paleontology*, vol. 21, no. 71, 185 pp., 12 figs. (incl. maps), 2 pls., June 9, 1934.

Cathcart, Stanley Holman.

- 602. Gas in the Oriskany sand of Potter County, Pa.: *Pennsylvania, Topog. and Geol. Survey, Bull.*, no. 105, 7 pp. (†), 1 pl., July 1932.
- 603. Gas and oil in Potter County, Pa.: *Pennsylvania, Topog. and Geol. Survey, Bull.*, no. 106, 31 pp. (†), 1 fig., 2 pls. (all maps), February 1, 1934.
- 604. (and Myers, T. H.). Gas in Tioga County, Pennsylvania: *Pennsylvania, Topog. and Geol. Survey, Bull.*, no. 107, 42 pp. (†), 4 figs., 1 pl., February 1, 1934.
- 605. Geologic structure in the plateaus region of northern Pennsylvania and its relation to the occurrence of gas in the Oriskany sand: *Pennsylvania Topog. and Geol. Survey, Bull.*, no. 108, 24 pp. (†), 1 fig., 2 pls. (maps), March 1934.
- 606. The possibility of finding gas in Cameron County, Pennsylvania: *Pennsylvania Topog. and Geol. Survey, Bull.*, no. 109, 16 pp. (†), 2 figs., 1 pl. (all maps), March 18, 1934.
- 607. The possible occurrence of gas in the Oriskany sand of Elk County: *Pennsylvania Topog. and Geol. Survey, Bull.*, no. 110, 21 pp. (†), 2 figs. (maps), 1 pl. (map), April 1934.
- 608. Possibility of finding gas in the Oriskany sand in McKean County: *Pennsylvania Topog. and Geol. Survey, Bull.*, no. 111, 13 pp. (†), 1 fig. (sketch map), 1 pl. (sketch map), May 1934.

Cayeux, Lucien.

- 609. Constitution des phosphates dévoniens du Tennessee (États-Unis): *Acad. Sci. Paris, Comptes rendus*, t. 196, no. 12, pp. 822-826, March 20, 1933.

Chadwick, George Halcott.

- 610. (and Kay, George Marshall). The Catskill region: *Internat. Geol. Cong., XVI, United States, 1933, Guidebook 9a, Excursion New York 11*, 25 pp., 7 figs. (incl. map), 1 pl., 1933.
- 611. Hamilton red beds in eastern New York: *Science, new ser.*, vol. 77, pp. 86-87, January 20, 1933.
- 612. Upper Devonian of the New York region (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 177, February 28, 1933.
- 613. Great Catskill delta, and revision of late Devonian succession: *Pan-Am. Geologist*, vol. 60, no. 2, pp. 91-107, 6 figs., September 1933; 2, *Areal refinements*, no. 3, pp. 189-204, 5 charts, October 1933; 3, *Revised correlations*, no. 4, pp. 275-286, 1 fig., November 1933; no. 5, pp. 348-360, 2 figs., December 1933.

Chadwick, George Halcott—Continued.

614. Catskill as a geologic name: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 155, pp. 479-484, 1 chart, November 1933; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 77-78, February 28, 1933.
615. *Manticoceras* versus *Gephyroceras* (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 349-350, June 1934.
616. *Leiorhynchus* as a guide fossil (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 350-351, June 1934.

Chamberlain, Ralph V.

617. Observations on *Stagnicola kingi* (Meek), living and extinct: *Nautilus*, vol. 46, no. 3, pp. 97-100, January 1933.
618. (and Berry, Elmer). Mollusks of the Pliocene deposits at Collinston, Utah: *Nautilus*, vol. 47, no. 1, pp. 25-29, 1 pl., July 1933.

Chamberlin, Rollin Thomas. See also Bucher, 464, 466; Chamberlin, T. C., 622; Field, 1077; Grout, 1337.

619. Biographical memoir of Thomas Chowder Chamberlin, 1843-1928: *Nat. Acad. Sci., Biog. Mem.*, vol. 15, pp. 305-407, 2 ports., 1934.
620. Geologic analysis of the gravity anomalies of the Black Hills-Big Horn-Beartooth region (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 56-57, June 1934.
621. The motion of glaciers: *Science*, new ser., vol. 80, no. 2084, pp. 526-527, December 7, 1934.

Chamberlin, Thomas Chowder, 1843-1928.

622. (and Salisbury, Rollin D.). Chamberlin and Salisbury's College textbook of geology; Part 1, Geologic processes and their results. Second edition, rewritten and revised by Rollin T. Chamberlin and Paul MacClintock, xi, 445 pp., 376 figs. (incl. maps), 19 pls. New York, Henry Holt & Co., July 1934.

Chaney, Ralph Works.

623. Central Oregon: *Internat. Geol. Cong.*, XVI, United States, 1933, Guide-book 21, Excursion C-2, 14 pp., 3 pls. (incl. map), 1932.
624. Notes on occurrence and age of fossil plants found in the auriferous gravels of Sierra Nevada: *Mining in California* (California Dept. Nat. Res., Div. Mines), vol. 28, nos. 3, 4, pp. 299-302, 2 figs., July and October, 1932.
625. (and Sanborn, Ethel Ida). The Goshen flora of west-central Oregon: *Carnegie Inst., Washington, Pub. no. 439, Contr. Paleontology*, 103 pp., 40 pls., 22 tables, 1933.
626. Further evidence regarding the age of the auriferous gravels (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 78, February 28, 1933.
627. Proceedings of the 31st annual meeting of the Cordilleran section of the Geological Society of America, held at Stanford University, California, April 8 and 9, 1932: *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 145-172, February 28, 1933.
628. Paleobotany researches: *Carnegie Inst. Washington, Year Book no. 32*, 1932-33, pp. 205-206, December 15, 1933.
629. (and Dorf, Erling). Ecology of the Tertiary forests of western North America (abstract): *Geol. Soc. America, Proc.*, 1933, p. 357, June 1934.
630. (and Mason, Herbert Louis). A Pleistocene flora from Santa Cruz Island, California: *Carnegie Inst. Washington, Contr. Paleontology*, no. 415, pp. 1-24, 1 fig., 7 pls., October 1934 (preprint, 1930).

Chaney, Ralph Works—Continued.

631. (and Mason, Herbert Louis). A Pleistocene flora from the asphalt deposits at Carpinteria, Calif.: Carnegie Inst. Washington, Contr. Paleontology, no. 415, pp. 45-80, 9 pls., October 1934 (preprint March 1933).

Chapman, E. P.

632. (and Stevens, Rollin Elbert). Silver- and bismuth-bearing galena from Leadville: Econ. Geology, vol. 28, no. 7, pp. 678-685, 1 fig., November 1933.

Chapman, Ernest W.

633. Iron from the sky: Mineralog. Soc. Southern California, Bull., vol. 3, no. 5, pp. 17-18, January 1934.

Chapman, R. W. See Page, 2551.

Chappell, Walter M.

634. Paulopost stilbite in the Camas Land sill, Chelan County, Wash.: Am. Mineralogist, vol. 18, no. 10, pp. 440-444, 1 fig., October 1933.

Charles, Homer H. See Wrather, 3787.

Charlton, Frances.

635. Foraminifera from type locality of Bowden marl, Jamaica (abstract): Pan.-Am. Geologist, vol. 59, no. 3, p. 239, April 1933.

Chawner, W. D.

636. The problem of serpentinization: Econ. Geology, vol. 29, no. 8, pp. 777-778, December 1934.

Cheney, Monroe G. See Ashley, 92; Kansas Geol. Soc., 1744.

Cheney, William Fitch, Jr.

637. Statistical investigations of recent evidences of subsidence along the Atlantic coast (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 174-175, February 28, 1933.

Chesley, Kenneth G. See Anderson, 72.

Chick, A. C.

638. The Long Beach earthquake of March 10, 1933, and its effect on industrial structures: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 273-284, 22 figs.. Nat. Research Council, June 1933; Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 5, nos. 1, 2, pp. 273-284, 22 figs., June 1933.

Clapp, Charles Horace, 1883-1935.

639. Geology of a portion of the Rocky Mountains of northwestern Montana: Montana, Bur. Mines and Geology, Mem. no. 4, 30 pp. (+), 1 pl. (geol. map), 1932.
640. Structure of the Rocky Mountains of northwestern Montana (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 78-79, February 28, 1933.
641. Idaho's batholith and Montana's mountains (abstract): Northwest Sci., vol. 7, no. 2, p. 41, June 1933.
642. Structure of the Coopers Lake quadrangle, Montana (abstract): Geol. Soc. America, Proc., 1933, p. 72, June 1934.

Clark, Alexander.

- 643. The cool-water Timms Point Pleistocene horizon at San Pedro, Calif.: San Diego Soc. Nat. History, Trans., vol. 7, no. 4, pp. 25-42, 2 figs., 1 pl., December 19, 1931.
- 644. Environment of marine Mollusca living off Long Beach, California, and its bearing on Pleistocene correlations (abstract): Pan-Am. Geologist, vol. 59, no. 5, p. 379, June 1933; abstract, Geol. Soc. America, Proc., 1933, pp. 393-394, June 1934.

Clark, Bruce Laurence. See also Jenkins, 1654.

- 645. Pliocene sequence in the Berkeley Hills (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 151, February 28, 1933.
- 646. Fauna of the Yakataga formation of southern Alaska (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 168, February 28, 1933.
- 647. Folding by drag and fault through deposition in Mount Diablo and Coalinga areas of Coast Ranges (abstract): Pan-Am. Geologist, vol. 61, no. 5, p. 369, June 1934.
- 648. Santa Susana and Lower Lajas fauna of Ventura County (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 79, August 1934.
- 649. A new genus and two new species of Lamellibranchiata from the middle Eocene of California: Jour. Paleontology, vol. 8, no. 3, pp. 270-272, 1 pl. (in part), September 1934; abstract, Geol. Soc. America, Proc., 1933, p. 377, June 1934.

Clark, Douglas.

- 650. Application of geology to civil engineering: California Jour. Mines and Geology, vol. 29, nos. 1, 2, pp. 161-173, January and April 1933.

Clark, Frank Rinker.

- 651. Origin and accumulation of oil: Problems of petroleum geology (Sidney Powers memorial volume), pp. 309-335, 7 figs. (incl. map), Am. Assoc. Petroleum Geologists, 1934; abstract, Pan-Am. Geologist, vol. 62, no. 2, pp. 145-146, September 1934.

Clark, Hubert Lyman. See also Arnold, 80.

- 652. The misuse of the term variation: Am. Jour. Sci., 5th ser., vol. 26, no. 153, p. 368, September 1933.

Clark, Inez Margaret.

- 653. Two new paleobotanical records for the Antrim shale of Michigan: Michigan, Acad. Sci., Papers, vol. 19, 1933, pp. 59-64, 2 pls., 1934.

Clark, Samuel Gilbert.

- 654. Milton formation of Sierra Nevada (abstract): Pan-Am. Geologist, vol. 59, no. 4, pp. 314-315, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 312, June 1934.

Clark, Thomas Henry.

- 655. Structure and stratigraphy of southern Quebec: Geol. Soc. America, Bull., vol. 45, no. 1, pp. 1-20, 3 figs., February 28, 1934; abstract, vol. 44, pt. 1, p. 79, February 28, 1933.
- 656. New graptolite locality in Utah (abstract): Geol. Soc. America, Proc., 1933, pp. 375-376, June 1934.

Claussen, Gerard E.

657. Spectroscopic analysis of certain galenas, sphalerites, and pyrites: *Am. Mineralogist*, vol. 19, no. 5, pp. 221-224, May 1934.

Claypool, Chester Burns.

658. The Wilcox of central Texas (abstract): Abstract of thesis . . . Univ. Illinois, 12 pp., correlation table, Urbana, Ill., 1933.

Cleaves, Arthur Bailey. See also Billings, 301, 304; Bryan, 454; Willard, 3698.

659. New branchiopod from Perry County, Pa. (abstract): *Geol. Soc. America, Proc.*, 1933, p. 346, June 1934.

Clement, George M. See also Atwater, 96.

660. Paleozoic stratigraphy and structure of St. Croix River (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 383-384, June 1934.

Clements, Thomas.

661. Notes on the fall of columns during the Long Beach earthquake: *Science*, new ser., vol. 78, no. 2014, pp. 100-101, 1 fig., August 4, 1933.

662. (and Oakeshott, G. B.). Eocene (Martinez) of San Gabriel Mountains (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, pp. 307-308, May 1934.

Clench, W. J.

663. (and Aguayo, C. G.). A new fossil *Cepolis* from Cuba; West Indian mollusks, no. 6: *Nautilus*, vol. 47, no. 1, pp. 21-22, 1 pl. (pt.), July 1933.

Cline, Justus H. See Virginia Geol. Survey, 3510.

Cline, L. M. See also Miller, 2325.

664. Osage formations of southern Ozark region, Missouri, Arkansas, and Oklahoma: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 9, pp. 1132-1159, 2 figs., September 1934.

Cloos, Ernst. See also Johnston, 1715.

665. Structure of the "Ellicott City granite", Maryland: *Nat. Acad. Sci., Proc.*, vol. 19, no. 1, pp. 130-138, 6 figs., January 15, 1933.

666. Sierra Nevada batholiths and the Mother Lode (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 79-80, February 28, 1933.

667. Auto radio—an aid in geologic mapping: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 166, pp. 255-268, 2 figs. (maps), October 1934; abstract, *Zeitschr. Geophysik*, Jahrg. 10, Heft 5/6, p. 252, 1934.

668. The Loon Lake pluton, Bancroft area, Ontario, Canada: *Jour. Geology*, vol. 42, no. 4, pp. 393-399, 3 figs., May-June 1934.

669. (and Cloos, Hans). Pre-Cambrian structure of the Beartooth, the Big Horn, and the Black Hills uplifts and its coincidence with Tertiary uplifting (abstract): *Geol. Soc. America, Proc.*, 1933, p. 56, June 1934.

Cloos, Hans. See also Cloos, E., 669.

670. Ueber Bau und Bewegung in Nordamerika: *Geol. Rundschau*, Band 24, Heft 6, pp. 377-378, December 15, 1933.

671. Vom XVI. Internationalen Geologenkongress: *Geol. Rundschau*, Band 24, Heft 6, pp. 395-396, December 15, 1933.

672. Zur Mechanik der nordamerikanischen uplifts: *Geol. Rundschau*, Band 25, Heft 3, p. 222, October 7, 1934.

Clothier, George A. See Galloway, 1206.

Cloud, Preston E.

673. *Scolithus* remains in the Cambrian quartzites of southern Pennsylvania: Rocks and Minerals, vol. 9, no. 9, p. 131, September 1934.

674. Mineral collecting in the vicinity of Paris, Maine: Rocks and Minerals, vol. 9, no. 12, pp. 183-185, 2 figs., December 1934.

Cobb, Collier, 1862-1934.

675. Dune sands and eolian soils in relation to present and past climatic conditions of the continent of North America: Cong. internat. géographie, Paris, 1931, Compte rendu, t. 2, fasc. 1, p. 712, 1933.

Cochran, Doris Mable. See Gilmore, 1252.

Cocke, Elton Cromwell.

676. Fossil pollen and diatoms found in Dismal Swamp peat (abstract): Virginia Acad. Sci., Proc., 1933-34, p. 35, 1934.

677. (and Lewis, Ivey Foreman, and Patrick, Ruth). A further study of Dismal Swamp peat: Am. Jour. Botany, vol. 21, no. 7, pp. 374-395, 6 figs., July 1934.

Cockerell, Theodore Dru Alison.

678. The Miocene shales of Florissant (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 2, p. 24, April 1930.

679. The name of a fossil boraginaceous plant [*Biorbia fossilia* (Berry)]: Torreyia, vol. 33, no. 1, p. 15, January-February, 1933.

680. A fossil golden rod: Torreyia, vol. 33, no. 3, p. 72, 1 fig., May-June, 1933.

681. A fossil sawfly from the Miocene shales near Creede, Colo.: Brooklyn Entomol. Soc., Bull., vol. 28, no. 5, pp. 186-187, 1 fig., December 1933.

682. The antiquity of *Albula*: Copeia, no. 4, p. 226, December 27, 1933.

683. An ancient foxtail pine: Nature, vol. 133, no. 3363, pp. 573-574, April 14, 1934.

Cockfield, William Egbert. See also Canada G. S., 566.

684. The geology of placer deposits: Canadian Min. and Met. Bull., no. 238, pp. 58-64, February 1932; Canadian Inst. Min. Metallurgy, Trans., 1932, vol. 35, pp. 58-64, 1933; Discussion by J. Stansfield, p. 126.

685. (and Walker, John Fortune). Geology and placer deposits of Quesnel Forks area, Cariboo District, British Columbia: Canada, Geol. Survey, Summary Rept., 1932, pt. A 1, pp. 76-143, 1933. (No. 2331.)

686. (and Walker, John Fortune). Cadwallader Creek gold-mining area, Bridge River district, British Columbia: Canada, Geol. Survey, Summary Rept., 1932, pt. A 2, pp. 57-71, 1 fig., 1933. (No. 2333.)

687. (and Walker, John Fortune). An occurrence of magnesite near Clinton, British Columbia: Canada, Geol. Survey, Summary Rept., 1932, pt. A 2, pp. 72-73, 1933. (No. 2333.)

688. Willow River map area, Cariboo district, British Columbia; placer deposits: Canada, Geol. Survey, Summary Rept., 1933, pt. A, pp. 49-61, 1 fig. (map), 1934. (No. 2350.)

689. (and Walker, John Fortune). The nickel-bearing rocks near Choate, British Columbia: Canada, Geol. Survey, Summary Rept., 1933, pt. A, pp. 62-68, 1 fig., 1934. (No. 2350.)

Coffin, Reuben Clare.

690. Colorado symposium, preface: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 4, pp. 351-352, April 1933.

Coffin, Reuben Clare—Continued.

691. (and DeFord, Donald K.). Waters of the oil- and gas-bearing formations, Rocky Mountains: Problems of petroleum geology (Sidney Powers memorial volume), pp. 927-952, 10 figs. (incl. sketch map), Am. Assoc. Petroleum Geologists, 1934.

Coffman, W. Elmo.

692. A progress report of metals in Utah: Utah Acad. Sci., Proc., vol. 10, p. 51, July 1933.

Cohee, G. V. See Shepard, 3058.

Coil, Fay.

693. Chemical composition of leucoxene in the Permian of Oklahoma: Am. Mineralogist, vol. 18, no. 2, pp. 62-65, February 1933.

Coke, John McBrien.

694. Foothills structure and stratigraphy of the Box Elder Creek and Sand Creek region, Larimer County, Colo. (abstract): Colorado, Univ., Studies, vol. 22, no. 1, p. 12, November 1934.

Cole, Lionel Heber.

695. (and Rogers, A. A.). Anhydrite in Canada; occurrence, properties, and utilization: Canada, Dept. Mines, Mines Branch, no. 732, 89 pp., 9 figs., 5 pls., 1933.
696. (and Carnochan, R. K.). Silica deposit near Gatineau Point, Quebec: Canada, Dept. Mines, Mines Branch, Inv. Min. Res. and Min. Industry, 1932, pp. 3-6, 2 figs., 1934. (No. 735.)
697. Sandstone at Hawkesbury, Ontario: Canada, Dept. Mines, Mines Branch, Inv. Min. Res. and Min. Industry, 1932, pp. 7-9, 1934. (No. 735.)

Cole, William Storrs. See also Conrey, 723.

698. (and Ponton, Gerald M.). New species of *Fabularia*, *Asterocyclina*, and *Lepidocyclina* from the Florida Eocene: Am. Midland Naturalist, vol. 15, no. 2, pp. 138-144, 2 pls., March 1934.
699. Oligocene orbitoids from near Duncan Church, Washington County, Fla.: Jour. Paleontology, vol. 8, no. 1, pp. 21-28, 2 pls., March 1934; abstract, Geol. Soc. America, Proc., 1933, p. 351, June 1934.
700. Identification of erosion surfaces in eastern and southern Ohio: Jour. Geology, vol. 42, no. 3, pp. 285-294, 3 figs., April-May 1934.

Coleman, Arthur Philemon.

701. The Pleistocene of the Toronto region, including the Toronto interglacial formation: Ontario, Dept. Mines, 41st Ann. Rept. (vol. 41, pt. 7), 1932, pp. 1-55, 14 figs., 1 pl. (geol. map), 1933.
702. Ice ages and the drift of continents: Jour. Geology, vol. 41, no. 4 pp. 409-417, May-June 1933.

Collet, Leon William.

703. Varves, récentes et anciennes: Cong. internat. géographie, Paris, 1931, Compte rendu, t. 2, fasc. 1, pp. 371-377, 3 pls., 1933.

Collier, T. R. See Gardner, 1211.

Collingwood, Douglas Moore.

704. Oil and gas possibilities of parts of Jersey, Greene, and Madison Counties; with appended well records compiled and correlated by George E. Ekblaw and L. E. Workman: Illinois State Geol. Survey, Rept. Inv., no. 30, 91 pp., 4 figs. (incl. map), 3 pls., 1933.

Collins, R. Lee. See also Roberts, 2775.

705. (and Roberts, Joseph Kent). Resources and ceramic industries of Tennessee: *Ceramist*, vol. 7, no. 4, pp. 232-242, 247, 8 figs., January 1926.

706. A monograph of the American Tertiary pteropod mollusks: Johns Hopkins Univ., *Studies in Geology*, no. 11, pp. 137-324, 7 pls., 1934.

707. *Psammmodulus*, a new middle Miocene modiolid from the Isthmus of Tehuantepec, Mexico (abstract): *Nautilus*, vol. 47, no. 4, pp. 127-130, April 1934.

Collins, William Henry. See also Canada G. S., 564.

708. [Report of] Geological Survey: Canada, Dept. Mines, Rept., 1933, pp. 9-20, 1933. (No. 2338.)

709. Derivations of granitic rocks (abstract): *Pan-Am. Geologist*, vol. 60, no. 2, pp. 148-149, September 1933.

710. Life history of the Sudbury nickel irruptive: *Royal Soc. Canada, Trans.*, 3d ser., vol. 28, sec. 4, pp. 123-178, 17 figs., May 1934.

Colony, Roy Jed. See also Berkey, 263.

711. (and Howard, A. D.). Observations on spherulites: *Am. Mineralogist*, vol. 19, no. 11, pp. 515-524, 5 figs., November 1934.

Colton, Harold Sellers.

712. Quetschformen des Basalts: *Natur u. Volk*, Band 64, Heft 5, pp. 182-188, 8 figs., May 1934.

713. Peripheral lava flows of San Francisco Mountains (abstract): *Pan-Am. Geologist*, vol. 60, no. 4, pp. 302-303, November 1934.

Conant, G. D. See Ries, 2768.

Condit, Daniel Dale. See Taff, 3298.

Condra, George Evert. See also Cook, 725; Kansas Geol. Soc., 1745; Kellett, 1763; Miller, 2320; Moore, 2406.

714. A preliminary report on the potash industry of Nebraska: *Nebraska Conservation and Soil Survey, Bull.* 8, 39 pp., 18 figs., 1918.

715. (and Busby, E. C.). The Grenola formation: *Nebraska Geol. Survey, Paper no. 1*, 31 pp., 2 figs., 1933.

716. The Missouri Valley traverse in Iowa, north of the Jones Point deformation: *Nebraska Geol. Survey, Paper no. 2*, 24 pp., 2 figs., 1 pl. (table), 1933.

717. (and Upp, Jerry Eli). The Red Oak-Stennett-Lewis traverse of Iowa: *Nebraska Geol. Survey, Paper no. 3*, 23 pp., 4 figs., 1933.

718. (and Upp, Jerry Eli). The Middle River traverse of Iowa; *Nebraska Geol. Survey, Paper no. 4*, 31 pp., 5 figs., 1933.

719. Geological phases of soil erosion investigation and control in Nebraska: *Nebraska Geol. Survey, Paper no. 6*, 22 pp., 13 figs. (incl. topog. map), 1934.

Conkling, Harold.

720. The depletion of underground-water supplies; with discussion by W. P. Rowe: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 2, pp. 531-539, Nat. Research Council, June 1934.

Connolly, Joseph Peter. See also O'Harra, 2522.

721. (and Gilluly, James, and Ross, Clyde Polhemus). Mesothermal gold deposits: Ore deposits of the Western States (Lindgren volume), pp. 573-577, *Am. Inst. Min. and Met. Eng.*, 1933.

Connolly, Joseph Peter—Continued.

722. Geologic history of Black Hills gold placers: South Dakota State Geol. Survey, Rept. Inv. no. 16, 16 pp. (+), 4 figs. (incl. map), October 1933.

Conrey, Guy Woolard.

723. (and Cole, William Storrs). Soil-profile studies as aids in mapping glacial drifts (abstract, with discussion): Geol. Soc. America, Proc., 1933, pp. 72-73, June 1934.

Cook, Harold James.

724. The antiquity of man as indicated at Frederick, Okla.; a reply: Washington Acad. Sci., Jour., vol. 21, no. 8, pp. 161-166, April 19, 1931.
725. (and Cook, Margaret C.). Faunal lists of the Tertiary Vertebrata of Nebraska and adjacent areas, with preface by G. E. Condra: Nebraska Geol. Survey, Paper no. 5, 58 pp., 1933.
726. Notes on the Tertiary geology of western Nebraska, western South Dakota, eastern Wyoming, and related areas (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 200, February 28, 1933.
727. (and Mansfield, Wendell Clay). A new mollusk from the Chadron formation (Oligocene) of Nebraska; occurrence and associations; description: Washington Acad. Sci., Jour., vol. 23, no. 5, pp. 263-267, 4 figs., May 15, 1933.
728. New artiodactyls from the Oligocene and lower Miocene of Nebraska: Am. Midland Naturalist, vol. 15, no. 2, pp. 148-164, 2 pls., March 1934.

Cook, Margaret C. See Cook, H. J., 725.

Cooke, Charles Wythe. See also Stephenson, 3203.

729. Southern Maryland: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 12, Excursion B-7, 16 pp., 2 figs. (incl. geol. sketch map), 2 pls. (incl. geol. sketch map), 1932.
730. Ackerman formation in Alabama: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 2, pp. 192-195, 1 fig., February 1933.
731. Pleistocene changes of sea level (abstract): Washington Acad. Sci., Jour., vol. 23, no. 2, pp. 109-110, February 15, 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 177-178, February 28, 1933.
732. A possible solution of a Mayan mystery: Sci. Monthly, pp. 362-365, October 1933.
733. Definition of Cocoa sand member of Jackson formation: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 11, pp. 1387-1388, November 1933.
734. Origin of the so-called meteorite scars of South Carolina (abstract): Washington Acad. Sci., Jour., vol. 23, no. 12, pp. 569-570, December 15, 1933.
735. Discussion of the origin of the supposed meteorite scars of South Carolina: Jour. Geology, vol. 42, no. 1, pp. 88-96, 6 figs., January-February 1934; reply by F. A. Melton, pp. 97-104.

Cooke, Harold Caswell. See also Bain, 125.

736. Thetford district, 1932: Canada, Geol. Survey, Summary Rept., 1932, pt. D, pp. 44-55, 5 figs., 1 pl., 1933. (Pub. no. 2330.)

Cooke, Harold Caswell—Continued.

737. Land and sea on the Canadian Shield in pre-Cambrian time, pt. 1: Am. Jour. Sci., 5th ser., vol. 26, no. 154, pp. 428-441, 3 figs. (maps), October 1933; pt. 2, no. 155, pp. 457-474, 4 figs. (maps), November 1933.

738. Thetford and Disraeli quadrangles, Quebec: Canada, Geol. Survey, Summary Rept., 1933, pt. D, pp. 121-138, 3 figs., 1934. (Pub. no. 2351.)

Cooksey, C. L.

739. Significant microfauna from Boggy formation of Oklahoma (abstract): Pan-Am. Geologist, vol. 59, no. 3, p. 237, April 1933.

Coombs, H.

740. Preparing quick-drying canada balsam: Science, new ser., vol. 78, no. 2018, pp. 193-194, September 1, 1933.

Coombs, Howard A.

741. Certain features of the volcanic sequence and geomorphology of Mount Rainier (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 148, February 28, 1933.

742. Extension of Keechelus andesites (abstract): Pan-Am. Geologist, vol. 61, no. 5, p. 378, June 1934.

Cooper, Chalmer Lewis.

743. Revision of *Ligonodina* Ulrich and Bassler, 1926, and *Prioniodus* Pander, 1856 (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 213, February 28, 1933.

744. Conodonts from the upper and middle Arkansas novaculite at Caddo Gap, Ark. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 211, February 28, 1933.

Cooper, Gustav Arthur. See also Ulrich, 3445.

745. Collecting fossils in Gaspé [Quebec]: Smithsonian Inst., Explorations and Field Work in 1932 (Pub. 3213), pp. 9-12, 5 figs., 1933.

746. Stratigraphic studies in eastern New York: Smithsonian Inst., Explorations and Field Work in 1932 (Pub. 3213), pp. 13-16, 5 figs., 1933.

747. Evaluation of internal characters in the classification of the Brachiopoda (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 193-194, February 28, 1933.

748. A method for the preparation of fossils: Science, new ser., vol. 77, p. 394, April 21, 1933.

749. Stratigraphy of the Hamilton group of New York (abstract): Washington Acad. Sci., Jour., vol. 23, no. 8, p. 402, August 15, 1933.

750. (and Whitcomb, Lawrence). *Salonia*, a new Ordovician brachiopod genus: Washington Acad. Sci., Jour., vol. 23, no. 11, pp. 496-503, 23 figs., November 15, 1933.

751. Stratigraphy of the Hamilton group of eastern New York: Am. Jour. Sci., 5th ser., vol. 26, no. 156, pp. 537-551, 3 figs., December 1933; pt. 2, vol. 27, no. 157, pp. 1-12, January 1934; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 200-201, February 28, 1933; abstract, Pan-Am. Geologist, vol. 62, no. 2, pp. 156-157, September 1934.

752. (and Williams, James Stewart). Stratigraphy of the Tully formation of New York (abstract): Geol. Soc. America, Proc., 1933, p. 73, June 1934.

Cooper, William Skinner.

753. (and Foot, Helen). Reconstruction of a late Pleistocene biotic community in Minneapolis, Minn.: Ecology, vol. 13, no. 1, pp. 63-72, 4 figs., January 1932.
754. Types of Pacific coast dunes (abstract): Assoc. Am. Geographers, Annals, vol. 24, no. 1, p. 46, March 1934.

Corral, José.

755. Levantamiento del mapa geológico de Cuba: Soc. cubana ing., Rev., vol. 26, no. 2, pp. 104-123, March-April 1934.

Corry, Andrew Vincent.

756. Some gold deposits of Broadwater, Beaverhead, Phillips, and Fergus Counties, Mont.: Montana, Bur. Mines and Geology, Mem. no. 10, 45 pp. (†), 9 pls. (incl. geol. maps), September 1933.

Coryell, Horace Noble.

757. (and Ohlsen, Violet). Fossil corals of Porto Rico, with descriptions also of a few recent species: New York Acad. Sci., Sci. Survey Porto Rico and Virgin Islands, vol. 3, pt. 3, pp. 168-236, 44 pls., 1929.
758. (and Sample, Charles Hurst). *Bairdia angulata*, new name [Pennsylvanian ostracode, Texas]: Am. Midland Naturalist, vol. 14, no. 2, p. 187, March 1933.
759. (and Booth, R. T.). Pennsylvanian Ostracoda; a continuation of the study of the Ostracoda fauna from the Wayland shale, Graham, Tex.: Am. Midland Naturalist, vol. 14, no. 3, pp. 258-279, 2 figs., 5 pls., May 1933.
760. (and Salmon, Eleanor S.). A molluscan faunule from the Pierre formation in eastern Montana: Am. Mus. Novitates, no. 746, 18 pp., 13 figs., September 13, 1934.
761. (and Cuskley, Virginia A.). Some new ostracodes from the "White Mound" section of the Haragan shale, Murray County, Okla.: Am. Mus. Novitates, no. 748, 12 pp., 18 figs., October 5, 1934.

Cotner, Victor.

762. (and Crum, H. E.). Geology and occurrence of natural gas in Amarillo district, Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 8, pp. 877-906, 3 figs., correlation table, August 1933.

Couser, Chester W.

763. Paleozoic stratigraphy and structure in the Minnesota River Valley (abstract): Geol. Soc. America, Proc., 1933, p. 383, June 1934.

Courtier, William H. See Landes, 1978.

Cowles, H. O. See Crawford, 771.

Cox, Ian H.

764. The physical geology of Akpatok Island: Geog. Jour., vol. 70, no. 3, pp. 224-227, September 1932.
765. On *Climacograptus inuiti* sp. nov. and its development: Geol. Mag., no. 823 (vol. 70, no. 1), pp. 1-19, 28 figs., 2 pls., January 1933.
766. Rejuvenation on Akpatok Island; a topographical unconformity in north-eastern Canada: Geol. Mag., no. 824 (vol. 70, no. 2), pp. 67-83, 4 figs., 5 pls., February 1933.
767. Richmondian trilobites from Akpatok Island: Geol. Mag., no. 830 (vol. 70, no. 8), pp. 359-373, 1 pl., August 1933.

Craig, Edward Hubert Cunningham.

768. Oil City revisited: *Petroleum Times*, vol. (new) 30, no. 763, p. 309, August 26, 1933.

Crary, E. P. See Ewing, 1037.

Crawford, Arthur Lorenzo. See also Berry, 269; Frobes, 1170; Landenberger, 1973; McGrath, 2173; Wimber, 3744; Wright, 3795.

769. (and O'Farrell, Charles). Unusual microscopic features of a newly discovered mercury ore from the Deep Creek Mountains of western Utah: *Utah Acad. Sci., Proc.*, vol. 9, pp. 41-44, 4 pls., June 1932.
770. (and Frobes, Daniel C.). The Rio Tinto copper discovery near Mountain City, Nev. (abstract): *Utah Acad. Sci., Proc.*, vol. 9, pp. 51-52, June 1932.
771. (and Cowles, H. O.). The fuller's earth deposit near Aurora, Utah: *Utah Acad. Sci., Proc.*, vol. 9, pp. 55-60, June 1932.
772. (and Starliper, Aaron). Some physiographic and geologic features affecting the origin and concentration of placer gold along Gold Creek, Montana (abstract): *Utah Acad. Sci., Proc.*, vol. 10, p. 53, July 1933.
773. (and Jacobsen, Frank E.). Feldspar phenocrysts in the Cottonwood granodiorite, replacements of their fine-grained associates (abstract): *Utah Acad. Sci., Proc.*, vol. 10, p. 55, July 1933.
774. An application of microscopy for evaluating the gold in certain Utah placers (abstract): *Utah Acad. Sci., Proc.*, vol. 10, p. 57, July 1933.
775. (and Netick, Frank J.). The occurrence of gold in old cyanide dumps (abstract): *Utah Acad. Sci., Proc.*, vol. 10, p. 67, July 1933.
776. (and Starliper, Aaron). A microscopic study of certain placer gold from Gold Creek, Mont. (abstract): *Utah Acad. Sci., Proc.*, vol. 10, p. 69, July 1933.
777. Gold, some microscopic features affecting its recoverability (abstract): *Utah Acad. Sci., Proc.*, vol. 10, p. 71, July 1933.

Cribbs, James Elias.

778. A new *Cordaites* from Missouri: *Science*, new ser., vol. 78, no. 2023, pp. 311-312, October 6, 1933.

Crickmay, Colin Hayter.

779. Some of Alpheus Hyatt's unfigured types from the Jurassic of California: *U. S. Geol. Survey, Prof. Paper* 175, pp. 51-64, 5 pls., 1933.
780. Paleontology [of the Cambrian rocks of the eastern Mojave Desert, California]: *California, Univ., Dept. Geol. Sci., Bull.*, vol. 23, no. 2, pp. 71-78, 1 pl., 1933.
781. The genotype of *Belemnites*; with a synopsis of North American species of Belemnoida: *Canadian Field Naturalist*, vol. 47, no. 1, pp. 12-15, 1 fig., January 1933.
782. Mount Jura investigation: *Geol. Soc. America, Bull.*, vol. 44, no. 5, pp. 895-926, 11 pls., October 31, 1933; abstract, pt. 1, pp. 80-81, February 28, 1933.
783. Discussion of paleontological chronology: *Jour. Geology*, vol. 41, no. 3, pp. 288-292, April-May 1933.
784. The North American Jurassic unconformities: *Am. Midland Naturalist*, vol. 14, no. 4, pp. 355-362, July 1933.

Crickmay, Colin Hayter—Continued.

785. The later stages of the cycle of erosion: *Geol. Mag.*, no. 830 (vol. 70, no. 7), pp. 337-347, August 1933.
 786. Attempt to zone the North American Jurassic on the basis of its brachiopods: *Geol. Soc. America, Bull.*, vol. 44, no. 5, pp. 871-894, 3 pls., October 31, 1933; abstract, pt. 1, p. 80, February 28, 1933.
 787. Studies in the Jurassic of Wyoming (abstract): *Geol. Soc. America, Proc.*, 1933, p. 74, June 1934.
- Crickmay, Geoffrey William. See also Singewald, 3101; Anonymous, 3829.
788. Gold in Georgia: Georgia, Dept. Forestry and Geol. Development, Div. Geology, Inf. Circ. no. 1, 6 pp. (†), 2 figs. (incl. map), April and May 1933.
 789. Interbed—a convenient stratigraphic expression: *Science*, new ser., vol. 78, no. 2010, p. 13, July 7, 1933.
 790. The occurrence of mylonites in the crystalline rocks of Georgia: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 152, pp. 161-177, 10 figs. (incl. sketch map), August 1933.

Cron, Robert E., Jr.

791. Military geology in time of war: *Military Eng.*, vol. 25, no. 139, pp. 84-88, 1 fig., January-February 1933.

Croneis, Carey Gardiner.

792. Triangular nepionic coiling in Carboniferous ammonoids: *Science*, new ser., vol. 72, no. 1873, pp. 534-535, November 21, 1930.
793. (and Scott, Harold W.). *Scolecodonts* (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 207, February 28, 1933.
794. (and Scott, Harold W.). *Scolecodonts and conodonts from fissure fillings in the Niagaran of Illinois* (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 207-208, February 28, 1933.
795. (and Scott, Harold W.). *Scolecodonts from the Decorah formation of Missouri* (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 208, February 28, 1933.
796. (and Potter, Franklin C.). *New Mississippian starfish* (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 211, February 28, 1933.
797. (and Shepherd, G. Frederick). *Laboratory equipment for geologic instruction*: *Geol. Soc. America, Bull.*, vol. 44, no. 3, pp. 541-552, 2 figs., 2 pls., June 30, 1933.
798. *Early history of petroleum in North America*: *Sci. Monthly*, pp. 124-133, illus., August 1933.
799. *Paleoecology of the worms* (abstract): *Geol. Soc. America, Proc.*, 1933, p. 361, June 1934.

Crook, T. H.

800. (and Kirby, J. M.). *Capay Valley formations* (abstract): *Pan-Am. Geologist*, vol. 61, no. 5, p. 377, June 1934.

Crosby, Irving Ballard.

801. *Glacial and recent history of the Black River Valley, Vermont* (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 81, February 28, 1933.
802. *Relation of geology to the ground-water supplies of New England* (with discussion): *New England Water Works Assoc., Jour.*, vol. 47, no. 1, pp. 74-95, 5 figs., March 1933.

Crosby, Irving Ballard—Continued.

803. Geology of the ground-water supplies of New England: Water Works Eng., vol. 86, no. 12, pp. 603-604, 607, 1 fig., June 14, 1933.
804. Evidence from drumlins concerning the glacial history of Boston Basin: Geol. Soc. America, Bull., vol. 45, no. 1, pp. 135-158, 3 figs., February 28, 1934; abstract, vol. 44, pt. 1, pp. 81-82, February 28, 1933.
805. Extension of the Bethlehem, N. H., moraine: Jour. Geology, vol. 42, no. 4, pp. 411-421, 2 figs. (incl. map), May-June 1934; abstract, Geol. Soc. America, Proc., 1933, pp. 450-451, June 1934.
806. Methods of stream capture (abstract): Geol. Soc. America, Proc., 1933, p. 74, June 1934.
807. (and Lougee, Richard J.). Glacial marginal shores and the marine limit in Massachusetts: Geol. Soc. America, Bull., vol. 45, no. 3, pp. 441-462, 5 figs., June 30, 1934; abstract, vol. 44, pt. 1, p. 82, February 28, 1933.

Cross, Whitman.

808. (and Warren, Charles Hyde). Memorial of Ernest Howe [1875-1932]: Geol. Soc. America, Proc., 1933, pp. 211-226, port., June 1934.

Crown, Walter J.

809. (and Peirce, G. G., and Howard, Paul J.). Recent developments in the Long Beach oil field: California, Dept. Nat. Res., Div. Oil and Gas, California Oil Fields, vol. 18, no. 2, pp. 5-25, 3 pls., October-December 1932.

Crozier, A. R. See also Dyer, 958, 962.

810. Refractory clay deposits on the Missinaibi River: Ontario, Dept. Mines, 42d Ann. Rept. (vol. 42, pt. 3), pp. 88-101, 8 figs., 1933.

Crum, H. E. See Cotner, 762.

Cullison, James S.

811. (and Muilenburg, Garrett A.). A newly found meteorite from Lanton, Howell County, Mo.: Jour. Geology, vol. 42, no. 3, pp. 305-308, 2 figs., April-May 1934.
812. A suitable tray for comparative examination of minute opaque objects under the binocular microscope: Jour. Paleontology, vol. 8, no. 2, p. 247, June 1934.

Cummings, W. L. See Berkey, 262.

Cummings, Carlos E.

813. Dinosaurs come to the Museum; new group placed in the Hall of Evolution: Hobbies (magazine of Buffalo Mus. Sci.), vol. 13, no. 5, pp. 90-92, 1 fig., 1933.

Cunningham, George M.

814. (and Kleinpell, W. D.). Importance of unconformities to oil production in the San Joaquin Valley, California: Problems of petroleum geology (Sidney Powers memorial volume), pp. 785-805, 5 figs. (incl. maps), Am. Assoc. Petroleum Geologists, 1934.

Cunningham, J. B. See Wilson, 3725.

Currier, Louis Wade.

815. Notes on staurolite and associated minerals from schists at Gassetts, Vt.: Am. Mineralogist, vol. 19, no. 7, pp. 335-339, 1 fig., July 1934.

Curry, H. Donald.

816. The fauna of the Chemung formation of southwestern New York: Iowa Acad. Sci., Proc., 1930, vol. 37, pp. 257-261, [1931].

Curry, William H., Jr.

817. Fredericksburg-Washita (Edwards-Georgetown) contact in Edwards Plateau region of Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 12, pp. 1698-1705, 5 figs., December 1934.

Cushman, Joseph Augustine.

818. (and Cahill, Edgar D.). Miocene Foraminifera of the Coastal Plain of the eastern United States: U. S. Geol. Survey, Prof. Paper 175, pp. 1-50, 13 pls., 1933.

819. Contributions from the Cushman Laboratory for Foraminiferal Research, Sharon, Mass.

Vol. 9, pt. 1, March 1933.

127. New Foraminifera from the upper Jackson Eocene of the southeastern Coastal Plain region of the United States, pp. 1-21, 2 pls.

128. A new species of *Olavulina* from the Cretaceous of Texas, pp. 21-22.

Vol. 9, pt. 2, June 1933.

129. (and Ponton, Gerald Mungo). A new genus of the Foraminifera, *Gunteria*, from the middle Eocene of Florida, pp. 25-30, 1 pl.

130. (by Pijpers, P. J.). *Ruttenia*, a new name for *Bonairea* Pijpers, 1933, p. 30.

131. (by Carman, Katherine Woodley). *Dentostomina*, a new genus of the Miliolidae, pp. 31-32.

132. Some new foraminiferal genera, pp. 32-38, 1 pl.

133. Relationships and geologic distribution of the genera of the Valvulinidae, pp. 38-44, 1 fig.

Vol. 9, pt. 3, September 1933.

134. New American Cretaceous Foraminifera, pp. 49-64, 2 pls.

135. Post-Cretaceous occurrence of *Gumbelina* with a description of a new species, pp. 64-69, 1 pl.

136. Some notes on D'Orbigny's models, pp. 70-73.

Vol. 9, pt. 4, December 1933.

137. Some new recent Foraminifera from the tropical Pacific, pp. 77-95, 3 pls.

138. (and Ellis, Alva Christine). Two new Texas Foraminifera, pp. 95-98.

139. On homonyms in Foraminifera, pp. 96-98.

Vol. 10, pt. 1, March 1934.

140. (and Kleinpell, Robert Minssen). New and unrecorded Foraminifera from the California Miocene, pp. 1-23, 4 pls.

141. (and Galliher, E. Wayne). Additional new Foraminifera from the Miocene of California, pp. 24-26.

Vol. 10, pt. 2, June 1934.

142. (and Parker, F. L.). Notes on some of the earlier species originally described as *Bulimina*, pp. 27-36, 2 pls.

143. Notes on the genus *Spiroplectoides* and species, pp. 37-44.

144. The generic position of "*Cornuspira cretacea* Reuss", pp. 44-47.

Vol. 10, pt. 3, September 1934.

145. (and Dusenbury, A. N., Jr.). Eocene Foraminifera of the Poway conglomerate of California, pp. 51-65, 2 pls.

146. (and Garrett, J. B., Jr.). New species of *Triloculina* from the Claiborne of Louisiana, pp. 65-70, 2 pls.

147. (and Campbell, Arthur Shackleton). A new *Spiroplectoides* from the Cretaceous of California, pp. 70-71, pl. 9, figs. 15-17.

148. (and Jarvis, P. W.). Some interesting new uniserial Foraminifera from Trinidad, pp. 71-75, pl. 10, figs. 8-13, and 16.

Vol. 10, pt. 4, December 1934.

149. Notes on the genus *Tretomphalus*, with descriptions of some new species and a new genus, *Pyropilus*, pp. 79-101, 3 pls.

150. The relationships of *Ungulatella* with descriptions of additional species, pp. 101-104, pl. 13, figs. 5-8c.

151. A recent *Gumbelitra* (?) from the Pacific, p. 105.

Cushman, Joseph Augustine—Continued.

820. Foraminifera, their classification and economic use (2d ed): Cushman Lab. Foram. Research, Special Pub. no. 4, 349 pp., 31 pls., Sharon, Mass., August 1933.
821. An illustrated key to the genera of the Foraminifera: Cushman Lab. Foram. Research, Special Pub. no. 5, 40 pls., with descriptive text, 61 pp., Sharon, Mass., August 1933.
822. Paleozoic Foraminifera, their relationships to modern faunas and to their environment (abstract): Geol. Soc. America, Proc., 1933, p. 364, June 1934.

Cuskley, Virginia A. See Coryell, 761.

Cuyler, Robert H. See Bullard, 478.

Dachnowski-Stokes, Alfred Paul.

823. Peat deposits in U. S. A., their characteristic profiles and classification: Handbuch der Moorkunde, Band 7 (American peat deposits), pp. vii-viii, 1-140, 23 figs., 9 pls., Berlin, Gebrüder Borntraeger, 1933.

Dadson, A. S.

824. A study of some Canadian apatites: Toronto Univ., Studies, Geol. ser., no. 35, pp. 51-59, 5 figs., 1933.

Dahlgren, Bror Erik.

825. A forest of the coal age: Field Mus. Nat. History, Geology, Leaflet 14, 39 pp., 24 figs. (incl. maps), 2 pls., 1933.

Dake, Charles Laurence, 1883-1934.

826. (and Nelson, L. A.). Postbolson faulting in New Mexico: Science, new ser., vol. 78, no. 2017, pp. 168-169, August 25, 1933.
827. Basal Pennsylvanian transgression in the Ozarks (abstract): Geol. Soc. America, Proc., 1933, pp. 74-75, June 1934.
828. (and Dake, Laurence Falkenstern). Role of cap rock in oil accumulation: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 8, pp. 1086-1091, August 1934.

Dake, Henry C. See also Fernquist, 1065; Modell, 2369.

829. Opals in Virgin Valley, Nevada: Rocks and Minerals, vol. 8, no. 1, pp. 16-18, 2 figs., March 1933.
830. Oregon "iris" (rainbow) agate and its recent development: Oregon Mineralogist, vol. 1, no. 2, pp. 1-2, July 1933.
831. Opal chalcedony at Ashwood, Oreg.: Oregon Mineralogist, vol. 1, no. 3, p. 2, August 1933.
832. Uncommon and rare minerals in Oregon: Oregon Mineralogist, vol. 1, no. 4, pp. 1-2, September 1933; no. 5, p. 4, October 1933; no. 6, p. 6, November 1933; no. 7, p. 4, December 1933; vol. 2, no. 2, p. 18, February 1934; no. 3, p. 8, March 1934; no. 4, p. 15, April 1934; no. 5, p. 17, May 1934; no. 7, p. 12, July 1934.
833. Oregon abounds with gem material: Oregon Mineralogist, vol. 2, no. 1, pp. 5, 30, January 1934.
834. Inclusions in Oregon agates described: Oregon Mineralogist, vol. 2, no. 5, pp. 8-9, May 1934.

Dake, Laurence Falkenstern. See Dake, C. L., 828.

Daly, John W.

835. Paragenesis of mineral assemblage at Crestmore (abstract): Pan-Am. Geologist, vol. 59, no. 4, pp. 312-313, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 311, June 1934.

Daly, Reginald Aldworth.

836. Igneous rocks and the depths of the earth; containing some revised chapters of "Igneous rocks and their origin" (1914), xvi, 508 pp., 190 figs., 3 pls., New York, McGraw-Hill Book Co., 1933.
837. The depths of the earth: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 243-264, 5 figs., April 30, 1933; abridged, Science, new ser., vol. 77, pp. 95-102, January 27, 1933.
838. The changing world of the ice age. xxi, 271 pp., 134 figs. (incl. maps), 8 pls., New Haven, Yale Univ. Press, 1934.

Dane, Carle Hamilton. See also Baker, 132.

839. (and Pierce, William Gamewell). Geology and oil and gas prospects in part of eastern Colorado: U. S. Dept. Interior [U. S. Geol. Survey], Press Mem., 72215, 8 pp. (+), 1 pl., map, June 8, 1933.
840. (and Pierce, William Gamewell). Fossil sink holes in Cretaceous beds of Prowers County, Colo.: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 11, pp. 1493-1505, 3 figs., November 1934; abstract, Washington Acad. Sci., Jour. vol. 24, no. 4, pp. 194-195, April 15, 1934.

Daniels, James I. See also Kansas Geol. Soc., 1743, 1747.

841. Data on deep wells in southwestern Kansas and adjoining States: Kansas Geol. Soc., Guidebook, 4th Ann. Field Conf., pp. 137-142 (+), September 1930.

Dapples, E. C.

842. Cleating in coal (abstract): Illinois State Acad. Sci., Trans., vol. 26, no. 3, p. 100, March 1934.

Darlington, P. J., Jr.

843. Notes on the structure and significance of *Palaeogyrinus*: Psyche, vol. 36, no. 3, pp. 216-219, September 1929.

Darrah, William Culp.

844. (and Bertrand, Paul). Observations sur les flores houillères de Pennsylvanie (régions de Wilkes-Barre et de Pittsburgh): Acad. sci. Paris, Comptes rendus, vol. 197, no. 23, pp. 1451-1452, December 4, 1933.
845. Stephanian in America (abstract): Geol. Soc. America, Proc., 1933, p. 451, June 1934.
846. Leo Lesquereux [1806-89]: Harvard Univ., Bot. Mus., Leaflets, vol. 2, no. 10, pp. 113-119, August 10, 1934.

Darton, Nelson Horatio.

847. (and King, Philip Burke). Western Texas and Carlsbad Caverns: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 13, Excursion C-1, 38 pp., 22 figs. (incl. maps), 5 pls. (incl. map), 1932.
848. Guidebook of the western United States, Part F, The Southern Pacific Lines, New Orleans to Los Angeles: U.S. Geol. Survey, Bull. 845, 304 pp., 71 figs., 78 pls. (incl. 29 map sheets), 1933.
849. Geological map of Texas (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 82, February 23, 1933.

Darton, Nelson Horatio—Continued.

850. Zuffi Salt Lake (abstract): Washington Acad. Sci., Jour., vol. 23, no. 10, pp. 485-486, October 15, 1933.
851. Terraces and overlaps in the Washington, D. C., region (abstract): Geol. Soc. America, Proc., 1933, p. 75, June 1934.
852. Memorial of David Talbot Day [1859-1925]: Geol. Soc. America, Proc., 1933, pp. 185-192, port., June 1934.

Daugherty, Lyman H.

853. *Schulderia admanica*, a new fossil wood from the petrified forests of Arizona: Bot. Gazette, vol. 96, no. 2, pp. 363-366, 1 pl., December 1934; abstract, Pan-Am. Geologist, vol. 62, no. 1, p. 74, August 1934.

David, Elizabeth.

854. Sur la présence de lépidocyclines dans l'Éocène et sur leurs rapports avec les lépidorbitoides: Acad. sci. Paris, Comptes rendus, vol. 194, no. 20, pp. 1756-1758, 5 figs., May 17, 1932.

Davis, H. F.

855. Structural history and its relation to the accumulation of oil and gas in the Rocky Mountain district: Problems of petroleum geology (Sidney Powers memorial volume), pp. 679-693, 2 figs. (incl. map), Am. Assoc. Petroleum Geologists, 1934.

Davies, John H.

856. Nonmarine shells of upper Carboniferous rocks of North America: Wyoming [Pennsylvania] Hist. and Geol. Soc., Proc. and Coll., 1927-29, vol. 21, pp. 98-106, 1930.

Davis, Harry Towles. See Stuckey, 3280.

Davis, Joseph Dana. See Fieldner, 1084.

Davis, William Morris, 1850-1934. See also Boutwell, 356; Jenkins, 1654.

857. The lakes of California: California Jour. Mines and Geology, vol. 29, nos. 1, 2, pp. 175-236, 29 figs., 1 pl. (map), January and April 1933.
858. Work of sheetfloods (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 83, February 28, 1933.
859. Piedmont benchlands (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 154, February 28, 1933.
860. Granite domes of the Mojave Desert, California: San Diego Soc. Nat. History, Trans., vol. 7, no. 20, pp. 211-258, 34 figs., 4 pls., March 31, 1933.
861. Submarine mock valleys: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 231-234, Nat. Research Council, June 1933; abstract, Pan-Am. Geologist, vol. 59, no. 4, pp. 307-308, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 306, June 1934.
862. Glacial epochs of the Santa Monica Mountains, California: Geol. Soc. America, Bull., vol. 44, no. 5, pp. 1041-1133, 26 figs., 16 pls., October 31, 1933; abstract, Pan-Am. Geologist, vol. 59, no. 4, pp. 306-307, May 1933; abstract, Geol. Soc. America, Proc., 1933, pp. 304-305, June 1934.
863. Geomorphogeny of the desert (abstract): Pan-Am. Geologist, vol. 60, no. 5, pp. 374-375, December 1933.
864. The Long Beach earthquake: Geog. Rev., vol. 24, no. 1, pp. 1-11, 6 figs., January 1934.

Davis, William Morris—Continued.

- 865. Gardiner on "Coral reefs and atolls", a discussion: *Jour. Geology*, vol. 42, no. 2, pp. 200-217, February-March 1934.
- 866. Submarine mock valleys: *Geog. Rev.*, vol. 24, no. 2, pp. 297-308, April 1934.

Davison, Charles.

- 867. Scales of seismic intensity; supplementary paper: *Seismol. Soc. America, Bull.*, vol. 23, no. 4, pp. 158-166, October 1933.
- 868. Diurnal periodicity of earthquakes: *Jour. Geology*, vol. 42, no. 5, pp. 449-468, 1 fig., July-August 1934.

Davison, Ernest Henry.

- 869. Tin lodes in Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1932, pp. 227-230, 1933; reprinted from *Mining Mag.*, vol. 42, no. 1, pp. 20-23, 1930.

Day, Arthur Louis.

- 870. [Reports of investigations of the] Geophysical Laboratory: *Carnegie Inst. Washington, Year Book* no. 32, pp. 59-79, 1933.
- 871. (and others). Seismology; report of the Advisory Committee: *Carnegie Inst. Washington, Year Book* no. 32, pp. 362-372, 1933.

Day, James R. See Lonsdale, 2091.

De Beck, Hubert O.

- 872. An accurate simplified magnetometer field method: *Am. Inst. Min. Met. Eng., Trans.*, vol. 110, *Geophysical Prospecting*, pp. 326-333, 1934.

De Béthune, Pierre.

- 873. Thrusting of unfolded rocks (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, p. 320, May 1934.

Decker, Charles Elijah. See also *Kansas Geol. Soc.*, 1744; *Ruedemann*, 2871.

- 874. The early Paleozoic stratigraphy of Arbuckle and Wichita Mountains (abstract): *Tulsa Geol. Soc., Digest*, pp. 55-57, 1933.
- 875. Viola limestone, primarily of Arbuckle and Wichita Mountain regions: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 12, pp. 1405-1435, 8 figs., December 1933.
- 876. New graptolite horizon in the Silurian of Oklahoma (abstract): *Geol. Soc. America, Proc.*, 1933, p. 343, June 1934.

Decker, LaVerne.

- 877. Geology and possibilities of oil in large area northeast of defined East Texas oil field: *Oil and Gas Jour.*, vol. 31, no. 33, pp. 12-13, 30, 3 figs. (incl. geol. map), January 5, 1933.

Deflandre, Georges.

- 878. *Archaeomonadaceae*, une famille nouvelle de protistes fossiles marins à loge siliceuse: *Acad. sci. Paris, Comptes rendus*, vol. 194, no. 21, pp. 1859-1861, 7 figs., May 23, 1932.
- 879. Sur un foraminifère siliceux fossile des diatomites miocènes de Californie: *Acad. sci. Paris, Comptes rendus*, vol. 198, no. 16, pp. 1446-1448, April 16, 1934.

DeFord, Donald K. See Coffin, 691.

De Geer, Gerald.

- 880. International geochronology; its origin and scope: *Pan-Am. Geologist*, vol. 60, no. 5, pp. 333-347, 1 fig., December 1933; abstract, no. 2, pp. 142-143, September 1933.

Deger, Erwin.

881. Chemische Untersuchung zweier Gesteinsproben des Vulkans "Pacaya" in Guatemala: *Chemie der Erde* (Blanck u. Linck), Band 8, Heft 1-2, pp. 45-47, 1933.

DeGolyer, Everette Lee.

882. Geophysics in the oil industry: *Mining and Metallurgy*, vol. 15, no. 1, pp. 21-23, January 1934.
883. Memorial of Sidney Powers [1890-1932]: *Geol. Soc. America, Proc.*, 1933, pp. 243-258, port., June 1934.

Deiss, Charles Frederick.

884. Paleozoic formations of northwestern Montana: *Montana, State, Bur. Mines and Geology, Mem.* no. 6, 51 pp. (†), 3 pls. March 1933; abstract, *Northwest Sci.*, vol. 7, no. 2, p. 42, June 1933.
885. Cambrian-Algonkian unconformity in western Montana (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 382-383, June 1934.

Delacote, G.

886. La potasse du Texas et du Nouveau Mexique: *Chimie et industrie*, vol. 31, no. 2, pp. 478-482, 4 figs. (incl. maps), February 1934.

Delo, David M.

887. The fauna of the Rust quarry, Trenton Falls, N. Y.: *Jour. Paleontology*, vol. 8, no. 2, pp. 247-249, June 1934.

De Lury, Justin Sarsfield.

888. Significance of horizontal variations in the crust (abstract): *Royal Soc. Canada, Trans.*, 3d ser., vol. 27, p. cxlii, 1933.
889. The strength of the earth: *Jour. Geology*, vol. 41, no. 7, pp. 748-756, 2 figs., October-November 1933.
890. Diastrophism and intrusion (abstract): *Geol. Soc. America, Proc.*, 1933, p. 75, June 1934.
891. The magmatic wedge: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 167, pp. 341-352, 4 figs., November 1934.

De Montalk, R. W.

892. Earthquakes, the futility of predicting them: *Seismol. Soc. America, Bull.*, vol. 24, no. 2, pp. 100-108, April 1934.

Denis, Bertrand T.

893. The chromite deposits of the Eastern Townships of the Province of Quebec: *Quebec, Bur. Mines, Ann. Rept.*, 1931, pt. D, 106 pp., 13 figs., 5 pls., map, 1932.

Denison, A. R.

894. The Kelsey dome, Upshur County, Tex. (abstract): *Tulsa Geol. Soc., Digest*, pp. 16-17, 1933.
895. (and Oldham, A. R., and Kisling, J. W., Jr.). Structure and stratigraphy, Kelsey anticline, Upshur County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 6, pp. 656-679, 11 figs. (incl. geol. map), June 1933.

Dennis, Wilbert C.

896. Igneous rocks of the Valley of Virginia (abstract): *Virginia Acad. Sci. Proc.*, 1933-34, pp. 55-56, 1934.

De Quervain, Fr. See Hirschi, 1525.

Derry, Duncan R.

897. Heavy minerals of the Pleistocene beds of the Don Valley, Toronto, Ontario: Jour. Sedimentary Petrology, vol. 3, no. 3, pp. 113-118, 1 fig., December 1933.
898. Heavy minerals of the Ordovician sediments of Ontario: Jour. Sedimentary Petrology, vol. 4, no. 2, pp. 83-88, 1 fig., August 1934.

Desjardins, Louis.

899. The pre-Illinoian glaciation of the Cincinnati region (abstract): Kentucky Acad. Sci., Trans., vol. 5 (1931-32), p. 30, 1933.

De Terra, Hellmut.

900. E. Blackwelder's challenge of the insolation hypothesis of rock weathering (discussion): Am. Jour. Sci., 5th ser., vol. 26, no. 155, pp. 523-524, November 1933.
901. Geology and archeology as border sciences: Science, new ser., vol. 80, no. 2081, pp. 447-449, November 16, 1934.

Deussen, Alexander. See also Weeks, 3585.

902. Oil-producing horizons of Gulf coast in Texas and Louisiana: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 4, pp. 500-518, 10 figs. (incl. maps), April 1934.
903. Two decades of progress in the art of oil finding: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 7, pp. 942-944, July 1934.

DeWolf, Frank Walbridge. See Leith, 2044.

Dice, Lee Raymond.

904. Some characters of the skull and skeleton of the fossil hare *Palaeolagus haydeni*: Michigan Acad. Sci., Papers, vol. 18, pp. 301-306, 3 figs., 2 pls., 1933.

Dille, Glen Scott.

905. Western Oklahoma, Mississippian (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, April 18, 1932.

Dingman, Oscar Aldrich.

906. Placer-mining possibilities in Montana: Montana, Bur. Mines and Geology, Mem. no. 5, 33 pp. (†), 5 pls. (incl. maps), 1932.

Dobbin, Carroll Edward. See also Henderson, 1455.

907. (and Erdmann, Charles Edgar). Geologic occurrence of oil and gas in Montana: Problems of petroleum geology (Sidney Powers memorial volume), pp. 695-718, 3 figs. (incl. maps), Am. Assoc. Petroleum Geologists, 1934.

Dodd, H. V.

908. (and Kaplow, Edward J.). Kettleman North Dome and Kettleman Middle Dome fields, progress in development: California Oil Fields (California, Dept. Nat. Res., Div. Oil and Gas), vol. 18, no. 4, pp. 4-20, 5 pls. (incl. maps), April-June 1933.

Dodge, Richard Elwood.

909. William Morris Davis—an appreciation: Jour. Geography, vol. 33, no. 4, pp. 148-150, April 1934.

Dodge, Theodore A.

910. The determination of optic angle with the universal stage: Am. Mineralogist, vol. 19, no. 2, pp. 62-75, 5 figs., February 1934; abstract, Geol. Soc. America, Proc., 1933, p. 438, June 1934.

Dolmage, Victor.

911. Geology and ore deposits of Copper Mountain, British Columbia: Canada, Dept. Mines, Geol. Survey, Mem. 171, 69 pp., 4 pls. (incl. geol. map), 1934. (No. 2344.)
912. The Cariboo and Bridge River gold fields, British Columbia (with discussion): Canadian Min. Met. Bull., no. 268, pp. 405-435, 7 figs. (incl. geol. map), August 1934.

Dolman, S. C.

913. Lompoc oil field, Santa Barbara County: California Oil Fields, vol. 17, no. 4, pp. 13-19, 2 pls., April-June, 1932.

Donnay, Joseph Désiré Hubert.

914. (and Tunell, George, and Barth, Thomas Frederik Weybye). Various modes of attack in crystallographic investigations: Am. Mineralogist, vol. 19, no. 10, pp. 437-458, 1 fig., October 1934; abstract, Geol. Soc. America, Proc., 1933, pp. 438-439, June 1934.
915. Barker's determinative angles for castanite: Am. Mineralogist, vol. 19, no. 11, pp. 553-554, November 1934.
916. The theory of determinants applied to crystallography: Am. Mineralogist, vol. 19, no. 12, pp. 593-599, December 1934.

Donnelly, Maurice.

917. Economic geology of Julian region (abstract): Pan-Am. Geologist, vol. 61, no. 4, p. 316, May 1934.

Dorf, Erling. See also Chaney, 629; Field 1077.

918. Discovery of a fossiliferous Lower Devonian channel deposit at Beartooth Butte, Wyo. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 197, February 28, 1933.
919. Pliocene floras of California: Carnegie Inst. Washington, Pub. 412, pp. 1-112, 1 fig., 13 pls., September 1933.
920. A new occurrence of the oldest known terrestrial vegetation, from Beartooth Butte, Wyo.: Bot. Gazette, vol. 95, no. 2, pp. 240-257, 2 pls., December 1933.
921. Lower Devonian flora from Beartooth Butte, Wyo.: Geol. Soc. America, Bull., vol. 45, no. 3, pp. 425-440, 1 fig., 2 pls., June 30, 1934; abstract, vol. 44, pt. 1, p. 213, February 28, 1933.
922. Stratigraphy and paleontology of a new Devonian formation at Beartooth Butte, Wyo.: Jour. Geology, vol. 42, no. 7, pp. 720-737, 7 figs. (incl. geol. map), October-November 1934.

Dorr, James B.

923. New data on the correlation of the lower Oligocene of South and Central America with that of southern Mexico: Jour. Paleontology, vol. 7, no. 4, pp. 432-438, December 1933.

Dorrell, Carter Victor.

924. The use of mechanical analyses in the correlation of Cretaceous bentonites and metabentonites in eastern Colorado (abstract): Colorado, Univ., Studies, vol. 22, no. 1, p. 18, November 1934.

Dorsey, George Edwin. See also Irwin, 1636.

925. Preservation of oil during erosion of reservoir rocks: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 7, pp. 827-842, 5 figs., July 1933; abstract, Pan-Am. Geologist, vol. 59, no. 3, p. 229, April 1933.

Dott, Robert Henry. See also Kramer, 1939.

926. The Pennsylvanian-Permian boundary in south-central Oklahoma: Oklahoma Acad. Sci., Proc., 1930, vol. 10, pp. 88-89, 1930.

927. Structural history of Arbuckle Mountains, Oklahoma, in Pennsylvanian time (abstract): Pan-Am. Geologist, vol. 59, no. 3, pp. 231-232, April 1933; abstract, vol. 61, no. 2, p. 155, March 1934; abstract, Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, January 9, 1933.

928. Overturned beds in Arbuckle Mountains, Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 7, pp. 865-868, July 1933.

929. Overthrusting in Arbuckle Mountains, Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 5, pp. 567-602, 11 figs. (incl. maps), May 1934.

Dougherty, E. Y.

930. Mining geology of the Vipond gold mine, Porcupine district, Ontario: Canadian Min. Met. Bull., no. 265, Trans. sec., pp. 260-284, 7 figs., May 1934.

Douglas, G. Vibert.

931. (and Howse, Claude K.). Concerning ore shoots: Canadian Min. Met. Bull., no. 268, pp. 392-397, 7 figs., August 1934.

932. On the theory of continental drift: Canadian Min. Met. Bull., no. 271, pp. 537-544, November 1934.

Dougherty, E. Y. See Graton, 1304.

Douvill , Henri.

933. Quelques fossiles du Cr tac  sup rieur de Cuba: Soc. g ol. France, Bull., 4^e s r., t. 26, fasc. 3-5, pp. 127-138, 4 figs., 2 pls., 1926.

Drach, Pierre. See Parat, 2569.

Drescher, Friedrich, Karl.

934. Zur Kenntniss des Peridotits von Kaersut (Gr nland) und seines Gangefolges: Min. pet. Mitt., n. F., Band 43, Heft 4-5, pp. 207-270, 19 figs., 3 pls., 1932.

Dresser, John Alexander.

935. The problem of serpentinization: Econ. Geology, vol. 29, no. 3, pp. 306-307, May 1934.

Dryden, Lincoln.

936. *Xenohelia* in the Maryland Miocene: Nat. Acad. Sci., Proc., vol. 19, no. 1, pp. 139-143, 3 figs., January 15, 1933.

937. Structure of the Tertiary formations of Maryland (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 83, February 28, 1933.

938. Cumulative curves and histograms: Am. Jour. Sci., 5th ser., vol. 27, no. 158, pp. 146-147, February 1934.

939. Relation of structure to distribution of the Miocene formations of Maryland (abstract): Geol. Soc. America, Proc., 1933, p. 76, June 1934.

940. Statistical correlation of heavy mineral suites (abstract): Geol. Soc. America, Proc., 1933, p. 443, June 1934.

Dufresne, A. O.

941. (and Larochelle, Eugene). The classification of Canadian chrysotile asbestos: Canadian Min. Met. Bull., no. 240, pp. 224-232, April 1932; Canadian Inst. Min. Metallurgy, Trans., 1932, vol. 35, pp. 224-232, 1933.

Dufresne, A. O.—Continued.

942. Annual report of the Quebec Bureau of Mines for the calendar year 1932, pt. A, Mining operations and statistics, 158 pp., 6 pls., 1933.
 943. Annual report of the Quebec Bureau of Mines for the calendar year 1933, pt. A, Mining operations and statistics, 175 pp., 3 figs., 9 pls., 1934.

Dunbar, Carl Owen. See also Schuchert, 2994, 2996; Miller, 2320.

944. Mid-Ordovician thrust faulting in western Newfoundland (abstract with discussion): *Geol. Soc. America, Proc.*, 1933, pp. 76-77, June 1934.
 945. (and Henbest, Lloyd George). Comparative anatomy and evolutionary trends of Pennsylvania Fusulinidae (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 352-353, June 1934.
 946. Fusulines as aid in Permian and Pennsylvanian correlations (abstract): *Pan-Am. Geologist*, vol. 62, no. 2, pp. 157-158, September 1934.

Dunbar, Clarence P.

947. A list of some of the available publications dealing with the geology and mineral resources of Louisiana and related areas: Louisiana, Dept. Conservation, Bull. no. 22 (General Bull., Handbook, Minerals Division), pp. 235-269, 1933.

Duncan, C. See Bisat, 309.

Dunham, Kingsley C. See also Larsen, 1999.

948. Crystal cavities in lavas from the Hawaiian Islands: *Am. Mineralogist*, vol. 18, no. 9, pp. 369-385, September 1933.
 949. A note on the texture of the Crestmore contact rocks: *Am. Mineralogist*, vol. 18, no. 11, pp. 474-477, 2 figs., November 1933.

Dunn, Joseph Avery.

950. Andalusite in California and kyanite in North Carolina: *Econ. Geology*, vol. 28, no. 7, p. 692-695, November 1933.

Dunn, Paul Heaney. See also Ball, 154.

951. Scolecodonts from the Silurian Edgewood formation (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 196, February 28, 1933.
 952. Foraminiferal correlation of the Osgood formation (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 209, February 28, 1933.
 953. Microfaunal technique in the study of older Paleozoics: *Illinois State Acad. Sci., Trans.*, vol. 25, no. 4, pp. 140-141, June 1933.
 954. Parallel striations on etched limestone surfaces: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 154, pp. 442-446, 4 figs., October 1933.

Duque de Estrada, Esteban.

955. Observaciones sobre el informe emitido por la Sociedad cubana de ingenieros, referente al terremoto que el día 3 de febrero de 1932 destruyó los edificios de la ciudad de Santiago de Cuba: *Soc. cubana ingenieros, Rev.*, vol. 25, no. 3, pp. 261-267, May-June 1933.

Dusenbury, A. N.

956. Classification and phylogeny of the Orbitoididae: *Micropaleontology Bull.*, vol. 4, no. 1, pp. 12-19 (†), 1 pl., March 15, 1933.

Dusenbury, A. N., Jr. See Cushman, 819.

Dyer, William Spafford.

957. The siderite of Grand Rapids, Mattagami River (abstract): *Royal Soc. Canada, Trans.*, 3d ser., vol. 27, p. cxli, 1933.

Dyer, William Spafford—Continued.

958. (and Crozier, A. R.). Lignite and refractory clay deposits of the Onakawana lignite field: Ontario Dept. Mines, 42d Ann. Rept. (vol. 42, pt. 3), pp. 46-78, 10 figs. (incl. maps), 2 pls., 1933.
959. The Pashkokogan-Misehkw area: Canadian Min. Jour., vol. 54, no. 2, pp. 72-74, port., February 1933.
960. Matachewan gold area, Ontario: Min. Mag., vol. 49, no. 6, pp. 379-380, December 1933.
961. Geology of the Pashkokogan-Misehkw area: Ontario Dept. Mines, 42d Ann. Rept. (vol. 42, pt. 6), 1933, pp. 1-20, 4 figs., 1 pl. (geol. map), 1934.
962. (and Crozier, A. R.). Refractory clays of northern Ontario: Canadian Inst. Min. Metallurgy, Bull. no. 254, June 1933; Trans., 1933, vol. 36, pp. 238-252, 4 figs. (incl. maps), [1934].

Dykes, Leland H.

963. Occurrence of monazite in a granodiorite pegmatite in Riverside County, Calif. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 161, February 28, 1933.

Dyrenforth, Donald.

964. Mosquito gold mining district, Colorado: Mines Mag. (Colorado School of Mines), vol. 24, no. 2, pp. 20, 25, February 1934.

Eakin, Henry Miner.

965. An accidental large-scale model of diastrophic action (abstract): Washington Acad. Sci., Jour., vol. 24, no. 4, pp. 192-194, April 15, 1934.

Eardley, Armand John.

966. Stratigraphy of the southern Wasatch Mountains, Utah: Michigan Acad. Sci., Papers, vol. 18, pp. 307-344, 2 figs., (incl. map), 4 pls., 1933.
967. Strong relief before block faulting in the vicinity of the Wasatch Mountains, Utah: Jour. Geology, vol. 41, no. 3, pp. 243-267, 9 figs., (incl. sketch map), April-May 1933.
968. Structure and physiography of the southern Wasatch Mountains, Utah: Michigan Acad. Sci., Papers, vol. 19, pp. 377-400, 4 figs., 3 pls. (incl. geol. map), 1934; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 83-84, February 28, 1933.
969. Geomorphology of Marysville Canyon and vicinity, Utah (abstract): Geol. Soc. America, Proc., 1933, p. 77, June 1934.
970. Sediments of Great Salt Lake (abstract): Geol. Soc. America, Proc., 1933, pp. 355-356, June 1934.
971. (and Beutner, E. L.). Geomorphology of Marysville Canyon and vicinity: Utah Acad. Sci., Proc., pp. 149-159, 3 figs., 1 pl. (geol. map), July 1934.

Eardley-Wilmot, Vere Levinge.

972. Diatomaceous earth in Oregon: Econ. Geology, vol. 29, no. 1, pp. 95-96, January-February 1934.

Eastman, Charles R. See Zittel, 3819.

Easton, Harry Draper.

973. Converse "chemical formations" present something new in field developments: Oil Weekly, vol. 72, no. 4, pp. 14-16, 18, 20, 1 fig., January 8, 1934.

Eaton, Harry Nelson.

974. Physiography and structure of the Goshen Mountain range, Utah (abstract): Utah Acad. Sci., Proc., vol. 4, p. 3 [1927].

Eaton, Joseph Edmund.

975. Long Beach, Calif., earthquake of March 10, 1933: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 6, pp. 732-738, 1 fig., fault map, June 1933.
976. Clastic facies and faunas of Monterey formation, California: Am. Assoc. Petroleum Geologists, vol. 17, no. 8, pp. 1009-1015, 1 fig., August 1933.

Eby, James Brian.

977. Recent developments in Texas and Louisiana Gulf coast: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 5, pp. 558-561, May 1933; abstract, Pan-Am. Geologist, vol. 59, no. 3, p. 240, Apr. 1933.

Eckel, Edwin Butt.

978. A new lepidolite deposit in Colorado: Am. Ceramic Soc., Jour., vol. 16, no. 5, pp. 239-245, 4 figs., May 1933.
979. Stability relations of a Colorado pisanite (cuprian melanterite): Am. Mineralogist, vol. 18, no. 10, pp. 449-454, 1 fig., October 1933.

Eckel, Edwin Clarence.

980. Limestone deposits of the San Francisco region: California Jour. Mines and Geology, vol. 29, nos. 3, 4, pp. 348-361, 7 figs., 1 pl. (geol. map), July and October 1933.
981. (and Kelly, J. W.). Extent and limits of glacial migration in eastern America (abstract): Pan-Am. Geologist, vol. 60, no. 5, p. 378, December 1933.
982. Engineering geology and mineral resources of the Tennessee Valley Authority region: Tennessee Valley Authority, General Eng. and Geol. Div., Geol. Bull. no. 1, 23 pp., 3 pls. (incl. geol. map), June 1934.

Eddy, Gerald F.

983. A study of the insoluble residues of the lower Traverse, Bell, and upper Dundee formations of Michigan: Michigan Acad. Sci., Papers, vol. 18, pp. 345-361, 2 figs., 8 pls., 1933.

Edson, Fanny Carter. See also Rich, 2748.

984. Western Oklahoma, pre-Mississippian Paleozoic (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, April 18, 1932.

Edwards, Everett C.

985. Pliocene conglomerates of Los Angeles Basin and their paleogeographic significance: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 6, pp. 786-812, 7 figs. (incl. maps), June 1934.

Edwards, Frederick.

986. The story of Canadian mining: Canadian Min. Jour., vol. 55, no. 3, pp. 114-121, 4 figs., March 1934; no. 5, pp. 243-247, 3 figs., May 1934; no. 6, pp. 281-287, 3 figs., June 1934.

Edwards, Ira.

987. (and Raasch, Gilbert O.). Distribution of genera in the Upper Cambrian of the Mississippi Valley (abstract): Geol. Soc. America, Proc., 1933, pp. 337-338, June 1934.

Edwards, Merwin Guy.

988. Some Eocene localities in Salinas Valley district, California: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 1, p. 81, January 1933.

Edwards, S. C.

989. Sand concretions from California: *Rocks and Minerals*, vol. 9, no. 6, pp. 82-83, 2 figs., June 1934.

Egloff, Gustav.

990. *Earth oil*. xi, 158 pp., 40 figs., New York, The Century Co., 1933.

Ehlers, George Marion.

991. (and Kline, Virginia). Revision of Alexander Winchell's types of brachiopods from the Middle Devonian Traverse group of rocks of Michigan: *Michigan, Univ., Mus. Paleontology, Contr.*, vol. 4, no. 10, pp. 143-176, 2 figs., 2 pls., January 15, 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 347, June 1934.

Ehrenberg, H.

992. Ein mutmasslicher Fall von Parasitismus bei der devonischen Crinoidengattung *Edriocrinus*: *Biologia Generalis* (Wien u. Leipzig), Band 9, Heft 2, Lief. 3 (Versluys-Festschrift), pp. 85-96, 1 pl., 1933.

Ehrenberg, Kurt.

993. *Pelmatozoan root forms (fixation)*: *Am. Mus. Nat. History, Bull.*, vol. 59, art. 1, pp. 1-76, 42 figs., May 6, 1929.

Ehrenfeld, Frederick.

994. The riddle of the earth; efforts to read it: *Franklin Inst., Jour.*, vol. 216, no. 3, pp. 289-327, 15 figs., September 1933.

Eickelberg, E. W.

995. Recent work in terrestrial magnetism by the Coast and Geodetic Survey of interest to State geologists: *Assoc. Am. State Geologists, Jour.*, vol. 5, no. 3, p. 8 (†), July 1, 1934.

Ekblaw, George Elbert. See also Alden, 22; Collingwood, 704; Leighton, 2040.

996. Preliminary report on the sand and gravel resources of the Buda quadrangle: *Illinois State Geol. Survey, Inf. Circ. no. 3*, 8 pp. (†), 1 pl. (geol. map), October 1932.

997. Some problems of engineering geology in the vicinity of Chicago (abstract): *Illinois State Acad. Sci., Trans.*, vol. 24, no. 4, pp. 142-143, June 1933.

998. (and Workman, Lewis Edwin). Subsurface geology in the East St. Louis region (abstract): *Illinois State Acad. Sci., Trans.*, vol. 26, no. 3, p. 101, March 1934.

999. The question of the Shoal Creek and Carlinville limestones: *Illinois State Acad. Sci., Trans.*, vol. 25, no. 4, pp. 143-145, June 1933.

Elias, Maxim K. See also Moore, 2415.

1000. On a seed-bearing *Annularia* and on *Annularia* foliage: *Kansas, Univ., Sci. Bull.*, vol. 20, pt. 1, no. 5, pp. 115-159, 5 pls., May 15, 1931.

1001. Cephalopods of the Pierre formation of Wallace County, Kansas, and adjacent area: *Kansas, Univ., Sci. Bull.*, vol. 21, no. 9, pp. 289-363, 16 pls., March 15, 1933; *Kansas State Geol. Survey, Contr. Paleontology*, no. 3, March 15, 1933.

Elias, Maxim K.—Continued.

1002. The Ogallala formation of the High Plains, Kansas (abstract): Washington Acad. Sci., Jour., vol. 23, no. 8, p. 403, August 15, 1933.
1003. Zones of fossil herbs in the late Tertiary of High Plains (abstract): Geol. Soc. America, Proc., 1933, p. 332, June 1934.
1004. Cycles of sedimentation in the Big Blue series of Kansas (abstract): Geol. Soc. America, Proc., 1933, p. 365, June 1934.
1005. Late Paleozoic plants of Midcontinent as indicators of time and environments (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 157, September 1934.

Eller, Eugene Randolph.

1006. An articulated annelid jaw from the Devonian of New York: Am. Midland Naturalist, vol. 14, no. 2, p. 186, 1 fig., March 1933.
1007. Annelid jaws from the Upper Devonian of New York: Carnegie Mus., Annals, vol. 22, 1933-34, nos. 2-4, pp. 303-316, 2 figs., 2 pls., May 1934.
1008. Scolecodonts from the Chemung formation of New York (abstract): Geol. Soc. America, Proc., 1933, p. 345, June 1934.

Ellis, Brooks Fleming.

1009. *Gallowayina browni*, a new genus and species of orbitoid from Cuba, with notes on the American occurrence of *Omphalocyclus macropora*: Am. Mus. Novitates, no. 568, 8 pp., 9 figs., September 22, 1932.
1010. A sorting stage for Foraminifera: Science, new ser., vol. 78, no. 2029, pp. 461-462, 1 fig., November 17, 1933.

Ellis, Robert Walpole.

1011. "Magmatism": Science, new ser., vol. 78, no. 2014, p. 102, August 4, 1933.

Ellisor, Alva Christine. See also Cushman, 819.

1012. Jackson group of formations in Texas, with notes on Frio and Vicksburg: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 11, pp. 1293-1350, 8 figs., 6 pls., November 1933.
1013. (and Teagle, John). Correlation of Pecan Gap chalk in Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 11, pp. 1506-1536, 4 figs., November 1934.

Ells, Sydney Clark.

1014. Bituminous sands of Alberta: Canadian Geog. Jour., vol. 6, no. 4, pp. 202-210, 8 figs., April 1933.
1015. Some economic aspects of the bituminous sands of northern Alberta: Canada, Dept. Mines, Mines Branch, Inv. Min. Res. and Min. Industry, 1932, pp. 10-29, 4 figs., 1934. (No. 735.)

Ellsworth, Elmer W.

1016. Tracing buried-river channel deposits by geomagnetic methods: California Jour. Mines and Geology, vol. 29, nos. 1, 2, pp. 244-250, January and April 1933.
1017. Physiographic history of Afton Basin of Mojave Desert (abstract): Pan-Am. Geologist, vol. 59, no. 4, pp. 308-309, May 1933; Geol. Soc. America, Proc., 1933, p. 306, June 1934.
1018. Tin deposits of Alabama: U. S. Dept. Interior [U. S. Geol. Survey], Press Mem. 20674, 13 pp. (†), 3 pls. (incl. geol. map), October 24, 1934.

Ellsworth, Hardy Vincent.

1019. (and Gunning, H. C.). An occurrence of vanadium-bearing rock on Quadra Island, British Columbia: Canada, Geol. Survey, Summary Rept., 1932, pt. A 2, pp. 51-56, 1933. (No. 2333.)
1020. (and Osborne, Freleigh Fitz). Uraninite from Lac Pied des Montes, Saguenay district, Quebec: *Am. Mineralogist*, vol. 19, no. 9, pp. 421-425, 2 figs., September 1934.
1021. Nickeliferous and uraniferous anthraxolite from Port Arthur, Ontario: *Am. Mineralogist*, vol. 19, no. 9, pp. 426-428, September 1934.

Emerson, Alfred Edwards.

1022. A revision of the genera of fossil and recent Termopsinae (Isoptera): California, Univ., Pub. in Entomology, vol. 6, no. 6, pp. 165-196, 40 figs., 1933.

Emery, Wilson Barton. See Field, 1077.

Emmons, Richard Conrad.

1023. (and Williams, E. F.). A high-index refractometer: *Jour. Sedimentary Petrology*, vol. 4, no. 1, pp. 32-35, 1 fig., April 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 438, June 1934.
1024. Plagioclase determination by the modified universal stage: *Am. Mineralogist*, vol. 19, no. 6, pp. 237-259, 14 figs., June 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 439, June 1934.

Emmons, William Harvey. See also Singewald, 3101.

1025. On the mechanism of the deposition of certain metalliferous lode systems associated with granitic batholiths: Ore deposits of the Western States (Lindgren volume), pp. 327-349, 11 figs., *Am. Inst. Min. Met. Eng.*, 1933.
1026. Recent progress in studies of supergene enrichment: Ore deposits of the Western States (Lindgren volume), pp. 386-418, 3 figs., *Am. Inst. Min. Met. Eng.*, 1933.
1027. The basal regions of granitic batholiths: *Jour. Geology*, vol. 41, no. 1, pp. 1-11, 4 figs., January-February 1933.
1028. On the origin of certain systems of ore-bearing fractures: *Am. Inst. Min. Met. Eng., Tech. Pub.* no. 561, 26 pp., 26 figs., 1934; abstract, *Mining and Metallurgy*, vol. 15, no. 332, p. 358, August 1934.

Engel, J. A. See Whitcomb, 3650.

English, J. R.

1029. The summer and winter turbidity of the North River at Lexington, Va. (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, p. 56, 1934.

Erdmann, Charles Edgar. See Dobbin, 907.

Erwin, Homer D.

1030. Geology and mineral resources of northeastern Madera County, Calif.: *California Jour. Mines and Geology*, vol. 30, no. 1, pp. 7-78, 41 figs. (incl. maps), 1 pl. (geol. map), January 1934.

Etcheverry, Bernard Alfred.

1031. (and others). Report on Iron Canyon, Table Mountain, and Kennett dam sites, on Sacramento River: California, Dept. Pub. Works, Water Resources Div., Bull. no. 26, 1931, pp. 455-462, 1933.

Evans, Charles Sparling.

1032. Brisco-Dogtooth map area, British Columbia: Canada, Geol. Survey, Summary Rept., 1932, pt. A 2, pp. 106-176, 12 figs., 3 pls., map, 1933. (No. 2333.)

Evans, Oren Frank.

1033. Probable history of the Holloman gravel pit at Frederick, Okla. (abstract): Oklahoma Acad. Sci., Proc. 1930, vol. 10, pp. 77-79, 1930.
 1034. The glacial anticyclone as a factor in the extension of the Pleistocene ice sheets (abstract): Oklahoma Acad. Sci., Proc., vol. 13, p. 22, 1933.
 1035. A neglected factor in the formation of ice ramparts (abstract): Oklahoma Acad. Sci., Proc., 1933, vol. 14, pp. 68-69, 1934.

Ewing, Henry Ellsworth.

1036. A fossil arachnid from the lower Carboniferous shales (Pocono formation) of Virginia: Entomol. Soc. America, Annals, vol. 23, no. 4, pp. 641-643, 1 fig., December 1930.

Ewing, Maurice.

1037. (and Crary, E. P.) Experiments on emergence angle and propagation paths (abstract): Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 6, no. 1, 2, p. 20 (§), September 1934.

Fabianic, W. L.

1038. (and Stolte, N. H.). Mineralogy of typical North Carolina clays and shales: Am. Ceramic Soc., Jour., vol. 16, no. 1, pp. 6-11, January 1933.

Faessler, Carl.

1039. Geological exploration on the North Shore, Betsiamites (Bersimis) to Manigonagan: Quebec, Bur. Mines., Ann. Rept. for 1932, pp. 109-141, 2 figs., 4 pls. (incl. geol. map, no. 232), 1933.

Fairbairn, H. W.

1040. Chemical changes in metabasalt from southern Quebec: Jour. Geology, vol. 41, no. 5, pp. 553-558, July-August 1933.
 1041. Spillite and the average metabasalt: Am. Jour. Sci., 5th ser., vol. 27, no. 158, pp. 92-97, 2 figs., February 1934.

Fairchild, Herman Leroy.

1042. Silencing the "guns" of Seneca Lake: Science, new ser., vol. 79, no. 2050, pp. 340-341, 1 fig., April 13, 1934.
 1043. Cayuga Valley lake history: Geol. Soc. America, Bull., vol. 45, no. 2, pp. 233-280, 13 figs. (incl. maps), April 30, 1934.
 1044. Memorial of George Henry Perkins [1844-1933]: Geol. Soc. America, Proc., 1933, pp. 235-242, port., June 1934.
 1045. Seneca Valley physiographic and glacial history: Geol. Soc. America, Bull., vol. 45, no. 6, pp. 1073-1110, 9 figs. (incl. maps), 1 pl. (map), December 31, 1934; abstract, Proc., 1933, pp. 77-78, June 1934.

Fairchild, John G. See Wells, 3606.

Fansett, George R.

1046. Field tests for the common metals (6th ed.): Arizona Bur. Mines, Bull. no. 136 (Min. Tech. ser. no. 36; Arizona, Univ., Bull., vol. 5, no. 5), 56 pp., July 1, 1934.

Farmin, Rollin.

1047. Influence of Basin Range faulting in mines at Bingham, Utah: *Econ. Geology*, vol. 28, no. 6, pp. 601-606, 2 figs., September-October 1933.

1048. "Pebble dikes" and associated mineralization at Tintic, Utah: *Econ. Geology*, vol. 29, no. 4, pp. 356-370, 4 figs. (incl. sketch maps), June-July 1934.

Farr, Doris. See Gardner, 1211.

Farrell, Michael A.

1049. Living bacteria in ancient rocks and meteorites: *Am. Mus. Novitates*, no. 645, 3 pp., July 18, 1933.

Fash, Ralph H. See Berger, 259.

Faustino, Leopoldo A.

1050. Two new madreporarian corals from California: *Philippine Jour. Sci.*, vol. 44, no. 3, pp. 285-289, 1 pl., March 1931.

Fenneman, Nevin M. See also Field, 1077.

1051. Problem in the correlation of erosion surfaces (abstract, with discussion): *Geol. Soc. America, Proc.*, 1933, pp. 78-80, June 1934.

Fenner, Clarence Norman. See also Grout, 1337.

1052. Pneumatic processes in the formation of minerals and ores: Ore deposits of the Western States (Lindgren volume), pp. 58-106, *Am. Inst. Min. Met. Eng.*, 1933.

1053. Henry Stephens Washington [1867-1934]: *Science*, new ser., vol. 79, no. 2038, pp. 47-48, January 19, 1934.

1054. Some magmatic problems: *Washington Acad. Sci., Jour.*, vol. 24, no. 3, pp. 113-124, March 15, 1934.

1055. Hydrothermal metamorphism in geyser basins of Yellowstone Park, as shown by deep drilling: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 1, pp. 240-243, Nat. Research Council, June 1934.

Fenton, Carroll Lane. See also Fenton, M. A., 1062.

1056. The world of fossils (Appleton New World of Science series), 182 pp., 35 figs., New York, D. Appleton-Century Co., 1933.

1057. (and Fenton, Mildred Adams). Oboloid brachiopods in the Belt series of Montana (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 190, February 28, 1933.

1058. (and Fenton, Mildred Adams). Hail prints and mud cracks of Proterozoic age: *Science*, new ser., vol. 77, p. 491, May 19, 1933.

1059. (and Fenton, Mildred Adams). Algal reefs or bioherms in the Belt series of Montana: *Geol. Soc. America, Bull.*, vol. 44, no. 6, pp. 1135-1142, 2 figs., 1 pl., December 31, 1933; abstract, vol. 44, pt. 1, p. 212, February 28, 1933.

1060. (and Fenton, Mildred Adams). *Arthraria*-like markings made by annelids and snails: *Pan. Am. Geologist*, vol. 61, no. 4, pp. 264-266, 1 fig., 1 pl., May 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 369, June 1934.

1061. Viewpoints and objectives in paleoecology (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 358-359, June 1934.

Fenton, Mildred Adams. See also Fenton, C. L., 1057, 1058, 1059, 1060.

1062. (and Fenton, Carroll Lane). *Scolithus* as a fossil phoronoid: Pan-Am. Geologist, vol. 61, no. 5, pp. 341-348, 1 fig., 1 pl., June 1934; abstract, Geol. Soc. America, Proc., 1933, p. 336, June 1934.

1063. Nitrocellulose sections of fossils and rocks (abstract): Geol. Soc. America, Proc., 1933, pp. 368-369, June 1934.

Ferguson, Henry Gardiner.

1064. Geology of the Tybo district, Nevada: Nevada, Univ., Bull., vol. 27, no. 3, 61 pp., 8 figs., 3 pls. (incl. geol. map), August 1, 1933.

Fernquist, Charles O.

1065. (and Dake, H. C.). Opal from the Columbia Plateau basalt flows of Washington, Idaho, and Oregon: Rocks and Minerals, vol. 8, no. 1, pp. 30-32, March 1933.

1066. Gem stones of Washington described for first time: Oregon Mineralogist, vol. 2, no. 1, pp. 12, 26-27, January 1934.

1067. Gem minerals of Idaho: Oregon Mineralogist, vol. 2, no. 2, pp. 6, 14-16, February 1934.

1068. Minerals found in the basalts at Spokane, Wash.: Oregon Mineralogist, vol. 2, no. 4, pp. 5-6, April 1934.

1069. Coeur d'Alene minerals described by museum curator: Oregon Mineralogist, vol. 2, no. 11, pp. 3-4, 30-31, November 1934; no. 12, pp. 7-8, 28-29, December 1934; vol. 13, no. 1, pp. 26, 52-54, January 1935.

Fettke, Charles Reinhard.

1070. Subsurface Devonian and Silurian sections across northern Pennsylvania and southern New York: Geol. Soc. America, Bull., vol. 44, no. 3, pp. 601-660, 2 figs., June 30, 1933; abstract, vol. 44, pt. 1, p. 84, February 28, 1933.

1071. Physical characteristics of Bradford sand, Bradford field, Pennsylvania, and relation to production of oil: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 2, pp. 191-211, 9 figs. (incl. map), February 1934.

Fetzer, W. G.

1072. Transportation of gold by organic solutions: Econ. Geology, vol. 29, no. 6, pp. 599-604, September-October 1934.

Ffolliott, J. H. See Kendall, 1777.

Fidlar, Marion M.

1073. Some hills of circumalluviation in the lower Wabash Valley: Indiana Acad. Sci., Proc., vol. 42, pp. 135-140, 3 figs., 1933.

Fiedler, Albert George.

1074. (and Nye, Selden Spencer). Geology and ground-water resources of the Roswell artesian basin, New Mexico: U. S. Geol. Survey, Water-Supply Paper 639, 372 pp., 37 figs., 46 pls. (incl. maps), 1933.

1075. Deep-well salinity exploration: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 478-480, 2 figs., Nat. Research Council, June 1933.

1076. Artesian water in Somervell County, Tex.: U. S. Geol. Survey, Water-Supply Paper 660, 86 pp., 5 figs., 7 pls. (incl. geol. map), 1934.

Field, Richard Montgomery. See also Thom, 3356.

1077. (and others). Yellowstone-Beartooth-Big Horn region: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 24, Excursion C-2, 64 pp., 14 figs. (incl. sketch maps), 11 pls. (incl. geol. maps), 1932. Contains the following:

Thom, William Taylor, Jr. Introduction, pp. 1-2, 1 fig. (map); (and Chamberlin, Rollin Thomas, and Bucher, Walter Hermann), Regional structural relations, pp. 3-4, 2 pls. (incl. geol. map); (and Field, Richard Montgomery, Chamberlin, Rollin Thomas, and Bucher, Walter Hermann), East entrance of Yellowstone Park to Cody, pp. 28-32, 1 fig.; (and Chamberlin, Rollin Thomas, Bucher, Walter Hermann, Sinclair, William John, and Jepsen, Glenn Lowell), Cody to Red Lodge, pp. 32-38, 3 figs.; (and Fenneman, Nevin M., Chamberlin, Rollin Thomas, and Bucher, Walter Hermann), Red Lodge to Billings by way of Pryor Gap, pp. 47-52, 1 fig.

Bertram, John Greer. Stratigraphy, p. 2, 2 pls.

Bevan, Arthur Charles. (and Blackwelder, Eliot, Fenneman, Nevin M., Field, Richard Montgomery, and Thom, William Taylor, Jr.), Geologic history, pp. 5-6; (and Dorf, Erling), Red Lodge to Beartooth Butte and return, pp. 43-47, 3 pls.

Field, Richard Montgomery. Yellowstone National Park, pp. 7-13, 2 figs., 1 pl.; Mammoth Hot Springs to Grand Canyon of the Yellowstone, pp. 23-26; Grand Canyon of the Yellowstone to Roosevelt Lodge, pp. 26-28, 1 fig., 2 pls.; Roosevelt Lodge to east entrance of Yellowstone Park, p. 28.

Allen, Eugene Thomas. Hot Springs of Yellowstone Park, pp. 13-23.

Fenneman, Nevin M. (and Dorf, Erling, Sinclair, William John, and Jepsen, Glenn Lowell), Red Lodge area, pp. 38-43, 1 fig.

Chamberlin, Rollin Thomas. (and Bucher, Walter Hermann, and Thom, William Taylor, Jr.), Pryor Gap to Sheridan, pp. 53-54.

Sinclair, William John, 1877-1935. (and Jepsen, Glenn Lowell), Paleocene and Eocene formations and faunas of the northern part of the Big Horn Basin, pp. 56-50, 1 fig. (map).

Emery, Wilson Barton. History of petroleum development in the Big Horn Basin region, pp. 61-62.

Bowie, William. Gravity data, pp. 63-64, 1 fig.

1078. The principles of historical geology from the regional point of view, xii, 283 pp., 108 figs., 10 pls. (incl. maps), Princeton, Princeton Univ. Press, 1933.

1079. Map showing the seismic epicenters, sonic sounding, and gravity stations in the West Indies and contiguous areas (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 84-85, February 28, 1933.

1080. (and others). Report of committee on geophysical and geological study of oceanic basins: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 9-16, Nat. Research Council, June 1933.

1081. (and Hess, Harry Hammond). A bore hole in the Bahamas: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 234-235, Nat. Research Council, June 1933; abstract Geol. Soc. America, Bull., vol. 44, pt. 1, p. 85, February 28, 1933.

1082. An outline of the principles of geology (complete). 195 pp., 117 figs., New York, Barnes & Noble, Inc., [1934].

1083. Ecology of calcareous sediments in the West Indies (abstract): Geol. Soc. America, Proc., 1933, p. 359, June 1934.

Fieldner, Arno Carl.

1084. (and others). Carbonizing properties and constitution of no. 2 gas bed coal from Point Lick No. 4 mine, Kanawha County, W. Va.: U. S. Bur. Mines, Tech. Paper 548, 52 pp., 31 figs., 1933.

Figgins, Jesse Dade. See also Nininger, 2492, 2496.

1085. The Cape York meteorites, in Nininger, Harvey Harlow, Our stone-pelted planet, pp. 133-140, Boston, Houghton, Mifflin Co., 1933.

Figgins, Jesse Dade—Continued.

1086. A further contribution to the antiquity of man in America: Colorado Mus. Nat. History, Proc., vol. 12, no. 2, pp. 4-8, 2 pls., August 1, 1933.
1087. The generic status of *?Caenopus premitis*: Colorado Mus. Nat. History, Proc., vol. 13, no. 1, p. 1, June 23, 1934.
1088. Folsom and Yuma artifacts: Colorado Mus. Nat. History, Proc., vol. 13, no. 2, pp. 2-6, 2 pls., December 29, 1934.
1089. New material for the study of individual variation, from the lower Oligocene of Colorado: Colorado Mus. Nat. History, Proc., vol. 13, no. 3, pp. 7-14, 3 pls., December 29, 1934.

Finch, John Wellington. See also Am. Inst. Min. Met. Eng., 52.

1090. (and others). Ore deposits of the Western States (Lindgren volume), 797 pp., front., 80 figs. (incl. geol. and sketch maps), Am. Inst. Min. Met. Eng., 1933.
1091. Sedimentary copper deposits of the Western States: Ore deposits of the Western States (Lindgren volume), pp. 481-487, 1 fig. (map), Am. Inst. Min. Met. Eng., 1933.
1092. Biennial report on the activities of the Bureau: Idaho, Bur. Mines and Geology, Pamph. no. 38, 12 pp. (†), January 1933.

Finch, Ruy Herbert.

1093. Slump scarps: Jour. Geology, vol. 41, no. 6, pp. 647-649, 3 figs., August-September 1933.
1094. Block lava: Jour. Geology, vol. 41, no. 7, pp. 769-770, 2 figs., October-November 1933.
1095. Burnt Lava flow in northern California: Zeitschr. Vulkanologie, Band 15, Heft 3, pp. 180-183, 2 figs. (maps), December 1933.
1096. Shishaldin volcano: Pacific Sci. Cong., 5th, Canada, 1933, Proc., pp. 2369-2376, 7 figs. (incl. map), 1934.

Findlay, W. A. See also Popenoe, 2648.

1097. (and Bode, Francis D.). Structure of a part of San Joaquin hills (abstract): Pan-Am. Geologist, vol. 59, no. 4, pp. 318-319, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 316, June 1934.

Finlay, George I. See Berkeley, 263.

Fiock, L. R.

1098. Records of silt carried by the Rio Grande and its accumulation in Elephant Butte Reservoir: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 468-473, Nat. Research Council, June 1934.

Fischer, Richard P. See Westgate, 3617.

Fish, Charles John.

1099. Notes on marine biology and paleoecology (abstract): Geol. Soc. America, Proc., 1933, pp. 362-363, June 1934.

Fishel, V. C. See Meinzer, 2277.

Fisher, Clyde.

1100. Where a comet struck the earth: Nat. History, vol. 34, no. 8, pp. 754-762, 11 figs., December 1934.

Fisher, Daniel Jerome.

1101. Coal composition (abstract): Geol. Soc. America, Proc., 1933, pp. 444-445, June 1934.

Fisher, Daniel Jerome—Continued.

1102. Oliver Cummings Farrington, 1864–1933: *Illinois State Acad. Sci., Trans.*, vol. 27, no. 1, p. 43, September 1934.

Fisher, James.

1103. (and Ingersoll, Leonard Rose, and Vivian, Harry). Recent geothermal measurements in the Michigan copper district (with discussion): *Am. Inst. Min. Met. Eng., Trans.*, vol. 110, *Geophysical Prospecting*, pp. 528–545, 6 figs., 1934.

Fisher, Lloyd Wellington.

1104. Notes on mineral localities in Maine: *Am. Mineralogist*, vol. 18, no. 11, pp. 501–503, November 1933.
1105. (and Bernard, Ruth Barrell). Mount Apatite, Maine; a famous mineral locality: *Rocks and Minerals*, vol. 9, no. 2, pp. 13–16, February 1934.
1106. Graphite in pegmatite: *Am. Mineralogist*, vol. 19, no. 4, pp. 169–177, April 1934.
1107. Growth of stalactites: *Am. Mineralogist*, vol. 19, no. 9, pp. 429–431, September 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 441, June 1934.
1108. The New England intercollegiate geological excursion: *Science*, new ser., vol. 80, no. 2081, pp. 453–456, November 16, 1934.

Fisher, Willard James.

1109. On the finding of newly fallen meteorites: *Popular Astronomy*, vol. 41, no. 5, pp. 246–254, 2 figs., May 1933.
1110. Excavated meteorites: *Popular Astronomy*, vol. 42, no. 9, pp. 501–504, November 1934.

Fisk, H. N.

1111. Significance of three generations of plagioclase in an andesite-basalt flow (abstract): *Geol. Soc. America, Proc.*, 1933, p. 442, June 1934.

Flaherty, G. F.

1112. Spilitic rocks of southeastern New Brunswick: *Jour. Geology*, vol. 42, no. 8, pp. 785–808, 6 figs., November–December 1934.

Fleming, B. P.

1113. Erosion; a real menace in the Southwest: *Science*, new ser., vol. 78, no. 2027, pp. 391–395, November 3, 1935; abstract, *Pan-Am. Geologist*, vol. 60, no. 4, November 1933.

Fleming, Russell Clark.

1114. Source book; a directory of public agencies in the United States engaged in the publication of literature on mining and geology. 128 pp., *Am. Inst. Min. Met. Eng.*, New York, 1933.
1115. Geophysical prospecting—a new science: *Compressed Air Mag.*, vol. 39, no. 3, pp. 4365–4373, illus., March 1934.

Flint, Richard Foster.

1116. Late Pleistocene sequence in the Connecticut Valley: *Geol. Soc. America, Bull.*, vol. 44, no. 5, pp. 965–988, 3 figs. (incl. map), October 31, 1933; abstract, vol. 44, pt. 1, pp. 85–86, February 28, 1933.
1117. Late glacial features of the Quinnipiac-Farmington lowland in Connecticut: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 158, pp. 81–91, 2 figs., February 1934.
1118. Glaciation in the Okanogan region (abstract): *Geol. Soc. America, Proc.*, 1933, p. 81, June 1934.

Flores, Teodoro.

1119. Yacimientos minerales de la República mexicana, con algunos datos relativos a su producción: México, Inst. geol., Folleto de divulgación, no. 38, 87 pp., 1933.
1120. Cupriferous pyrite ore bodies of Campo Morado, Mexico (abstract): Pan-Am. Geologist, vol. 62, no. 2, pp. 149-150, September 1934.

Florin, Rudolf.

1121. Zur Kenntnis der paläozoischer Pflanzengattung *Lesleya* Lesquereux und *Megalopteris* Dawson: Arkiv für Botanik (K. svenska vetenskapsakad.), Band 25 A, Nr. 19, 23 pp., 7 figs., 3 pls., 1933.

Flowers, Seville.

122. On fossil mosses: Bryologist, vol. 36, nos. 1-4, pp. 26-27, January-July, 1933.

Foerste, August Frederick. See also Ulrich, 3443, 3448.

1123. Silurian cyrtoconic cephalopods from Ohio, Ontario, and other areas: Denison Univ. Bull., vol. 34, no. 17 (Sci. Lab., Jour., vol. 29, art. 2), pp. 107-193, 14 pls., August 1934.
1124. The earlier history of the Bulletin of the Scientific Laboratories of Denison University: Denison Univ. Bull., vol. 34, no. 21 (Sci. Lab., Jour., vol. 29, art. 4), pp. 205-227, December 1934.

Foley, Lyndon Lyman.

1125. Tectonics of the Oklahoma City structure (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, March 7, 1932.
1126. Projection of dip angle on profile section (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 6, p. 742, 1 fig., June 1933.
1127. Tectonics of Oklahoma City anticline: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 2, pp. 251-262, 10 figs. (incl. sketch map), February 1934.

Folger, Anthony. See also Kansas Geol. Soc., 1743, 1744; Rich, 2748.

1128. Generalized stratigraphic sections for Colorado, New Mexico, South Dakota, Wyoming, Kansas: Kansas Geol. Soc., Guidebook, 4th Ann. Field Conf., pp. 16-25 (†), September 1930.
1129. Oil and gas development in southeastern Colorado, southwestern Kansas, southeastern New Mexico, and the Texas Panhandle: Kansas Geol. Soc., Guidebook, 4th Ann. Field Conf., pp. 143-161 (†), September 1930.
1130. Development of the oil and gas resources of Kansas in 1928 and 1929: Kansas State Geol. Survey, Min. Resources Circ. 2, (Kansas, Univ., Bull., vol. 34, no. 4), pp. 1-105, 16 tables, February 15, 1933.

Fontaine, James. See Stuckey, 3281.

Foot, Helen. See Cooper, 753.

Forbes, Hyde.

1131. Geologic reports on dam sites in Sacramento River basin: California, Dept. Pub. Works, Water Resources Div., Bull. no. 26, 1931, pp. 479-514, 9 figs., 2 pls., 1933.
1132. Geology and underground water storage capacity of Sacramento Valley: California, Dept. Pub. Works, Water Resources Div., Bull. no. 26, 1931, pp. 515-532, 3 figs. 1933.

Forbes, William Trowbridge Merrifield.

1133. The oldest moth: *Am. Naturalist*, vol. 65, no. 700, pp. 479-480, 2 figs., September-October 1931.

Ford, Joe H. See Boyle, 368.

Foshag, William Frederick.

1134. Opals in the United States National Museum: *Rocks and Minerals*, vol. 8, no. 1, pp. 9-10, March 1933.
1135. Searlesite from Esmeralda County, Nev.: *Am. Mineralogist*, vol. 19, no. 6, pp. 268-274, 4 figs., June 1934.
1136. The ore deposits of Los Lamentos, Chihuahua, Mexico: *Econ. Geology*, vol. 29, no. 4, pp. 330-345, 4 figs., June-July 1934.

Foster, Margaret Dorothy. See Hall, 1370; Turner, 3426; Wells, 3599.

Fourmarier, Paul F.

1137. Observations sur le développement de la schistosité dans les séries plissées: *Acad. royale Belgique, Cl. sci., Bull., 5^e sér.*, vol. 18, pt. 12, 1932, pp. 1048-1053, 1 fig., 1933.
1138. Observations sur le développement de la schistosité dans les Rocheuses canadiennes: *Acad. royale Belgique, Cl. sci., Bull., 5^e sér.*, vol. 19, pt. 5, pp. 513-519, 1933.
1139. Observations sur la géologie et quelques gîtes minéraux de l'Amérique du Nord: *Rev. univ. mines, année 76, 8^e sér.*, t. 9, no. 3, pp. 61-67, February 1, 1933.
1140. Supplementary researches on existence of law of symmetry in architecture of earth's crust: *Pan-Am. Geologist*, vol. 60, no. 4, pp. 241-254, 4 figs., November 1933.

Fowke, Gerard, 1855-1933.

1141. The evolution of the Ohio River. 273 pp., 30 figs. (maps), Indianapolis, Hollenbeck Press, 1933.

Fowler, George M.

1142. (and Lyden, Joseph P.). The ore deposits of the Tri-State district (discussion): *Econ. Geology*, vol. 28, no. 1, pp. 75-81, January-February 1933.
1143. Oil and oil structures in Oklahoma-Kansas zinc-lead mining field: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 12, pp. 1436-1445, 1 fig., December 1933.
1144. (and Lyden, Joseph P., Gregory, F. E., and Agar, William Macdonough). Chertification in the Tri-State (Oklahoma-Kansas-Missouri) mining district: *Am. Inst. Min. Met. Eng., Tech. Pub. no. 532*, 50 pp., 32 figs., 1934.
1145. (and Lyden, Joseph P.). The Miami-Picher zinc-lead district: *Econ. Geology*, vol. 29, no. 4, pp. 390-396, June-July 1934.
1146. (and Lyden, Joseph P.). Sequence of structural deformation in the Oklahoma mining field: *Mining and Metallurgy*, vol. 15, no. 334, pp. 415-418, 5 figs., October 1934.

Foye, Wilbur Garland, 1886-1935.

1147. (and Lane, Alfred Church). Correlations by radioactive minerals in the metamorphic rocks of southern New England: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 164, pp. 127-138, 5 figs., August 1934.

Foyles, Edward John.

1148. Metamorphism near Rutland, Vt.: Vermont, State Geologist, 18th Rept., 1931-32, pp. 363-382, 3 figs. [1933].

Fraser, Donald McCoy.

1149. Interpretation of certain flow structures of plastic masses: Pennsylvania Acad. Sci., Proc., vol. 8, pp. 77-83, 4 figs., 1934; abstract, Geol. Soc. America, Proc., 1933, p. 82, June 1934.

Fraser, F. J. See also McLearn, 2198.

1150. Kaolin in the Whitemud beds of southern Saskatchewan: Roy. Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 13-16, 1 fig., May 1934.

Fraser, Horace John. See Smith, 3115.

Frebold, Hans.

1151. Marines Unterperm in Ostgrönland und die Frage der Grenzziehung zwischen dem pelagischen Oberkarbon und Unterperm: Meddelelser om Grönland, Band 84, Nr. 4; Copenhagen, Univ., Mus. minéralogie et géologie, Comm. paléont., no. 42, 35 pp., 4 figs. (incl. map), 1 pl., 1932.
1152. Die Lagerungsverhältnisse der Unterkreide im nördlichen Teil von Ostgrönland und die Frage der Prätertiären Fjordanlage: Meddelelser om Grönland, Band 84, Nr. 6, 40 pp., 17 figs., 1932.
1153. Das Perm von Wollaston Vorland (nördliches Ostgrönland): Meddelelser om Grönland, Band 94, Nr. 8, 76 pp., 15 figs., 2 pls., 1932.
1154. Weitere Beiträge zur Kenntnis des oberen Paläozoikums Ostgrönlands; 1, Die Fauna und stratigraphischen Stellung der oberpaläozoischen "Weissen Blöcke" (Kap Stosch Formation), Ostgrönlands: Meddelelser om Grönland, Band 84, Nr. 7; Copenhagen, Univ., Mus. minéralogie et géologie, Comm. Paléont., no. 48, 61 pp., 1 fig., 6 pls., 1933.
1155. Untersuchungen über die Verbreitung, Lagerungsverhältnisse und Fauna des oberen Jura von Ostgrönland: Meddelelser om Grönland, Band 94, Nr. 1, 81 pp., 14 figs. (incl. geol. maps), 3 pls., 1933.

Freed, Richard.

1156. Geologic structure of the Unionville gas field, Monroe County, Ind.: Indiana Acad. Sci., Proc., vol. 42, pp. 141-148, 4 figs., 1933.

Freeland, Philip B. See Galloway, 1206.

Freeman, Bruce C.

1157. Origin of the Frood ore deposit: Econ. Geology, vol. 28, no. 3, pp. 276-288, 10 figs., May 1933.
1158. The Long Lake diorite and associated rocks, Sudbury district, Ontario: Jour. Geology, vol. 42, no. 1, pp. 23-44, 2 figs., 1 pl., January-February 1934.
1159. An occurrence of quartz-olivine gabbro: Jour. Geology, vol. 42, no. 2, pp. 197-199, 1 fig., February-March 1934.

Freeman, Otis Willard.

1160. Geologic climates of the Inland Empire: Northwest Sci., vol. 7, no. 2, pp. 28-32, June 1933.
1161. Stagnation of the Okanogan lobe of the Cordilleran ice sheet and the resulting physiographic effects: Northwest Sci., vol. 7, no. 3, pp. 61-66, September 1933.

Freeman, Otis Willard—Continued.

1162. Glacial drainage channels in Ferry, Stevens, and Pend d'Oreille Counties, Wash.: Northwest Sci., vol. 8, no. 3, pp. 12-15, 1 fig. (map), September 1934.

Freuchen, Peter.

1163. (and Mathiassen, Therkel). Contributions to the physical geography of the region north of Hudson Bay: Geog. Rev., vol. 15, no. 4, pp. 548-561, 6 figs. (incl. geol. map), 1 pl. (map), October 1925.

Frick, Childs.

1164. New remains of trilophodont-tetrabelodont mastodons: Am. Mus. Nat. History, Bull., vol. 59, art. 9, pp. 505-652, 36 figs., 2 pls., March 2, 1933.

Fridley, Harry Marion.

1165. Drainage diversions of the Cheat River: West Virginia, Acad. Sci., Proc., vol. 6, (West Virginia Univ., Bull., ser. 33, no. 15), pp. 85-88, 2 figs., maps, March 1933.

Frizzel, Donald Leslie.

1166. Relation of coccolithophores to the origin of Cretaceous chalk (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 154, February 28, 1933.
1167. Terminology of types: Am. Midland Naturalist, vol. 14, no. 6, pp. 637-668, November 1933; abstract, Pan-Am. Geologist, vol. 59, no. 5, p. 371, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 386, June 1934.
1168. (and Blackwelder, Richard E.). Preliminary analysis of the type Lincoln fauna (Oligocene) of Washington: Micropaleontology Bull., vol. 4, no. 2, pp. 53-63, 1 fig. (map), 3 pls., July 1, 1933.
1169. Bivalves of genus *Protothaca* (abstract): Pan-Am. Geologist, vol. 62, no. 1, pp. 72-73, August 1934.

Frobes, Daniel C. See also Crawford, 770.

1170. (and Crawford, Arthur Lorenzo). Application of microscopy to core-drill assays in disseminated copper deposits (abstract): Utah Acad. Sci., Proc., vol. 10, pp. 63-64, July 1933.

Frohberg, M. H.

1171. Beiträge zur Kenntnis der turmalinführenden Goldquarzgänge des Michipicoten-Distriktes, Ontario: Min. pet. Mitt., n. F., Band 44, Heft 5, pp. 349-409, 6 figs., 4 pls., 1933.
1172. Die Goldlagerstätten der Provinz Ontario: Freiburger geol. Gesell., Ber. 14, pp. 7-11, April 1933.

Fronde, Clifford.

1173. Mineralogy and petrography: Am. Year Book, 1933, pp. 749-752, 1934.
1174. Selective incrustation of crystal forms: Am. Mineralogist, vol. 19, no. 7, pp. 316-329, 4 figs., July 1934.
1175. Origin of the segmental coloration of amethyst and smoky quartz: Am. Mus. Novitates, no. 758, 15 pp., 3 figs., December 20, 1934.
1176. Mineral incrustations upon the edges and corners of crystals: Am. Mus. Novitates, no. 759, 11 pp., 5 figs., December 20, 1934.

Fryxell, Fritlof Melvin.

1177. Glacial features of Jackson Hole, Wyo.: Augustana Library Pubs., no. 13, 129 pp., 33 figs., 2 pls. (inc. geol. map), 1930.

Fryxell, Fritiof Melvin—Continued.

1178. The formation of glacial tables, Grand Teton National Park, Wyoming: Jour. Geology, vol. 41, no. 6, pp. 642-646, 3 figs., August-September 1933.
1179. Earthquake shocks in Jackson Hole, Wyoming: Seismol. Soc. America, Bull., vol. 23, no. 4, pp. 167-168, October 1933.
1180. The migration of superglacial boulders: Jour. Geology, vol. 41, no. 7, pp. 737-747, 10 figs., October-November 1933.
1181. Glaciers of the Grand Teton National Park of Wyoming (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 6, pp. 32-33, June 1934.

Fuge, Dingley P.

1182. A note on diatoms in general, and the fossil diatoms of Barbados in particular: Barbados Mus. and Hist. Soc., Jour., vol. 1, no. 2, pp. 85-89, 1 pl., February 1934.

Fudge, Harold L. See Herold, 1475.

Fuller, Glen Loren.

1183. Charting the effects of erosion in the old plantation belt of the southern Piedmont: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 495-500, Nat. Research Council, June 1934.

Fuller, Harry C.

1184. Mounting polished surfaces in bakelite (discussion): Econ. Geology, vol. 28, no. 4, pp. 393-395, 1 fig., June-July 1933.

Fuller, M. W.

1185. Study of the interval between coal no. 6 and the Shoal Creek limestone (abstract): Illinois State Acad. Sci., Trans., vol. 26, no. 3, p. 102, March 1934.

Fuller, Richard Eugene.

1186. Complex diabase intrusions causing local contact fusion (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 86, February 28, 1933.
1187. Endomorphic alteration of basaltic flows (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 162, February 28, 1933.
1188. Segregations from the fractional crystallization of basalt (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 163, February 28, 1933.
1189. (and Hoffman, Malvin Gerald). Structural features in the Columbia River lavas of central Washington: Jour. Geology, vol. 42, no. 3, pp. 311-328, 5 figs., April-May 1934.
1190. Contamination of a diabasic intrusion (abstract): Geol. Soc. America, Proc., 1933, p. 82, June 1934.
1191. Collapsed pumice (abstract): Pan-Am. Geologist, vol. 61, no. 5, pp. 371-372, June 1934.

Fulton, John Allen.

1192. (and Smith, Alfred Merritt). Nonmetallic minerals in Nevada: Nevada, Univ., Bull., vol. 26, no. 7, 8 pp. 12 figs. (Reprinted from Pit and Quarry, vol. 24, no. 11, August 24, 1932); additional sections [Nevada State Bur. Mines], 9 pp. (†), [n. d., 1932?]

Furcron, Aurelius Sydney.

1193. Igneous rocks of the Shenandoah National Park area: Jour. Geology, vol. 42, no. 4, pp. 400-410, 2 figs. May-June 1934.

Furlong, Eustace Leopold.

1194. A new otter from later Cenozoic beds, southwestern Idaho (abstract):
Geol. Soc. America, Bull., vol. 44, pt. 1, p. 219, February 28, 1933.

Furnival, G. M.

1195. Silver mineralization at Great Bear Lake: Canadian Min. Jour., vol. 55,
no. 1, pp. 5-8, 2 figs., January 1934.

Furse, George Douglas.

1196. Geology of the Shabumeni-Birch Lakes area: Ontario Dept. Mines,
42d Ann. Rept. (vol. 42, pt. 6), 1933, pp. 21-51, 12 figs. (incl. maps),
4 pls. (incl. geol. map), 1934.

Gabriel, Gavrilovich.

1197. Concept of peneplanation, and existing land forms: Pan-Am. Geologist,
vol. 60, no. 1, pp. 34-36, August 1933.

Gale, Hoyt Rodney.

1198. Note on Cambrian fossils near Libby, northwestern Montana: Jour.
Geology, vol. 42, no. 2, pp. 174-179, February-March 1934.

Gale, Hoyt Stoddard.

1199. (and others). Southern California: Internat. Geol. Cong., XVI, United
States, 1933, Guidebook 15, Excursion C-1, 68 pp., 6 figs., 16 pls.
(incl. geol. maps), 1932. Contains the following:

Gale, Hoyt Stoddard. Geology of southern California, pp. 1-10, 2 pls. (incl. relief
map).

Noble, Levi F. Excursion to the San Andreas fault and Cajon Pass, pp. 10-21, 3 pls.
(incl. geol. map).

Stock, Chester. Asphalt deposits and Quaternary life of Rancho La Brea, pp. 21-23.

Hoots, Harold William. General geology of the Los Angeles Basin, pp. 23-26, 2 figs.,
1 pl.; Oil development in the Los Angeles Basin, pp. 26-30, 4 pls. (incl.
geol. map); General geology of the eastern part of the Santa Monica
Mountains, pp. 40-43; Excursion in Los Angeles Basin and Santa Monica
Mountains, pp. 43-48, 1 pl.

Reed, Ralph Daniel. Section from the Repetto Hills to Long Beach oil field, pp.
30-34, 1 fig.

Woodring, Wendell Phillips. San Pedro Hills, pp. 34-40, 3 figs.

Kew, William Stephen Webster. Los Angeles to Santa Barbara, pp. 48-68, 5 pls.
(incl. geol. map).

1200. Geology of Huntington Beach oil field, California: Am. Assoc. Petro-
leum Geologists, Bull., vol. 18, no. 3, pp. 327-342, 4 figs. (incl. geol.
maps), March 1934.

Gallagher, E. Wayne. See also Cushman, 819; Tolman, 3396.

1201. Factor in mechanical analysis of fine-grained sediments (abstract):
Pan-Am. Geologist, vol. 59, no. 4, p. 316, May 1933; abstract,
Geol. Soc. America, Proc., 1933, p. 314, June 1934.

1202. The sulphur cycle in sediments: Jour. Sedimentary Petrology, vol. 3,
no. 2, pp. 51-63, 2 figs., August 1933; abstract, Pan-Am. Geologist,
vol. 59, no. 4, p. 307, August 1933; abstract, Geol. Soc. America,
Proc., 1933, p. 305, June 1934.

1203. Cumulative curves and histograms: Am. Jour. Sci., 5th ser., vol. 26,
no. 155, pp. 475-478, 1 fig., November 1933.

1204. Factors in sedimentation analysis: Am. Jour. Sci., 5th ser., vol. 26,
no. 156, pp. 564-568, 1 fig., December 1933.

Galloway, Jesse James. See also Ashley, 92.

1205. A manual of Foraminifera (James Furman Kemp memorial series, Pub. no. 1). 483 pp., portrait of Alcide D'Orbigny, 42 pls., Bloomington, Ind., Principia Press, 1933.

Galloway, John D. See Barbat, 162; Etcheverry, 1031; Gester, 1227.

Galloway, John Davidson.

1206. (and others). Lode-gold developments in British Columbia during 1932: British Columbia, Dept. Mines, Bull. no. 3, 37 lvs. (f), 1932.
1207. Annual report of the minister of mines of the province of British Columbia for the year ended 31st December, 1932. 301 pp., figs., pls., Victoria, B. C., 1933.

Gardner, Julia Anna.

1208. Memorial of Truman Heminway Aldrich [1848-1932]: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 301-307, port., April 30, 1933.
1209. Kincaid formation, name proposed for lower Midway of Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 6, pp. 744-747, 1 fig. (sketch map), June 1933.
1210. (and Bowles, Edgar). Early Tertiary species of gastropods from the Isthmus of Tehuantepec: Washington Acad. Sci., Jour., vol. 24, no. 6, pp. 241-248, 13 figs. (incl. map), June 15, 1934.

Gardner, Willard.

1211. (and Collier, T. R., and Farr, Doris). Fundamental principles governing the control of ground water (abstract): Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 563-567, 2 figs., Nat. Research Council, June 1934.

Garrett, Julius B., Jr. See Cushman, 819; Howe, 1582.

Gazin, Charles Lewis. See also Gidley, 1241; Reeside, 2725.

1212. A new shrew from the upper Pliocene of Idaho: Jour. Mammalogy, vol. 14, no. 2, pp. 142-144, 1 fig., May 1933.
1213. The status of the extinct American "eland": Jour. Mammalogy, vol. 4, no. 2, pp. 162-164, May 1933.
1214. New felids from the upper Pliocene of Idaho: Jour. Mammalogy, vol. 14, no. 3, pp. 251-256, 3 figs., August 1933.
1215. William Jacob Holland [1848-1932]: Jour. Mammalogy, vol. 14, no. 3, p. 290, August 1933.
1216. Fossil hares from the late Pliocene of southern Idaho: U. S. Nat. Mus., Proc., vol. 83, no. 2976, pp. 111-121, 5 figs., 1934.
1217. On the priority of specific names for the upper Bridger *Notharctus*: Jour. Mammalogy, vol. 15, no. 1, p. 71, February 1934.
1218. Upper Pliocene mustelids from the Snake River Basin of Idaho: Jour. Mammalogy, vol. 15, no. 2, pp. 137-149, 4 figs., May 1934.

Gee, Haldane.

1219. Lime deposition and the bacteria; 1, Estimate of bacterial activity at the Florida Keys: Carnegie Inst. Washington, Pub. no. 435, Tortugas Lab., Papers, vol. 28, pp. 67-82, February 1934.

Geib, Horace V.

1220. (and Goddard, Ira T.). Reconnaissance erosion survey of the Brazos River watershed, Texas: U. S. Dept. Agr., Misc. Pub. no. 186, 47 pp., 29 figs., 2 pls. (maps), February 1934.

Geis, H. L.

- 1221. *Microcheilinella*, a new name for the ostracode genus *Microcheilus*: Jour. Paleontology, vol. 7, no. 1, p. 112, March 1933.
- 1222. Recent and fossil Pedicellariae (abstract): Geol. Soc. America, Proc., 1933, p. 354, June 1934.

Geithmann, Harriet.

- 1223. A forest of the past: Nat. History, vol. 34, no. 7, pp. 653-661, 17 figs., November 1934.

George, Russell D.

- 1224. Kerogen of Colorado oil shales (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 1, pp. 57-58, April 1929.

Georgesén, N. C. See also Taylor, 3321.

- 1225. The stratigraphic relations of the Greenhorn and Niobrara formations of western Iowa and adjacent areas (abstract): Iowa Acad. Sci., Proc., 1931, vol. 38, p. 204 (n. d.).

Gerber, Winifred D.

- 1226. Water supplies in Lake County, Ill. (abstract): Illinois State Acad. Sci., Trans., vol. 25, no. 4, pp. 146-147, June 1933.

Gester, George Clark.

- 1227. (and Galloway, John). Geology of Kettleman Hills oil field, California: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 10, pp. 1161-1193, 6 figs., October 1933.

Getzendorfer, A. E.

- 1228. McFaddin-O'Conner, Greta, Fox, Refugio, White Point, and Saxet fields, Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 4, pp. 519-530, 4 figs. (incl. map), April 1934.

Getzendorfer, F. M.

- 1229. Uvalde County: [Texas, Univ., Bur. Econ. Geology], Min. Res. Texas, pp. 95-111, 2 figs., December 1931.
- 1230. Zavala County: [Texas, Univ., Bur. Econ. Geology], Min. Res. Texas, pp. 112-126, 2 figs., December 1931.
- 1231. Maverick County: [Texas, Univ., Bur. Econ. Geology], Min. Res. Texas, pp. 127-140, 2 figs., December 1931.

Gianella, Vincent Paul. See also Jenkins, 1654.

- 1232. (and Callaghan, Eugene). The Cedar Mountain, Nevada, earthquake of December 20, 1932; Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 257-260, 3 figs., Nat. Research Council, June 1933; Seismol. Soc. America, Eastern sec., Earthquake Notes, vol. 5, nos. 1, 2, June 1933; abstract, Washington Acad. Sci., Jour., vol. 23, no. 12, pp. 573-574, December 15, 1933.
- 1233. Earthquake or landslide?: Seismol. Soc. America, Bull., vol. 23, no. 3, pp. 91-94, 1 pl., July 1933.
- 1234. The Nevada earthquake of December 20, 1932: Mining and Metallurgy, vol. 14, no. 319, pp. 300-301, 3 figs., July 1933.
- 1235. (and Callaghan, Eugene). The earthquake of December 20, 1932, at Cedar Mountain, Nevada, and its bearing on the genesis of Basin Range structure: Jour. Geology, vol. 42, no. 1, pp. 1-22, 10 figs., January-February 1934.

Gianella, Vincent Paul—Continued.

- 1236. New features of the geology of the Comstock lode: Mining and Metallurgy, vol. 15, no. 331, pp. 298-300, 2 figs., July 1934.
- 1237. (and Callaghan, Eugene). The Cedar Mountain, Nevada, earthquake of December 20, 1932: Seismol. Soc. America, Bull., vol. 24, no. 4, pp. 345-384, 1 fig. (map), 9 pls., October 1934.

Gibson, Ralph Edward.

- 1238. General considerations concerning the viscosity of liquids (abstract): Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 1, pp. 248-249, Nat. Research Council, June 1934.

Gibson, Russell.

- 1239. Gold-quartz veins south of Libby, Mont.: U. S. Geol. Survey, Circ. 7, 25 pp. (†), 3 pls. (maps), 1934.
- 1240. (and Campbell, Ian). Granodiorite and related rocks of Libby quadrangle, Mont. (abstract): Pan-Am. Geologists, vol. 61, no. 5, p. 372, June 1934.

Gidley, James William, 1866-1931.

- 1241. (and Gazin, Charles Lewis). New Mammalia in the Pleistocene fauna from Cumberland Cave: Jour. Mammalogy, vol. 14, no. 4, pp. 343-357, 9 figs., November 1933.

Gierhard, Guy B. See Kane, 1740.

Gildersleeve, Benjamin.

- 1242. Vertebrates of the Virginia Eocene (abstract): Virginia Acad. Sci., Proc., 1932-33, pp. 53-54, [1933].
- 1243. Pharyngeal plates of *Phylloodus* from the Virginia Eocene: Washington Acad. Sci., Jour., vol. 23, no. 8, pp. 380-389, 19 figs., August 15, 1933.

Giles, Albert William.

- 1244. Laboratory exercises in general geology. 86 pp. (†), 5 figs., Ann Arbor, Mich., Edwards Bros., Inc., 1933.
- 1245. Boone chert (abstract): Tulsa Geol. Soc., Digest, pp. 45-54, 1933.

Gill, James Edward.

- 1246. (and Schindler, N. R.). Geology of the Waite-Ackerman-Montgomery property, Duprat and Dufresnoy Townships, Quebec: Canadian Min. and Met. Bull., no. 246, pp. 398-416, 4 figs., October 1932; Canadian Inst. Min. and Metallurgy, Trans., 1932, vol. 35, pp. 398-416, 4 figs., 1933.

Gilligan, Albert.

- 1247. A contribution to the geological history of the North Atlantic region: Yorkshire Geol. Soc., Proc., new ser., vol. 21, pt. 4, pp. 301-321, January 1931; Smithsonian Ann. Rept. for 1932, pp. 207-222, 1933.

Gilluly, James. See also Connolly, 721.

- 1248. (and Reed, John Calvin, and Park, Charles Frederick, Jr.). Some mining districts of eastern Oregon: U. S. Geol. Survey, Bull. 846, 140 pp., 21 figs., 8 pls. (incl. maps), 1933.
- 1249. Replacement origin of the albite granite near Sparta, Oregon: U. S. Geol. Survey, Prof. Paper 175, pp. 65-81, 2 figs., 5 pls., 1933.
- 1250. Internal evidence of the origin of certain schists (abstract): Washington Acad. Sci., Jour., vol. 23, no. 12, p. 569, December 15, 1933.

Gilluly, James—Continued.

1251. Mineral orientation in some rocks of the Shuswap terrane as a clue to their metamorphism: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 165, pp. 182-201, 6 figs., September 1934.

Gilmore, Charles Whitney.

1252. (and Cochran, Doris Mable). Cold-blooded vertebrates, Part 2, Amphibians; Part 3, Reptiles: *Smithsonian Sci. Series*, Vol. 8, pp. 157-358, 38 figs., 50 pls., 1930.
1253. Hunting fossil animals in Nebraska, Wyoming, and South Dakota: *Smithsonian Inst., Explorations and Field Work in 1932* (Pub 3213), pp. 5-8, 3 figs., 1933.
1254. A new species of extinct turtle from the upper Pliocene of Idaho: *U. S. Nat. Mus., Proc.*, vol. 82, art. 9, 7 pp., 3 pls., March 1, 1933.
1255. "Concerning dragons": *Sci. Monthly*, pp. 267-269, March 1933.

Ginter, Roy L.

1256. Origin of petroleum; review of J. E. Hackford's hypothesis (abstract): *Tulsa Geol. Soc., Summaries and Abstracts*, 1932, *Tulsa Daily World*, May 16, 1932.
1257. Sulphate reduction in deep subsurface waters: *Problems of petroleum geology* (Sidney Powers memorial volume), pp. 907-925, 1 fig., *Am. Assoc. Petroleum Geologists*, 1934.

Girty, George Herbert.

1258. New Carboniferous invertebrates—4: *Washington Acad. Sci., Jour.*, vol. 24, no. 6, pp. 249-266, 29 figs., June 15, 1934.
1259. *Pleurotomaria pseudostrigillata*, nom. nov., and *Chonetes acanthophorus*, nom. nov.: *Washington Acad. Sci., Jour.*, vol. 24, no. 12, p. 541, December 1934.

Glass, Jewell Jeannette. See also Henderson, 1459.

1260. Rare chemical constituents of Amelia (Virginia) pegmatite dikes, and their mineral sources: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 1, pp. 234-237, *Nat. Research Council*, June 1934.
1261. Standardization of index liquids: *Am. Mineralogist*, vol. 19, no. 10, pp. 459-465, 1 fig., October 1934.

Glenk, Robert.

1262. Life and climate of primeval Louisiana: *Louisiana, Dept. Conservation, Bull.*, no. 22 (*General Bull., Handbook, Minerals Div.*), pp. 7-16, 1933.

Glenn, Leonidas Chalmers.

1263. The geography and geology of Reelfoot Lake: *Tennessee Acad. Sci., Jour.*, vol. 8, no. 1, pp. 3-12, 3 figs. (incl. map), January 1933.

Glock, Waldo Sumner.

1264. Tree rings as climatic indicators (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 356-357, June 1934.

Goddard, E. N.

1265. The relation of Tertiary intrusives to ore deposits of Jamestown, Colo. (abstract): *Washington Acad. Sci., Jour.*, vol. 24, no. 11, pp. 488-489, November 15, 1934.

Goddard, Ira T. See Geib, 1220.

Goldich, Samuel S. See also Muilenberg, 2437.

1266. Authigenic feldspar in sandstones of southeastern Minnesota: *Jour. Sedimentary Petrology*, vol. 4, no. 2, pp. 89-95, 1 fig., 1 pl., August 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 82, June 1934.

Goldman, Marcus Isaac.

1267. Origin of the anhydrite cap rock of American salt domes: *U. S. Geol. Survey, Prof. Paper* 175, pp. 83-114, 19 pls., 1933.

Goldring, Winifred. See also Newland, 2476.

1268. Guide to the geology of John Boyd Thacher Park (Indian Ladder region) and vicinity: *New York State Mus., Handbook* 14, 112 pp., 29 figs., 3 pls., 1933.

1269. A new species of crinoid from the Devonian (Oriskany) of Maine: *Portland Soc. Nat. History, Proc.*, vol. 4, pp. 153-155, 2 pls., 1933.

1270. Some Hamilton crinoids of New York and Canada; *Buffalo Soc. Nat. Sci., Bull.*, vol. 15, no. 3, pp. 182-200, 2 pls., 1934.

Goldston, W. L., Jr.

1271. (and Stevens, George D.) Esperson dome, Liberty County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 12, pp. 1632-1654, 14 figs. (incl. maps), December 1934.

Goldthwait, Richard Parker.

1272. Damariscotta shell heaps and coastal stability (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 451-452, June 1934.

Gonyer, F. A. See Hurlburt, 1623; Moehlman, 2370.

Goodspeed, George Edward. See also Wilson, 3726.

1273. Certain pegmatite facies of the Wallowa Mountains batholith in northeastern Oregon (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 160, February 28, 1933.

1274. Microstructures of the gold quartz veins at Cornucopia, Oreg. (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 167, February 28, 1933.

1275. Recrystallization replacement of small dikes and sills (abstract): *Pan-Am. Geologist*, vol. 61, no. 5, p. 371, June 1934.

Goodwin, William Lawton.

1276. Geology and minerals of Ontario; prepared for the instruction and guidance of those prospecting in Ontario. Gardenvale, Quebec, Industrial & Educational Pub. Co., 505 pp., index map in pocket, 1929.

1277. Geology and minerals of Quebec; prepared for the instruction and guidance of those prospecting in Quebec. Gardenvale, Quebec, Industrial & Educational Pub. Co., 346 pp., 1 fig., mineral map in pocket, 1929.

1278. Geology and minerals of Manitoba; prepared for the instruction and guidance of those prospecting in Manitoba. Gardenvale, Quebec, Industrial & Educational Pub. Co., 260 pp., 4 figs. (maps), 1930.

Goodwin, W. M.

1279. The Ditton gold placers of southeastern Quebec: *Canadian Min. Jour.*, vol. 54, no. 11, pp. 417-420, 5 figs., November 1933.

Goranson, Roy Waldemar.

1280. A note on the elastic properties of rocks: *Washington Acad. Sci., Jour.*, vol. 24, no. 10, pp. 419-428, 1 fig., October 15, 1934.

Gordon, Samuel George.

1281. Meteorites in the collection of the Academy of Natural Sciences of Philadelphia: Acad. Nat. Sci. Philadelphia, Proc., vol. 85, 1933, pp. 223-231, 1934.

Gordon, William T.

1282. Plant life and philosophy of geology: Pan-Am. Geologist, vol. 62, no. 3, pp. 161-186, October 1934; no. 5, pp. 329-346, December 1934.

Goshorn, Arthur.

1283. Limestone boulders: Iowa Acad. Sci., Proc. for 1932, vol. 39, pp. 193-194, [1932]

1284. The Kansas City formation in the Devil's Backbone region, Madison County (abstract): Iowa Acad. Sci., Proc., 1933, p. 134 [1933?]

1285. Devil's Backbone region in Madison County (abstract): Pan-Am. Geologist, vol. 60, no. 1, p. 79, August 1933.

Gothan, Walter Ulrich Eduard Friedrich. See Jongmans, 1736.

Goudge, Monson Fraser.

1286. Canadian limestones for building purposes: Canada, Dept. Mines, Mines Branch, no. 733, 196 pp., 11 figs. (incl. map), 40 pls., 6 tables, 1933.

1287. Limestones of Canada, their occurrence and characteristics, part 2, Maritime provinces: Canada, Dept. Mines, Mines Branch, no. 742, 186 pp., 12 figs., 31 pls. (incl. maps), 8 tables, 1934.

Goudkoff, Paul P.

1288. Subsurface stratigraphy of Kettleman Hills oil field, California: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 4, pp. 433-475, 8 figs. (incl. map), April 1934.

Gould, Charles Newton. See Ashley, 92.

Gould, Don B.

1289. Stratigraphy and structure of the Salt Creek area, South Park, Colorado (abstract): Geol. Soc. America, Proc., 1933, p. 339, June 1934.

Graham, John Roberts, Jr.

1290. The Tertiary igneous intrusions of Green Lakes and Isabelle Lake valleys, Boulder County, Colo. (abstract): Colorado, Univ., Studies, vol. 22, no. 1, p. 26, November 1934.

Graham, Richard Percival Devereux.

1291. The development of mineralogical science: Royal Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 33-42, May 1934.

Graham, Roy.

1292. Preparation of paleobotanical sections by the peel method: Stain Technology, vol. 8, no. 2, pp. 65-68, April 1933.

1293. Pennsylvanian flora of Illinois as revealed in coal balls: Bot. Gazette, vol. 95, no. 3, pp. 453-476, 2 pls., March 1934.

Graham, W. L.

1294. (and Patterson, Joseph M.). Permian of Logan and Lincoln Counties, Okla. (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 5, pp. 562-563, May 1933.

Graham, William Armstrong Patterson, 1899-1934.

1295. Petrology of the Cambrian-Ordovician contact in Minnesota: Jour. Geology, vol. 41, no. 5, pp. 468-486, 2 figs., July-August 1933.

Granger, Walter.

1296. William Diller Matthew (1871-1930): Jour. Mammalogy, vol. 12, no. 3, pp. 189-194, 1 pl. (port.), August 1931.

Grant, Ulysses Simpson, IV. See also Soper, 3151, 3152.

1297. Notes on *Searlesia* (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 220, February 28, 1933.

1298. Methods of presenting synonymy and references in paleontologic literature (abstract): Pan-Am. Geologist, vol. 59, no. 5, pp. 371-372, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 387, June 1934.

1299. (and Quayle, Ernest H.). A new middle Miocene *Neptunea* from California: Nautilus, vol. 47, no. 3, pp. 91-93, 2 figs., January 1934.

1300. (and Strong, A. M.). Fossil mollusks from the vertebrate-bearing asphalt deposits at Carpinteria, California: Southern California Acad. Sci., Bull., vol. 33, no. 1, pp. 7-11, January-April 1934; abstract, Pan-Am. Geologist, vol. 59, no. 5, p. 375, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 390, June 1934.

1301. (and Strong, A. M.). Pliocene and Pleistocene Mollusca of Santa Barbara (abstract): Pan-Am. Geologist, vol. 62, no. 1, pp. 71-72, August 1934.

Graton, Louis Caryl.

1302. Life and scientific work of Waldemar Lindgren: Ore deposits of the Western States (Lindgren volume), pp. xiii-xxxii, port., Am. Inst. Min. Met. Eng., 1933.

1303. The hydrothermal depth zones: Ore deposits of the Western States (Lindgren volume), pp. 181-197, Am. Inst. Min. Met. Eng., 1933.

1304. (and McKinstry, Hugh Exton, and others). Outstanding features of Hollinger geology: Canadian Inst. Min. and Metallurgy, Trans., 1933 (also appeared in Bull. no. 250, January 1933), vol. 36, pp. 1-20; discussion, pp. 606-618, by A. G. Burrows, A. R. Whitman, E. Y. Dougherty, R. E. Hore, L. C. Graton [1934]; abstract, Mining and Metallurgy, vol. 14, no. 315, p. 126, March 1933; abstract, Mining Mag., vol. 48, no. 2, pp. 116-119, February 1933.

1305. The depth zones in ore deposition: Econ. Geology, vol. 28, no. 6, pp. 513-555, September-October 1933.

Gravell, Donald Winchester. See also Shreveport Geol. Soc., 3076.

1306. (and Hanna, Marcus Albert). Larger Foraminifera from the Moody Branch marl, Jackson Eocene, of Texas, Louisiana, and Mississippi (abstract): Geol. Soc. America, Proc., 1933, p. 367, June 1934.

Gray, Francis William.

1307. The Geological Survey of Canada (presidential address): Canadian Min. Met. Bull., no. 241, pp. 239-248, May 1932; Canadian Inst. Min. and Metallurgy, Trans., 1932, vol. 35, pp. 239-248, 1933.

1308. Note on the attitude and conjectural shape of the submarine portion of the Sydney coal field: Canadian Min. and Met. Bull., no. 261, Trans. sec., pp. 1-23, 1 fig., 1 pl., January 1934.

Greene, Frank Cook.

1309. Western Oklahoma, Permian (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, April 18, 1932.
1310. Oil and gas pools of western Missouri: Missouri, Bur. Geology and Mines, 57th Bienn. Rept., app. 2, 68 pp., 8 figs., 4 pls. (incl. maps), 1933.

Greger, Darling K.

1311. The Pleistocene Mollusca of Missouri: Am. Midland Naturalist, vol. 14, no. 1, pp. 58-61, January 1933.
1312. *Throopella typa*, a new Devonian scaphopod: Geol. Mag., no. 830 (vol. 70, no. 8), pp. 373-374, 1 pl., August 1933.
1313. Bibliographic index of North American species of the *Eublastoidea*: Acad. Sci. St. Louis, Trans., vol. 28, no. 3, pp. 119-181, April 1, 1934.
1314. Notes on a collection of *Dentalium neohexagonum* S. and P.: Geol. Mag. no. 839 (vol. 71, no. 6), pp. 236-237, May 1934.

Gregg, J. L.

1315. Arsenical and argentiferous copper; with a foreword by H. Foster Bain. 188 pp., 56 figs., New York, Chemical Catalog Co., Inc., 1934.

Gregory, F. E. See Fowler, 1144.**Gregory, Herbert Ernest.**

1316. Colorado Plateau region: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 18, Excursions C-1, and C-2, 38 pp., 7 figs. (incl. geol. map), 6 pls. (incl. geol. sketch map), 1932.

Gregory, William King.

1317. Fish skulls; a study of the evolution of natural mechanisms: Am. Philos. Soc., Trans., new ser., vol. 23, pt. 2, pp. i-vii, 75-481, 302 figs., 1933.
1318. The new anthropogeny; twenty-five stages of vertebrate evolution, from Silurian chordate to man: Science, new ser., vol. 77, no. 1985, pp. 29-40, January 13, 1933.
1319. The master builder; Henry Fairfield Osborn [1857-1935]: Nat. History, vol. 33, no. 3, pp. 251-256, May-June 1933.
1320. On the significance of the suprasymphysial depression and groove in the shovel-tusked mastodont: Jour. Mammalogy, vol. 15, no. 1, pp. 4-12, 8 figs., February 1934.
1321. A half century of trituberculy, the Cope-Osborn theory of dental evolution, with a revised summary of molar evolution from fish to man: Am. Philos. Soc., Proc., vol. 73, no. 4, pp. 169-317, 71 figs., April 1934.
1322. The origin, rise, and decline of *Homo sapiens*: Sci. Monthly, vol. 39, no. 6, pp. 481-496, 18 figs., December 1934.

Greig, Joseph Wilson.

1323. (and Merwin, Herbert Eugene, and Shepherd, Ernest Stanley). Notes on the volatile transport of silica: Am. Jour. Sci., 5th ser., vol. 25, no. 145, pp. 61-73, 7 figs., January 1933.

Grieger, John M.

1324. Minerals occurring in volcanic regions or deposited from hot springs: Mineralog. Soc. Southern California., Bull., vol. 3, no. 8, pp. 31-32, April 1934.

Grieger, John M.—Continued.

1325. San Diego County, Calif., gem mines not exhausted: *Oregon Mineralogist*, vol. 2, no. 10, pp. 7-8, 20, October 1934.

Gries, Paul.

1326. Upper Ordovician scolecodonts from the Cincinnati area (abstract): *Geol. Soc. America, Proc.*, 1933, p. 341, June 1934.

Griley, Horace L.

1327. Subdivision of Quartermaster formation of Oklahoma, and its relationship to known Triassic of Texas Panhandle (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, pp. 234-235, April 1933.

Grim, Ralph Early.

1328. Petrography of the fuller's earth deposits, Olmstead, Ill., with a brief study of some non-Illinois earths: *Econ. Geology*, vol. 28, no. 4, pp. 344-363, 15 figs., June 1933; *Illinois, State Geol. Survey, Rept. Inv. no. 26*, 1933.
1329. The petrographic study of clay minerals—a laboratory note: *Jour. Sedimentary Petrology*, vol. 4, no. 1, pp. 45-46, April 1934.
1330. Petrology of the kaolin deposits near Anna, Ill.: *Econ. Geology*, vol. 29, no. 7, pp. 659-670, 2 figs., November 1934.

Grimsley, George Perry.

1331. The Baltimore & Ohio Railroad: *Internat. Geol. Cong., XVI, United States, 1933, Guidebook 30, Excursions A-2, A-6, C-1, C-2, C-3, C-4*, 79 pp., 14 figs. (incl. maps), 17 pls. (incl. 7 geol. maps in separate folder), 1933.

Grohskopf, J. G.

1332. (and Reinoehl, C. O.). Magnetic surveys: *Missouri, Bur. Geology and Mines, 57th Bienn. Rept.*, app. 4, 20 pp., 4 figs., 2 pls., 1933.

Gross, P. L. K.

1333. (and Woodford, Alfred Oswald). Serial literature used by American geologists: *Science, new ser.*, vol. 73, no. 1903, pp. 660-664, June 19, 1931.

Gross, Walter.

1334. Ein Wildunger Arthrodire in Nord-Amerika: *Palaeont. Zeitschr.*, Band 14, Heft 1/2, pp. 46-48, 2 figs., 1932.

Grout, Frank Fitch. See also Balk, 150; Hotchkiss, 1563.

1335. (and Schwartz, George Melvin). The geology of the Rove formation and associated intrusives in northeastern Minnesota: *Minnesota Geol. Survey, Bull. 24*, 103 pp., 44 figs., 20 pls. (geol. maps and sections), 1933.
1336. Origin of the igneous rocks of Minnesota: *Jour. Geology*, vol. 41, no. 2, pp. 196-218, 5 figs., February-March 1933.
1337. (and others). Problems of the batholiths: *Nat. Research Council, Div. Geology and Geography, Ann. Rept.*, app. A, exhibit B, 59 pp. (†), 1 fig., April 22, 1933.
1338. Structures of Saganaga granite of Minnesota-Ontario (abstract): *Pan-Am. Geologist*, vol. 60, no. 2, p. 148, September 1933.
1339. Contact metamorphism of the slates of Minnesota by granite and by gabbro magmas: *Geol. Soc. America, Bull.*, vol. 44, no. 5, pp. 989-1040, 14 figs. (incl. map), 2 pls., October 31, 1933; abstract, pt. 1, p. 86, February 28, 1933.

Grout, Frank Fitch—Continued.

1340. (and Balk, Robert). Internal structures in the Boulder batholith: Geol. Soc. America, Bull., vol. 45, no. 5, pp. 877-896, 9 figs. (incl. maps), 8 pls. (incl. maps), October 31, 1934; abstract, Proc., 1933, p. 83, June 1934.

Grove, Brandon H. See also Romer, 2804.

1341. Studies in North American Mississippian corals—part 1 (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 212, February 28, 1933.
1342. Studies in Paleozoic corals: Am. Midland Naturalist, vol. 15, no. 2, pp. 97-137, 13 figs., March 1934.
1343. Morphology and relationships of *Zaphrentis calceola* (abstract): Geol. Soc. America, Proc., 1933, pp. 353-354, June 1934.

Gruner, John Walter. See also Hotchkiss, 1563.

1344. The solubilities of metallic sulphides in alkali sulphide solutions: Econ. Geology, vol. 28, no. 8, pp. 773-777, December 1933.
1345. Memorial of Friedrich Rinne [1863-1933]: Am. Mineralogist, vol. 19, no. 3, pp. 112-113, port., March 1934.
1346. Relation of silicate sheet structures—a demonstration with models (abstract): Geol. Soc. America, Proc., 1933, p. 439, June 1934.
1347. Unusual crystal habit of cassiterite: Am. Mineralogist, vol. 19, no. 11, p. 552, November 1934.
1348. Magnetite cementing certain ore conglomerates of the Mesabi range: Econ. Geology, vol. 29, no. 8, pp. 757-760, December 1934.
1349. The structure of vermiculites and their collapse by dehydration: Am. Mineralogist, vol. 19, no. 12, pp. 557-573, 2 figs., December 1934.

Guardia, J. E.

1350. Some results of the log jams in the Red River: Geog. Soc. Philadelphia, Bull., vol. 31, no. 3, pp. 103-114, 4 figs., July 1933.

Guild, Frank Nelson.

1351. Microscopic relations of magnetite, hematite, pyrite, and chalcopyrite: Econ. Geology, vol. 29, no. 2, pp. 107-120, 12 figs., March-April 1934.

Gunnell, Frank H.

1352. Conodonts and fish remains from the Cherokee, Kansas City, and Wabaunsee groups of Missouri and Kansas: Jour. Paleontology, vol. 7, no. 3, pp. 261-297, 3 pls., September 1933.

Gunning, H. C. See also Ellsworth, 1019; O'Neill, 2527.

1353. Zeballos River area, Vancouver Island, British Columbia; Canada, Geol. Survey, Summary Rept., 1932, pt. A 2, pp. 29-50, 1 fig., 1933. (No. 2333.)
1354. Sulphide deposits at Cape Smith, east coast of Hudson Bay: Canada, Geol. Survey, Summary Rept., 1933, pt. D, pp. 139-154, 2 figs. (incl. map), 2 pls., 1934. (Pub. no. 2351.)

Gunter, Herman.

1355. Administrative report: Florida State Geol. Survey, 23d-24th Ann. Repts., 1930-32, pp. 7-33, 1933.
1356. Mineral production in Florida, 1930 and 1931: Florida State Geol. Survey, 23d-24th Ann. Repts., 1930-32, pp. 35-48, 1933.
1357. (and Ponton, Gerald Mungo). Notes on the geology and the occurrence of some diatomaceous-earth deposits of Florida: Florida State Geol. Survey, 23d-24th Ann. Repts., 1930-32, pp. 57-64, 2 figs., 1933.

Gustafson, J. K.

1358. Metamorphism and hydrothermal alteration of the Homestake gold-bearing formation: *Econ. Geology*, vol. 28, no. 2, pp. 123-163, 12 figs., March-April 1933.

Gutenberg, Beno.

1359. (and Wood, Harry Oscar, and Buwalda, John Peter). Experiments testing seismographic methods for determining crustal structure (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 170-171, February 28, 1933.
1360. Tilting due to glacial melting: *Jour. Geology*, vol. 41, no. 5, pp. 449-467, 5 figs., July-August 1933; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 152-153, February 28, 1933.
1361. The propagation of the longitudinal waves produced by the Long Beach earthquake: *Gerlands Beitr. Geophysik*, Band 41, Heft 1, pp. 114-120, 3 figs., 1934.

Gwynne, Charles Sumner.

1362. Structure of the Des Moines series at Redfield, Iowa: *Iowa Acad. Sci., Proc.*, 1933, vol. 40, pp. 127-130 [1933?].
1363. Channel sandstones of Coal Measures at Redfield (abstract): *Pan-Am. Geologist*, vol. 60, no. 1, p. 78, August 1933.
1364. Geological significance of fluorine in Iowa well waters (abstract): *Pan-Am. Geologist*, vol. 62, no. 2, pp. 139-140, September 1934.
1365. Weathering of sandstone in Iowa State Capitol building (abstract): *Pan-Am. Geologist*, vol. 62, no. 2, p. 140, September 1934.

Hadley, Wade H., Jr.

1366. Some Tertiary Foraminifera from the north coast of Cuba: *Bull. Am. Paleontology*, no. 70A, 40 pp., 5 pls., May 21, 1934.

Haff, John C.

1367. Crystallized native copper from Franklin, N. J.: *Am. Mineralogist*, vol. 19, no. 10, pp. 480-482, 1 fig., October 1934.

Hake, B. F. See Willis, 3717.

Hall, E. A. See Kansas Geol. Soc., 1743; Miller, 2329.

Hall, Eugene Raymond.

1368. Description of a new mustilid from the later Tertiary of Oregon, with assignment of *Parictis primaevus* to the Canidae: *Jour. Mammalogy*, vol. 12, no. 2, pp. 156-158, 1 pl., May 1931.

Hall, George Martin.

1369. Flattened garnets in mica at Spruce Pine, N. C.: *Tennessee Acad. Sci., Jour.*, vol. 8, no. 3, pp. 268-272, 2 figs., July 1933.
1370. Ground water in southeastern Pennsylvania, with analyses by Margaret D. Foster and Charles S. Howard: *Pennsylvania Geol. Survey*, 4th ser., *Bull. W* 2, 255 pp., 7 figs. (incl. map), 7 pls. (incl. geol. map, comp. by Geo. W. Stose and Anna I. Jonas), 1934.
1371. Zoisite and other minerals included in mica from Spruce Pine, N. C.: *Am. Mineralogist*, vol. 19, no. 2, pp. 76-80, 8 figs., February 1934.
1372. (and Amick, Harold Clyde). The section on the west side of Clinch Mountain, Tenn.: *Tennessee Acad. Sci., Jour.*, vol. 9, no. 2, pp. 157-168, 2 figs., April 1934; no. 3, pp. 195-200, July 1934.

Hall, Raymond E. See Stock, 3231.

Hall, Roy H. See also Kansas Geol. Soc., 1744.

1373. Development of the oil and gas resources of Kansas in 1930: Kansas State Geol. Survey, Min. Rés. Circ. 2 (Kansas, Univ., Bull., vol. 34, no. 4), pp. 107-174, 6 tables, February 15, 1933.

1374. Age of so-called Hunton limestone of southern McPherson and north-west Harvey Counties, Kans.: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 2, p. 266, February 1934.

Halle, Thore, Gustaf.

1375. The structure of certain fossil spore-bearing organs believed to belong to pteridosperms: K. svenska vetensk. akad. Handl., 3d ser., Band 12, Nr. 6, 103 pp., 14 figs., 15 pls., 1933.

Hamilton, R. G. See also Runner, 2880.

1376. Metamorphosed calcareous concretions (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 135, September 1934.

Hamlett, George Whitfield Deluz.

1377. An embryologist's conception of vertebrate phylogeny: Am. Naturalist no. 709, vol. 67, pp. 135-153, 5 figs., March-April 1933.

Hammar, Harald Edwin. See also Trask, 3405, 3407, 3409, 3410.

1378. Relation of micro-organisms to generation of petroleum: Problems of petroleum geology (Sidney Powers memorial volume), pp. 35-49, Am. Assoc. Petroleum Geologists, 1934.

Hammer, A. A.

1379. Rattlesnake Hills gas field, Benton County, Wash.: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 7, pp. 847, 859, 3 figs. (incl. map), July 1934.

Hand, Irving Forrest.

1380. The character and magnitude of the dense dust cloud which passed over Washington, D. C., May 11, 1934: Monthly Weather Rev., vol. 62, no. 5, pp. 156-157, May 1934.

Hanna, G. Dallas.

1381. Hyrax, a new mounting medium for diatoms: Royal Micr. Soc., Jour., 3d ser., vol. 50, pt. 4, pp. 424-426, December 1930.

1382. Diatoms of the Florida peat deposits: Florida State Geol. Survey, 23d-24th Ann. Repts., 1930-32, pp. 68-119, 11 pls., 1933.

1383. The name "Lillis formation" in California geology: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 1, pp. 81-84, January 1933.

1384. Minutes of the meeting of the Pacific Coast Branch of the Paleontological Society, Stanford University, California, Saturday, April 9, 1932: Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 216-233, February 23, 1933.

1385. Additional notes on diatoms from the Cretaceous of California (abstract): Geol. Soc. America, Proc., 1933, p. 377, June 1934.

1386. Land shells from the upper Eocene Sespe deposits, California: Washington Acad. Sci., Jour., vol. 24, no. 12, pp. 539-541, 1 fig., December 15, 1934.

Hanna, Marcus Albert. See also Gravell, 1306; Israelsky, 1638; Minor, 2358; Shreveport Geol. Soc., 3076.

1387. (and Parker, W. G.). Notes on an occurrence of galena at Pierce Junction salt dome, Harris County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 4, pp. 438-439, 1933.

Hanna, Marcus Albert—Continued.

1388. Geology of the Gulf coast salt domes: Problems of petroleum geology (Sidney Powers memorial volume), pp. 629-678, 24 figs. (incl. maps), 4 pls., Am. Assoc. Petroleum Geologists, 1934.

1389. (and Wolf, Albert G.). Texas and Louisiana salt-dome cap-rock minerals: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 2, pp. 212-225, 10 pls. February 1934.

Hansen, George Henry.

1390. Hairy mammoth skeleton in Utah (abstract): Utah Acad. Sci., Proc., vol. 6, pp. 7-8, July 5, 1929.

1391. An interpretation of past climatic cycles from observations made of Utah Lake sediments: Utah Acad. Sci., Proc., vol. 11, pp. 161-162, 1 pl., July 1934.

Hansell, James Myron. See Branner, 386.

Hanson, George.

1392. The Bear River delta, British Columbia, and its significance regarding Pleistocene and recent glaciation: Royal Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 179-185, May 1934; abstract, vol. 27, p. cxli, 1933.

Happ, Stafford.

1393. Drainage history of southeastern Ohio and adjacent West Virginia: Jour. Geology, vol. 42, no. 3, pp. 264-284, 6 figs. (maps), April-May 1934.

1394. (and Alexander, Herbert). Footprints from the Permian of West Virginia: Jour. Geology, vol. 42, no. 7, pp. 753-755, 1 fig., October-November 1934.

Harbison, Anne. See Pilsbry, 2631.

Harcourt, G. A.

1395. Brown tourmaline from Frontenac and Renfrew Counties, Ontario: Am. Mineralogist, vol. 18, no. 8, pp. 356-358, 1 fig., August 1933.

1396. The minor chemical constituents of some igneous rocks: Jour. Geology, vol. 42, no. 6, pp. 585-601, August-September 1934.

Harder, Edmund Cecil.

1397. Origin of bauxite deposits (discussion): Econ. Geology, vol. 28, no. 4, pp. 395-398, June-July 1933.

Harding, R. L. See also Weatherby, 3576.

1398. Granite and limestone velocity determination in Arbuckle Mountains, Oklahoma (abstract): Tulsa Geol. Soc., Digest, pp. 18-19, 1933.

Hares, Charles Joseph. See also Ashley, 92.

1399. Relative age of the Heart Mountain overthrust and the Yellowstone Park volcanic series (abstract): Geol. Soc. America, Proc., 1933, pp. 84-85, June 1934.

1400. Tertiary conglomerate on Bald Mountain, Wyo. (abstract): Geol. Soc. America, Proc., 1933, p. 85, June 1934.

Harkness, Robert B.

1401. Natural gas in 1931; petroleum in 1931: Ontario Dept. Mines, 41st Ann. Rept. (vol. 41, pt. 5), pp. 1-53, 54-58, 3 figs., 1933.

Harkness, Robert B.—Continued.

1402. Natural gas in 1932: Ontario Dept. Mines, 42d Ann. Rept. (vol. 42, pt. 5), 1933, pp. 1-45, 1934.

1403. Petroleum in 1932: Ontario Dept. Mines, 42d Ann. Rept. (vol. 42, pt. 5), 1933, pp. 46-51, 1934.

Harley, George Townsend.

1404. The geology and ore deposits of Sierra County, New Mexico: New Mexico, School of Mines, Bull. no. 10, 220 pp., 19 figs. (incl. maps), 9 pls. (incl. geol. map), 1934.

Harlton, Bruce H.

1405. Micropaleontology of the Pennsylvanian Johns Valley shale of the Ouachita Mountains, Okla., and its relationship to the Mississippian Caney shale: Jour. Paleontology, vol. 7, no. 1, pp. 3-29, 7 pls., March 1933.

1406. Carboniferous stratigraphy of the Ouachitas—a special study of the Bendian: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 8, pp. 1018-1049, 8 figs., August 1934.

Harnly, Henry Jacob.

1407. Vertebrate fossils from McPherson *Equus* beds: Kansas Acad. Sci., Trans., vol. 37, p. 151, 1934.

Harrington, E. R.

1408. The origin of ice caves: Jour. Geology, vol. 42, no. 4, pp. 433-436, 1 fig., May-June 1934.

Harris, George D.

1409. A new *Conocardium* from the Texas Pennsylvanian (abstract): Texas Acad. Sci., Proc., 1933-34, vol. 18, p. 22, 1934.

Harris, Gilbert Dennison.

1410. Memorial of Adam Capen Gill [1863-1932]: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 325-328, port., April 30, 1933.

Harris, Reginald Wilson.

1411. (and Hollingsworth, R. V.). New Pennsylvanian conodonts from Oklahoma: Am. Jour. Sci., 5th ser., vol. 25, no. 147, pp. 193-204, 1 pl., March 1933.

Harris, Sidon.

1412. A semigraphical method of determining depths of multilayer dipping strata from seismic time-travel curves: Am. Jour. Sci., 5th ser., vol. 27, no. 157, pp. 13-23, 4 figs., January 1934.

Harris, Thomas Maxwell.

1413. The fossil flora of Scoresby Sound, east Greenland; part 2, Description of seed plants incertae sedis, together with a discussion of certain cycadophyte cuticles: Meddelelser om Grönland, Band 85, Nr. 3; Copenhagen, Univ., Mus. minéralogie et géologie, Comm. paléont. no. 41, 114 pp., 39 figs., 9 pls., 1932.

1414. The fossil flora of Scoresby Sound, Greenland; part 3, Caytoniales and Bennettitales: Meddelelser om Grönland, Band 85, Nr. 5; Copenhagen, Univ., Mus. minéralogie et géologie, Comm. Paléont., no. 45, 133 pp., 52 figs., 19 pls., 1932.

1415. A new member of the Caytoniales: New Phytologist, vol. 32, no. 2, pp. 97-114, 12 figs., 2 pls., June 21, 1933.

Hart, Gilbert.

1416. The geology of opal: *Rocks and Minerals*, vol. 8, no. 1, pp. 10-11, March 1933.

1417. Determination of cat's eye gems: *Rocks and Minerals*, vol. 9, no. 12, pp. 173-177, December 1934.

Hart, Lyman H. See also Tansley, 3303.

1418. Mesothermal copper veins and replacements: Ore deposits of the Western States (Lindgren volume), pp. 603-616, *Am. Inst. Min. Met. Eng.*, 1933.

Hart, R. C. See also Hawley, 1428.

1419. (and Hawley, James Edwin). Cylindrical structures in basal Paleozoic sandstones near Kingston, Ontario (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 85-86, June 1934.

Hartnagle, Charles Andrew. See Newland, 2476.

Hassler, Earl L.

1420. (and Roys, H. C.). Rare elements in Oklahoma sphalerite: *Oklahoma Acad. Sci., Proc.*, 1933, vol. 14, pp. 67-68, 1934.

Haught, O. L.

1421. Characteristics of the flora of the Greene formation: West Virginia *Acad. Sci., Proc.*, vol. 7 (West Virginia Univ., Bull., ser. 34, no. 15), pp. 83-87, March 1934.

Hawkins, Alfred Cary. See also Berkey, 263; Berry, 280.

1422. (and Stollman, A., and Buck, L. A.). Microscopic minerals of Middlesex County, N. J.: *Am. Mineralogist*, vol. 18, no. 4, pp. 160-166, 1 pl., April 1933.

1423. Glauberite crystals from West Paterson, N. J.: *Am. Mineralogist*, vol. 18, no. 6, pp. 273-274, 1 fig., June 1933.

1424. Twisted millerite crystals: *Am. Mineralogist*, vol. 18, no. 6, pp. 274-275, June 1933.

Hawkins, R. H.

1425. Application of resistivity methods to northern Ontario lignite deposits: *Am. Inst. Min. Met. Eng., Contr.* no. 40, 44 pp., 22 figs., 1933; *Trans.*, vol. 110, *Geophysical Prospecting*, pp. 76-120, 22 figs., 1934.

Hawley, James Edwin. See also Beavan, 232; Hart, 1419.

1426. The Siscoe gold deposit: *Canadian Min. Met. Bull.*, no. 245, pp. 368-386, 6 figs., September 1932; *Canadian Inst. Min. and Metallurgy, Trans.*, 1932, vol. 35, pp. 368-386, 6 figs., 1933.

1427. (and Beavan, A. P.). Mineralogy and genesis of the Mayville iron ore of Wisconsin: *Am. Mineralogist*, vol. 19, no. 11, pp. 493-514, 4 figs., November 1934.

1428. (and Hart, R. C.). Cylindrical structures in sandstones: *Geol. Soc. America, Bull.*, vol. 45, no. 6, pp. 1017-1034, 3 figs., 2 pls., December 31, 1934.

Hay, Oliver Perry, 1846-1930.

1429. Second bibliography and catalogue of the fossil Vertebrata of North America: *Carnegie Inst. Washington, Pub.* no. 390, vol. 1, 916 pp., August 1929; vol. 2, xiv, 1074 pp., January 1930.

1430. On a long-known occurrence of a musk ox at Natchez, Miss.: *Jour. Mammalogy*, vol. 11, no. 4, pp. 505-507, November 1930.

Haycock, Maurice Hall.

1431. The application of the quartz spectograph to the study of opaque minerals: *Econ. Geology*, vol. 28, no. 4, pp. 364-382, 8 figs., June-July 1933.

Hayes, Albert Orion. See also Berkey, 263.

1432. Cambrian oolitic hermatite in the Reagan sandstone of Oklahoma (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 86-87, February 28, 1933.
1433. (and Howell, Benjamin Franklin). Geology of the St. John area, New Brunswick, Canada (abstract): *Geol. Soc. America, Proc.*, 1933, p. 86, June 1934.
1434. (and Johnson, Helgi). Paleocology of some sedimentary iron ores (abstract): *Geol. Soc. America, Proc.*, 1933, p. 360, June 1934.

Hazzard, John C.

1435. Notes on the Cambrian rocks of the eastern Mohave Desert, California: *California, Univ., Dept. Geol. Sci., Bull.*, vol. 23, no. 2, pp. 57-70, 1 fig., 1 map, 1933.

Heald, Kenneth Conrad.

1436. Subsurface temperature gradients, foreword: Problems of petroleum geology (Sidney Powers memorial volume), pp. 987-988, *Am. Assoc. Petroleum Geologists*, 1934.

Heaton, Ross L.

1437. Ancestral Rockies and Mesozoic and late Paleozoic stratigraphy of Rocky Mountain region: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 2, pp. 109-168, 18 figs., February 1933.

Heck, E. T.

1438. The Liverpool oil and gas pool: *West Virginia Acad. Sci., Proc.*, vol. 6 (West Virginia Univ., *Bull.*, ser. 33, no. 15), pp. 89-90, March 1933.

Heck, Nicholas Hunter. See also Wood, 3762.

1439. The seismicity of the United States: *Matériaux pour l'étude des calamités* (Soc. géographie Genève), no. 29, pp. 3-22, 1 fig., 1933.
1440. Seismology and the island arcs: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 20-21, Nat. Research Council, June 1933.
1441. Relation of seismology to hydrology: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 34-36, Nat. Research Council, June 1933.
1442. Review of seismology in the United States: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 318-321, Nat. Research Council, June 1933: *Seismol. Soc. America, Eastern Sec., Earthquake Notes*, vol. 5 nos. 1, 2, pp. 318-321, June 1933.
1443. World distribution of earthquake epicenters and seismic sea waves (abstract): *Seismol. Soc. America, Eastern Sec., Earthquake Notes*, vol. 6, no. 1-2, pp. 13-14 (‡), September 1934.

Helland, Carl August.

1444. Elements of geophysical prospecting: *Colorado School of Mines, Quart.*, vol. 28, no. 4, 50 pp., 23 figs., October 1933.
1445. (and Pugh, W. E.). Theory and experiments concerning a new compensated magnetometer system: *Am. Inst. Min. Met. Eng., Trans.*, vol. 110, *Geophysical Prospecting*, pp. 334-372, 14 figs., 1934.

Heiland, Carl August—Continued.

1446. Certain instrument problems in reflection seismology: *Am. Inst. Min. Met. Eng., Trans.*, vol. 110, *Geophysical Prospecting*, pp. 411-454, 19 figs., 1934.

1447. Geophysics in the nonmetallic field (with discussion): *Am. Inst. Min. Met. Eng., Trans.*, vol. 110, *Geophysical Prospecting*, pp. 546-577, 6 figs., June 1934.

Heim, Arnold.

1448. Energy sources of the earth's crustal movements (abstract): *Pam-Am. Geologist*, vol. 61, no. 2, p. 146, March 1934.

1449. El Bernal de Horcasitas, a volcanic plug in the Tampico Plain, Mexico: *Zeitschr. Vulkanologie*, Band 15, Heft 4, pp. 254-260, 3 figs. (incl. maps), 1 pl., September 1934.

Heiskanen, W.

1450. Die Erdkrustendicke und die Schwereanomalien in den Vereinigten Staaten: *Soc. sci. Fennicae, Acta*, ser. A, vol. 36, no. 3, 135 pp., 1931.

Henbest, Lloyd George. See also Dunbar, 945.

1451. A new term for the youthful stage of foraminiferal shells: *Science*, new ser., vol. 79, no. 2051, pp. 363-364, April 20, 1934.

1452. Keriothecal wall structure in *Fusulina*; its significance and resolution by selective stains (abstract): *Geol. Soc. America, Proc.*, 1933, p. 353, June 1934.

1453. Exposure determination in photomicrography: *Biol. Photographic Assoc., Jour.*, vol. 8, no. 1, pp. 2-23, 1 fig., September 1934.

Henbest, Orrin John.

1454. Plant residues of coal no. 6: *Illinois State Acad. Sci., Trans.*, vol. 25, no. 4, pp. 147-149, June 1933.

Henderson, Charles William. See also Butler, 507.

1455. (and others). Colorado: *Internat. Geol. Cong., XVI, United States*, 1933, Guidebook 19, Excursion C-1, 146 pp., 28 figs. (incl. geol. maps), 19 pls. (incl. geol. maps), 1932. Contains the following papers:

Henderson, Charles William. Geography, history, and mineral production of Colorado, pp. 1-5, 2 figs.

Henderson, Junius. Life zones, faunas, and floras of Colorado, pp. 5-8; (and Lovering, Thomas Seward), Foothill region of north-central Colorado, pp. 125-133; (and Johnson, Jesse Harlan), Fort Collins to Denver, pp. 144-146.

Lovering, Thomas Seward. Geology of Colorado, pp. 8-26, 2 figs. (incl. map), 3 pls. (incl. geol. map); Minturn to Florissant, Introduction, pp. 66-68; Road log, 68-69; (and Behre Charles Henry, Jr.), Battle Mountain (Red Cliff, Gilman) mining district, pp. 69-77, 1 fig.; Denver to Nederland and Central City, Introduction, pp. 133-134; Ore deposits of Nederland, Central City, and Idaho Springs, pp. 140-142.

Burbank, Wilbur Swett. Grand Junction to Mesa Verde, pp. 27-63, 11 figs. (incl. geol. maps), 6 pls. (incl. geol. maps).

McKnight, Edwin Thor. Rico district, pp. 63-65.

Loughlin, Gerald Francis. (and Behre, Charles Henry, Jr.), Leadville mining district, pp. 77-92, 3 figs.; Cripple Creek mining district, pp. 113-122, 2 figs., 1 pl. (geol. map).

Vanderwilt, John W. The molybdenum deposit at Climax, pp. 92-102, 5 figs. 2 pls. (geol. maps).

Singewald, Quentin Dreyer. Alma district, pp. 107-111, 1 fig., 1 pl. (geol. map).

Van Tuyl, Francis Maurice. Geology of the Golden area, pp. 134-137, 2 pls. (incl. geol. map).

Dobbin, Carroll Edward. (and Lovering, Thomas Seward, and Van Tuyl, Francis Maurice), Road log, pp. 138-140.

Henderson, Charles William—Continued.

1456. The history and influence of mining in the western United States: Ore deposits of the Western States (Lindgren volume), pp. 730-784, Am. Inst. Min. and Met. Eng., 1933.

Henderson, Edward Porter.

1457. Mineral collecting in the Rocky Mountain States: Smithsonian Inst., Explorations and Field Work in 1932 (Pub. 3213), pp. 17-20, 2 figs. 1933.
1458. (and Hess, Frank L.). Corvusite and rilandite, new minerals from the Utah-Colorado carnotite region: Am. Mineralogist, vol. 18, no. 5, pp. 195-205, 2 figs., May 1933.
1459. (and Glass, Jewell Jeannette). Additional notes on laumontite and thomsonite from Table Mountain, Colorado: Am. Mineralogist, vol. 18, no. 9, pp. 402-406, September 1933.
1460. The new meteoric irons from New Mexico; the Grant meteorite and the Santa Fe meteorite: Popular Astronomy, vol. 42, no. 9, pp. 511-515, 4 figs., November 1934.

Henderson, George Hugh.

1461. Pleochroic haloes and the age of minerals: Phys. Rev., 2d ser., vol. 45, no. 3, p. 216, February 1, 1934; abstract, Zeitschr. Geophysik, Jahrg. 10, Heft 5/6, p. 93, 1934.

Henderson, Junius. See also Henderson, C. W., 1455.

1462. *Schizothaerus nuttallii* and varieties on Puget Sound: Nautilus, vol. 45, no. 1, pp. 32-33, July 1931.
1463. Theories concerning the formation of solution caverns in limestone (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 4, pp. 33-34, August 1932.
1464. Some new Mesozoic Mollusca from the Rocky Mountain region and Arizona: Jour. Paleontology, vol. 8, no. 3, pp. 259-263, 1 pl., September 1934; abstract, Geol. Soc. America, Proc., 1933, p. 371, June 1934.
1465. (and Rodeck, Hugo G.). New species of Pliocene Mollusca from eastern Oregon: Jour. Paleontology, vol. 8, no. 3, pp. 264-269, 1 pl., September 1934; abstract, Geol. Soc. America, Proc., 1933, p. 371, June 1934.

Hendricks, Thomas Andrews. See also Kansas Geol. Soc., 1744.

1466. Some Pleistocene changes in the course of the Canadian River of southeastern Oklahoma (abstract): Washington Acad. Sci., Jour., vol. 23, no. 8, pp. 399-400, August 15, 1933.
1467. History of the Canadian River of Oklahoma as indicated by the Gerty sand (abstract): Geol. Soc. America, Proc., 1933, pp. 86-87, June, 1934.
1468. (and Read, Charles Brian). Correlations of Pennsylvanian strata in Arkansas and Oklahoma coal fields: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 8, pp. 1050-1058, 3 figs., August 1934.

Hendrickson, Bertram Higbie.

1469. The choking of pore space in the soil and its relation to run-off and erosion: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 500-505, Nat. Research Council, June 1934.

Hendy, N. Ingram.

1470. A preliminary note on the distribution of marine diatoms during the Tertiary period: Jour. Botany, vol. 71, no. 845, pp. 111-118, 1 fig., May 1933.

Henson, F. R. S.

1471. Portable sedimentary laboratory: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 12, pp. 1705-1709, 4 figs., December 1934.

Heritsch, Franz.

1472. Notes on *Chaetetes milleporaceus* M. E. H.: Am. Jour. Sci., 5th ser., vol. 25, no. 147, pp. 257-260, 4 figs., March 1933.

Hermann, F. C. See Etcheverry, 1031.

Herold, C. Lathrop.

1473. Fossil markings in the Carmelo series (Upper Cretaceous [?]), Point Lobos, Calif.: Jour. Geology, vol. 42, no. 6, pp. 630-640, 4 figs., August-September 1934.

Herold, Stanley Carrollton.

1474. Present role of geology in petroleum exploration: Oil Weekly, vol. 66, no. 2, pp. 30-31, June 27, 1932.

1475. (and Fudge, Harold L.). Notes on submarine geological exploration: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 4, pp. 442-443, April 1933.

1476. Projection of dip angle on profile section: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 6, pp. 740-742, 1 fig., June 1933.

Hersh, Amos Henry.

1477. Evolutionary relative growth in the titanotheres: Am. Naturalist, vol. 68, no. 719, pp. 537-561, 4 figs., November-December 1934.

Hershey, Oscar H.

1478. Mining geology in the Coeur d'Alene district, Idaho: Mining and Metallurgy, vol. 14, no. 314, pp. 85-88, February 1933.

Hertlein, Leo George. See also Webb, 3582.

1479. A new gryphaeoid oyster from the Eocene of California: San Diego Soc. Nat. History, Trans. vol. 7, no. 22, pp. 277-280, 1 pl., March 31, 1933.

1480. Three preoccupied names in the Pectinidae: Nautilus, vol. 47, no. 2, pp. 62-64, October 1933.

1481. Additions to the Pliocene fauna of Turtle Bay, Lower California, with a note on the Miocene diatomite: Jour. Paleontology, vol. 7, no. 4, pp. 439-441, December 1933.

1482. New oysters and a new pecten from the Tertiary of California: Southern California Acad., Sci., Bull., vol. 33, no. 1, pp. 1-6, 6 figs., January-April 1934.

1483. Pleistocene mollusks from the Tres Marias Islands, Cedros Island, and San Ignacio Lagoon, Mexico: Southern California Acad. Sci., Bull., vol. 33, pt. 2, pp. 59-73, 1 pl., May-August 1934.

Hess, Frank L. See also Henderson, 1458.

1484. Radioactive fluorspar from Wilberforce, Ontario: Am. Jour. Sci., 5th ser., vol. 22, pp. 215-221, 5 figs., September 1931; [correction]. Am. Jour. Sci., 5th ser., vol. 25, no. 149, p. 426, May 1933.

Hess, Frank L.—Continued.

- 1485. Uranium, vanadium, radium, gold, silver and molybdenum sedimentary deposits: Ore deposits of the Western States (Lindgren volume), pp. 450–481, 8 figs., Am. Inst. Min. Met. Eng., 1933.
- 1486. The pegmatites of the Western States: Ore deposits of the Western States (Lindgren volume), pp. 526–536, 4 figs., Am. Inst. Min. Met. Eng., 1933.
- 1487. Pegmatites: Econ. Geology, vol. 28, no. 5, pp. 447–462, August 1933.

Hess, Harry Hammond. See also Field, 1081.

- 1488. Interpretation of geological and geophysical observations: U. S. Hydrographic Office, Navy–Princeton gravity expedition to the West Indies in 1932, pp. 27–54, 16 figs. (incl. maps), 1933.
- 1489. Submerged river valleys of the Bahamas: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 168–170, 2 figs., Nat. Research Council, June 1933.
- 1490. Hydrothermal metamorphism of an ultrabasic intrusive at Schuyler, Va.: Am. Jour. Sci., 5th ser., vol. 26, no. 154, pp. 377–408, 9 figs., October 1933.
- 1491. The problem of serpentinization and the origin of certain chrysotile asbestos, talc, and soapstone deposits: Econ. Geology, vol. 28, no. 7, pp. 634–657, 8 figs., November 1933.

Hesse, Curtis J.

- 1492. Another record of the fossil vole *Mimmomys primus* (Wilson) from California; Jour Mammalogy, vol. 15, no. 3, p. 246, August 1934.
- 1493. Vertebrate fauna from Ogallala formation type locality (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 67, August 1934.
- 1494. *Capromeryx altidens* (Matthew), possible ancestor of *Antilocapara americana* (abstract): Pan-Am. Geologist, vol. 62, no. 1, pp. 68–69, August 1934.

Hewett, Donnel Foster.

- 1495. Sedimentary manganese deposits: Ore deposits of the Western States (Lindgren volume), pp. 488–491, Am. Inst. Min. Met. Eng., 1933.
- 1496. (and Pardee, Joseph Thomas). Manganese in western hydrothermal ore deposits: Ore deposits of the Western States (Lindgren volume), pp. 671–682, Am. Inst. Min. Met. Eng., 1933.
- 1497. Economic geology: Am. Year Book, 1933, pp. 746–747, 1934.

Hibbard, Claude W.

- 1498. A new *Bassariscus* from the lower Pliocene of Nebraska: Kansas, Univ., Sci. Bull., vol. 21, no. 7, pp. 273–278, pl. 26, figs. 1–3, March 15, 1933.
- 1499. Two new species of *Coelacanthus* from the middle Pennsylvanian of Anderson County, Kans.: Kansas, Univ., Sci. Bull., vol. 21, no. 8, pp. 279–287, pl. 26, figs. 4–9, pl. 27, March 15, 1933.
- 1500. Two new genera of Felidae from the middle Pliocene of Kansas: Kansas Acad. Sci., Trans., vol. 37, pp. 239–255, 3 pls., 1934.

Hickey, Maude. See Barton, 207, 210.

Hickok, William Orville, 4th. See also Sisler, 3107.

- 1501. (and Willard, Bradford). Dinosaur foot tracks near Yocumtown, York County, Pa.: Pennsylvania Acad. Sci., Proc., vol. 7, pp. 55–58, 1 fig., 1933.

Hickok, William Orville, 4th—Continued.

1502. Erosion surfaces in south-central Pennsylvania; *Am. Jour. Sci.*, 5th ser., vol. 25, no. 146, pp. 101–122, 4 figs., 1 pl., February 1933.

1503. The iron-ore deposits at Cornwall, Pa.: *Econ. Geology*, vol. 28, no. 3, pp. 193–255, 9 figs., May 1933.

Hiestand, T. C.

1504. Voshell field, McPherson County, Kans.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 2, pp. 169–191, 9 figs., February 1933.

Hildebrand, Samuel F.

1505. Cold-blooded vertebrates, part 1, Fishes: *Smithsonian Sci. Series*, vol. 8, pp. 1–155, 49 figs., 30 pls., 1930.

Hill, E. Bratton, Jr.

1506. Geology of the Jamestown district, Boulder County, Colo. (abstract): *Colorado, Univ., Studies*, vol. 21, no. 1 (*Colorado, Univ., Bull.*, vol. 33, no. 16), pp. 33–34, November 1933.

Hill, Edward Allison.

1507. Another guess about oil possibilities in Florida: *Oil Weekly*, vol. 72, no. 6, pp. 48–50, 1 fig., January 22, 1934.

Hill, H. B.

1508. (and Rawlins, Edwin Lee). Estimate of the gas reserves of the Oklahoma City oil field, Oklahoma County, Okla.: *U. S. Bur. Mines, Rept. Inv. no. 3217*, 54 pp. (†), 15 pls., June 1933.

Hill, Howard R.

1509. Notes on bentonite: *Pacific Mineralogist*, vol. 1, no. 1, pp. 12–13, May 1934.

Hill, James Madison.

1510. Lode deposits of the Fairbanks district, Alaska: *U. S. Geol. Survey, Bull.*, 849, pp. x, 29–162, 24 figs. (incl. map), 1933.

Hill, Mason Lowell.

1511. Diagnostic phenomena for direction of fault slip, as illustrated in Kettleman Hills (abstract): *Pan-Am. Geologist*, vol. 59, no. 4, p. 319, May 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 317, June 1934.

1512. Origin of faulting in Kettleman Hills (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, pp. 317–318, May 1934.

Hill, W. L. See Jacob, 1642.

Hillis, Donuil.

1513. Cracks produced by Long Beach, Calif., earthquake: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 6, pp. 739–740, 1 fig., June 1933.

Hinchey, Norman.

1514. (and Ray, Louis L.). New Mississippian species of *Strophalosia* (abstract): *Geol. Soc. America*, pp. 370–371, June 1934.

Hinderlider, M. C. See Berkey, 261.

Hinds, Norman Ethan Allen.

1515. Researches on Algonkian formations of Grand Canyon Natoinal Park: *Carnegie Inst. Washington, Year Book no. 32*, pp. 325–328, 1933.

Hinds, Norman Ethan Allen—Continued.

1516. Geologic formations of the Redding-Weaverville districts, northern California: California Jour. Mines and Geology, vol. 29, nos. 1, 2, pp. 77-122, 1 pl. (geol. map), January and April 1933.
1517. The Jurassic age of the last granitoid intrusives in the Klamath Mountains and Sierra Nevada, California: Am. Jour. Sci., 5th ser., vol. 27, no. 159, pp. 182-192, 1 fig. (geol. map), March 1934.
1518. Geology of Weaverville district, northern California (abstract): Pan-Am. Geologist, vol. 61, no. 4, p. 312, May 1934.
1519. Late Cenozoic history of southern Klamath Mountains (abstract): Pan-Am. Geologist, vol. 61, no. 4, pp. 315-316, May 1934.

Hines, Pierre R.

1520. The Owyhee tunnels [eastern Oregon]: Explosives Engineer, vol. 10, no. 12, pp. 363-370, 17 figs., December 1932; vol. 11, no. 1, pp. 20-25, 8 figs., January 1933; Am. Inst. Min. Met. Eng., Contr. Paper no. 1, 16 pp., 1933.

Hinkle, J. H.

1521. Chemical studies of travertine and travertine-depositing waters (abstract): Virginia Acad. Sci., Proc., 1933-1934, p. 57, 1934.

Hinton, Martin A. C.

1522. Note on "*Cosomys*" Wilson, from the Pliocene of California: Jour. Mammalogy, vol. 13, no. 3, pp. 280-281, August 1932.

Hintze, Ferdinand Frilis.

1523. Utah geology: Mines Mag. (Colorado School of Mines), vol. 23, no. 8, pp. 10-11, August 1933.
1524. The Proterozoic-Paleozoic contact in the western Uinta and central Wasatch Mountains, Utah: Utah Acad. Sci., Proc., vol. 11, pp. 165-166, July 1934.

Hirschi, H.

1525. (and De Quervain, Fr.). Beiträge zur Petrographie von Baja California (Mexico): Schweizer, min. pet. Mitt., Band 13, Heft 1, pp. 232-277, 1 pl. (map), 1933.

Hitchcock, C. B.

1526. The evolution of tidal inlets: Geog. Rev., vol. 24, no. 4, pp. 653-654, October 1934.

Hite, Thomas H.

1527. Fine gold and platinum of Snake River, Idaho: Econ. Geology, vol. 28, no. 3, pp. 256-265, 3 figs., May 1933.
1528. Preparation of thin sections of friable material: Am. Ceramic Soc., Jour. vol. 16, no. 5, pp. 135-137, May 1933.
1529. Special features of fine gold from Snake River, Idaho: Econ. Geology, vol. 28, no. 7, pp. 686-691, 3 figs., November 1933.

Hobbs, William Herbert.

1530. Greenland, the advances of a decade (1921-31): Michigan Acad. Sci., Papers, vol. 18, pp. 363-411, 27 figs., 1933.
1531. The origin of the loess associated with continental glaciation based upon studies in Greenland: Cong. internat. géographie, Paris, 1931, Compte rendu, t. 2, fasc. 1, pp. 408-411, 1933.
1532. The glaciers of mountain and continent: Science, new ser., vol. 79, no. 2054, pp. 419-422, May 11, 1934.

Hobbs, William Herbert—Continued.

- 1533. Memorial of Charles Wilford Cook [1882-1933]: *Geol. Soc. America, Proc.*, 1933, pp. 181-184, port., June 1934.
- 1534. John Wesley Powell, 1834-1902: *Sci. Monthly*, vol. 39, no. 6, pp. 519-529, 5 figs., December 1934.

Hobson, Henry David.

- 1535. Stratigraphic significance of Foraminifera from the type San Lorenzo formation, California (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 217, February 28, 1933.

Hodge, Edwin Thomas.

- 1536. Columbia River fault: *Geol. Soc. America, Bull.*, vol. 42, no. 4, pp. 923-984, 28 figs. (incl. sketch maps), December 31, 1931.
- 1537. Exceptional morainelike deposits in Oregon: *Geol. Soc. America, Bull.*, vol. 42, no. 4, pp. 985-1010, 6 figs. (incl. sketch maps), December 31, 1931.
- 1538. Age of Columbia River and lower canyon (abstract): *Geol. Soc. America, vol. 44*, pt. 1, pp. 156-157, February 28, 1933.
- 1539. New evidence on the age of the John Day formation (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 220, February 28, 1933.
- 1540. Oregon batholiths: *Northwest Sci.*, vol. 7, no. 2, pp. 34-38, June 1933.
- 1541. Origin of the Washington scablands: *Northwest Sci.*, vol. 8, no. 3, pp. 4-11, 2 figs. (maps), September 1934; abstract, *Pan-Am. Geologist*, vol. 62, no. 2, p. 155, September 1934.

Hodge, Harold Carpenter.

- 1542. (and McKay, J. Harold). The "microhardness" of minerals comprising the Mohs scale: *Am. Mineralogist*, vol. 19, no. 4, pp. 161-168, 3 figs., April 1934.

Hodgson, Ernest Atkinson.

- 1543. The foundations of earth-structure theory: *Roy. Astron. Soc. Canada, Jour.*, vol. 27, no. 1, pp. 1-10, 4 figs., January 1933.
- 1544. Surface-reflected waves of shallow focus earthquakes: *Seismol. Soc. America, Bull.*, vol. 24, no. 1, pp. 33-46, 7 figs., January 1934.

Hörner, Nils G.

- 1545. Den sextonde internationella geologkongressen i Washington, 1933: *Geol. fören., Stockholm, Förh.*, Band 55, Heft 3, Nr. 394, pp. 557-561. May-October 1933.

Hoffman, John.

- 1546. The petrography of some Potomac River sediments (abstract): *Virginia Acad. Sci., Proc.*, 1932-33, p. 52 [1933].

Hoffman, Malvin Gerald. See also Fuller, 1189.

- 1547. Structural features in the Columbia River lavas of central Washington: *Jour. Geology*, vol. 41, no. 2, pp. 184-195, 5 figs., February-March 1933.

Hoffmeister, John Edward. See Newland, 2476.

Holden, J. H.

- 1548. The duration of the Appalachian revolution (abstract): *Virginia Acad. Sci., Proc.*, 1932-33, p. 54, [1933].

Holden, Roy Jay.

1549. Fenstreams: *Science*, new ser., vol. 78, no. 2017, p. 169, August 25, 1933.

1550. Virginia manganese ores; origin of Oriskany manganese ore (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, p. 51, 1934.

1551. Time location of orogeny in central Appalachians (abstract): *Pan-Am. Geologist*, vol. 61, no. 2, p. 144, March 1934.

Holland, Alma.

1552. Publications in the field of science from the University of North Carolina (1795-1934): *Elisha Mitchell Sci. Soc., Jour.*, vol. 50, no. 1-2, pp. 303-415, December 1934.

Holland, Wilbur C.

1553. The ostracods of the Nineveh limestones of Pennsylvania and West Virginia: *Carnegie Mus., Annals*, vol. 22, 1933-34, nos. 2-4, pp. 343-350, 1 pl., May 1934.

Holler, K.

1554. Hydrothermal Zersetzungerscheinungen an grönländischen Basalten: *Chemie der Erde (Blanck u. Linck)*, Band 8, Heft 1-2, pp. 25-44, 6 figs., 1933.

Hollick, Charles Arthur, 1857-1933. See Woodworth, 3779.

Hollingsworth, R. V. See also Harris, 1411.

1555. Paleontological notes concerning Savanna formation in McAlester quadrangle, Oklahoma (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, p. 237, April 1933.

1556. Union Valley sandstone (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 364-365, June 1934.

Holmes, Arthur.

1557. The thermal history of the earth: *Washington Acad. Sci., Jour.*, vol. 23, no. 4, pp. 169-195, 15 figs., April 15, 1933.

Holmes, Walter W.

1558. (and Simpson, George Gaylord). Pleistocene exploration and fossil edentates in Florida: *Am. Mus. Nat. History, Bull.*, vol. 59, art. 7, pp. 383-448, 21 figs. (incl. maps), June 13, 1931.

Hooker, Marjorie.

1559. A new method of illustration: *Science*, new ser., vol. 79, no. 2039, p. 82, January 26, 1934.

Hoots, Harold William. See Gale, 1199.

Hore, R. E. See Graton, 1304.

Horton, Robert Elmer.

1560. The rôle of infiltration in the hydrologic cycle: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 446-460, 5 figs., Nat. Research Council, June 1933.

Hoskins, John Hobart.

1561. A *Ptychocarpus* type of fructification from Illinois: *Am. Midland Naturalist*, vol. 14, no. 6, pp. 726-728, 1 fig., November 1933.

1562. *Psaronius illinoensis*: *Am. Midland Naturalist*, vol. 15, no. 3, pp. 358-361, 2 figs., May 1934.

Hotchkiss, William Otis.

1563. (and others). Lake Superior region: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 27, Excursion C-4, 101 pp., 22 figs. (incl. geol. map), 8 pls. (incl. geol. maps), 1933. Contains the following:

Leith, Charles Kenneth. Introduction, pp. 1-10, 1 fig. (map).

Swanson, Clarence Otto. Geology of the Marquette range, pp. 10-21, 1 fig. 1 pl. (geol. map).

Pardee, Franklin G. Mining on the Marquette range, pp. 21-29, 3 figs.; Mining on the Gogebic range, pp. 60-65, 2 figs.

Broderick, Thomas Monteith. Geology, exploration and mining in the Michigan copper district, pp. 29-49, 4 figs., 4 pls.

Hotchkiss, William Otis. The Gogebic range, pp. 49-59, 5 figs.

Aldrich, Henry Roy. Gogebic range to Duluth, pp. 66-67.

Grout, Frank Fitch. Duluth rocks and structure, pp. 67-72, 2 figs. (incl. map), 2 pls.

Zapffe, Carl. The Cuyuna iron-ore district, pp. 72-78, 3 figs. (incl. map).

Gruner, John Walter. The Mesabi range, pp. 88-101, 1 fig., 1 pl. (geol. map).

1564. (and Ingersoll, Leonard Rose). Postglacial time calculations from recent geothermal measurements in the Calumet copper mines: Jour. Geology, vol. 42, no. 2, pp. 113-122, 3 figs., February-March 1934.

Houdek, Paul King.

1565. Pollen statistics for two Indiana bogs: Indiana Acad. Sci., Proc., vol. 42, pp. 73-77, 2 figs., 1933.

Hough, J. L.

1566. Redeposition of microscopic Devonian plant fossils: Jour. Geology, vol. 42, no. 6, pp. 646-648, August-September 1934.

Houston, Sam H., Jr.

1567. Fossil footprints in Comanchean limestone beds, Bandera County, Tex.: Jour. Geology, vol. 41, no. 6, pp. 650-653, 2 figs., August-September 1933.

Hovde, M. R.

1568. The great dust storm of November 12, 1933: Monthly Weather Rev., vol. 62, no. 1, pp. 12-13, January 1934.

Howard, A. D. See Colony, 711; Johnson, 1685, 1688.

Howard, Charles Spaulding. See Hall, 1370.

Howard, Edgar B.

1569. Association of artifacts with mammoth and bison in eastern New Mexico (abstract): Science, new ser., vol. 78, no. 2032, p. 524, December 8, 1933.

Howard, Hildegard.

1570. Pliocene bird remains from Santa Barbara, Calif.: Condor, vol. 33, no. 1, pp. 30-31, January-February 1931.

1571. A new species of road-runner from Quaternary cave deposits in New Mexico: Condor, vol. 33, no. 5, pp. 206-209, 2 figs., September-October 1931.

1572. *Cryptoglaux funera* in New Mexico: Condor, vol. 33, no. 5, p. 316, September-October 1931.

1573. A new species of cormorant from Pliocene deposits near Santa Barbara, Calif.: Condor, vol. 34, no. 3, pp. 118-120, 4 figs., May-June 1932.

Howard, Hildegard—Continued.

1574. (and Miller, Alden Holmes). Bird remains from cave deposits in New Mexico: *Condor*, vol. 35, no. 1, pp. 15-18, January-February 1933.

1575. A new species of owl from the Pleistocene of Rancho La Brea, Calif.: *Condor*, vol. 35, no. 2, pp. 66-69, 4 figs., March-April 1933.

Howard, Paul J. See Crown, 809.

Howard, Waldorf Vivian.

1576. Accumulation of oil and gas in limestone: Problems of petroleum geology (Sidney Powers memorial volume), pp. 365-375, *Am. Assoc. Petroleum Geologists*, 1934.

Howe, Henry Van Wagenen. See also Shreveport Geol. Soc., 3076.

1577. (and Wallace, William E.). Foraminifera of the Jackson Eocene at Danville Landing, on the Ouachita, Catahoula Parish, La.: Louisiana, Dept. Conservation, Bull., no. 22 (General Bull., Handbook, Minerals Division), pp. 127-232, 2 figs. (sketch maps), 15 pls. 1933; Louisiana, Dept. Conservation, Geol. Bull., no. 2, 118 pp., 2 figs., 15 pls., September 1, 1932.

1578. Review of Tertiary stratigraphy of Louisiana: *Am. Assoc. Petroleum Geologists*, Bull., vol. 17, no. 6, pp. 613-655, June 1933.

1579. (and Moresi, Cyril K.). Geology of Lafayette and St. Martin Parishes: Louisiana, Dept. Conservation, Geol. Bull. no. 3, 238 pp., 52 figs. (incl. maps), July 1, 1933.

1580. The ostracode genus *Cytherelloidea* in the Gulf coast Tertiary: *Jour. Paleontology*, vol. 8, no. 1, pp. 29-34, 1 pl., March 1934; abstract, *Geol. Soc. America*, Proc., 1933, p. 371, June 1934.

1581. (and Wallace, William E.). Apertural characteristics of the genus *Hantkenina*, with description of a new species: *Jour. Paleontology*, vol. 8, no. 1, pp. 35-37, fig. 13 on pl. 5, March 1934; abstract, *Geol. Soc. America*, Proc., 1933, p. 371, June 1934.

1582. (and Garrett, Julius B., Jr.). Louisiana Sabine Eocene *Ostracoda*: Louisiana Dept. Conservation, Geol. Bull. no. 4, 69 pp., 4 pls., April 1, 1934.

1583. *Bitubulogenerina*, a Tertiary new genus of Foraminifera: *Jour. Paleontology*, vol. 8, no. 4, pp. 417-421, 1 pl., December 1934.

Howe, Marshall Avery.

1584. Plants that form reefs and islands: *Sci. Monthly*, vol. 36, no. 6, pp. 549-552, June 1933.

1585. Arthur Hollick, February 6, 1857-March 11, 1933: *Torrey Bot. Club*, Bull., vol. 60, no. 8, pp. 537-553, port., November 1933.

1586. Eocene marine algae (Lithothamnieceae) from the Sierra Blanca limestone: *Geol. Soc. America*, Bull., vol. 45, no. 3, pp. 507-518, 5 pls., June 30, 1934; abstract, Proc., 1933, p. 87, June 1934.

Howe, William Warren.

1587. (and Phelps, Robert Thayer). Physical chemistry in its relation to geology: *Mines Mag.*, vol. 24, no. 10, pp. 11-18, 14 figs., October 1934.

Howell, Benjamin Franklin. See also Ashley, 92; Hayes, 1433; Resser, 2741.

1588. Proceedings of the twenty-fourth annual meeting of the Paleontological Society, held at Cambridge, Mass., December 28, 29, and 30, 1932: *Geol. Soc. America*, Bull., vol. 44, pt. 1, pp. 181-234, February 28, 1933.

Howell, Benjamin Franklin—Continued.

1589. (and Sandidge, John Roy). Upper Cambrian Foraminifera (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 191-192, February 28, 1933.
1590. An illustrated card catalogue of North American fossils: Wagner Free Inst. Sci., Bull., vol. 9, no. 1, pp. 105-108, 1 pl., February 1934.
1591. *Bovicornellum vermontense*, a peculiar new Cambrian fossil from Vermont: Wagner Free Inst. Sci., Bull., vol. 9, no. 2, pp. 112-113, 1 pl., May 1934; abstract, Geol. Soc. America, Proc., 1933, p. 337, June 1934.
1592. Proceedings of the twenty-fifth annual meeting of the Paleontological Society, held at Chicago, Ill., December 28, 29, and 30, 1933: Geol. Soc. America, Proc., 1933, pp. 319-408, June 1934.
1593. Contact of the Cambrian Winooski and Mallett formations of north-western Vermont (abstract): Geol. Soc. America, Proc., 1933, p. 333, June 1934.
1594. Cambrian Rugg Brook formation of northwestern Vermont (abstract): Geol. Soc. America, Proc., 1933, p. 334, June 1934.
1595. Classification of the Centroleurinae (abstract): Geol. Soc. America, Proc., 1933, pp. 334-335, June 1934.
1596. Base of the Upper Cambrian in northwestern Vermont (abstract): Geol. Soc. America, Proc., 1933, pp. 336-337, June 1934.
1597. (and Resser, Charles Elmer). Habitats of the Agnostian trilobites (abstract): Geol. Soc. America, Proc., 1933, pp. 360-361, June 1934.

Howell, Jesse V. See also Rich, 2748.

1598. Historical development of the structural theory of accumulation of oil and gas: Problems of petroleum geology (Sidney Powers memorial volume), pp. 1-23, 6 figs. (incl. maps), Am. Assoc. Petroleum Geologists, 1934.

Howse, Claude K. See also Douglas, 931.

1599. Report on the geology of the Purcell's Cove area, Halifax County, Nova Scotia: Nova Scotia Inst. Sci., vol. 18, pt. 3, pp. 177-191, 7 figs., 4 pls. (incl. geol. map), 1932-33, 1934.

Hoyt, William Glen.

1600. Forests and stream flow (abstract): Washington Acad. Sci., Jour., vol. 24, no. 11, p. 486, November 15, 1934.

Hrdlička, Aleš. See Bishop, 310.

Hubbert, Marion King.

1601. Results of earth-resistivity survey on various geologic structures in Illinois (with discussion): Am. Inst. Min. Met. Eng., Trans., vol. 110, Geophysical Prospecting, pp. 9-39, 20 figs., 1934.
1602. (and Weller, James Marvin). Location of faults in Hardin County, Ill., by earth-resistivity method (with discussion): Am. Inst. Min. Met. Eng., Trans. vol. 110, Geophysical Prospecting, pp. 40-48, 3 figs., 1934.
1603. Future ore supply and geophysical prospecting: Eng. and Min. Jour., vol. 135, no. 1, pp. 18-21, 6 figs., January 1934.
1604. Electrical profiles in gaps in New Jersey trap ridges: Am. Jour. Sci., 5th ser., vol. 28, no. 163, pp. 65-70, 3 figs., July 1934.

Huber, Walter Leroy. See Etcheverry, 1031.

Huddle, John Warfield.

1605. Marine fossils from the top of the New Albany shale of Indiana: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 148, pp. 303-314, 2 pls., April 1933.
1606. Conodonts from the New Albany shale of Indiana: *Bull. Am. Paleontology*, vol. 21, no. 72, 2 figs., 13 pls., November 5, 1934.

Hughes, Guy.

1607. Wide variety of quartz minerals found in Oregon: *Oregon Mineralogist*, vol. 2, no. 9, pp. 12, 14-15, September 1934.

Hughes, Harry Herbert.

1608. Topographic and geologic atlas of Pennsylvania, No. 36, Freeport quadrangle; geology and mineral resources: *Pennsylvania Geol. Survey*, 4th ser., 272 pp., 70 figs., 9 pls., (incl. maps), 1933.

Hughes, Richard V.

1609. The geology of the Beartooth Mountain front in Park County, Wyo.: *Nat. Acad. Sci., Proc.*, vol. 19, no. 2, pp. 239-253, 5 figs. (incl. geol. map), February 15, 1933.
1610. Peneplanation of Beartooth Mountains: *Pan-Am. Geologist*, vol. 59, no. 5, pp. 321-327, 2 figs. (incl. geol. sketch map), 1 pl., June 1933.

Hulin, Carlton D.

1611. Geological relations of ore deposits in California: Ore deposits in the Western States (Lindgren volume), pp. 240-253, 1 fig., *Am. Inst. Min. Met. Eng.*, 1933.
1612. Mechanics of fault movements (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, p. 318, May 1934.

Hult, Gottfried.

1613. Arthur Gray Leonard—a tribute: *North Dakota, Univ., Quart. Jour.*, vol. 23, nos. 3-4, pp. 157-159, 1933.

Hume, George Sherwood.

1614. Oil prospects of the Great Slave Lake and Mackenzie River areas: *Canadian Min. Met. Bull.*, no. 239, pp. 92-103, 6 figs., March 1932; *Canadian Inst. Min. and Metallurgy, Trans.*, 1932, vol. 35, pp. 92-103, 6 figs., 1933.
1615. Oil and gas in western Canada: *Canada, Geol. Survey, Econ. Geol. ser.* no. 5, 2d ed., 359 pp., 26 figs. (incl. maps), 1933. (No. 2128.)
1616. Waterton Lakes-Flathead Valley area, Alberta and British Columbia: *Canada, Geol. Survey, Summary Rept.*, 1932, pt. B, pp. 1-20, 3 figs., 1933 (no. 2329); *British Columbia, Bur. Mines, Ann. Rept.*, 1932, pp. 164-167, 3 figs., 1933.
1617. Birch Ridge structure, Alberta: *Canada, Geol. Survey, Summary Rept.*, 1932, pt. B, pp. 68-74, 1 fig. 2 pls., 1933. (No. 2329.)
1618. Distribution of probable source rocks in relation to natural gas and petroleum production in Alberta, Canada: *Petroleum World*, London, vol. 30, no. 395, pp. 203-204, 206-207, August 1933; *World Petroleum Congress, London, 1933, Proc.*, vol. 1, pp. 62-65, 2 figs. (maps), 1934; abstract, *Petroleum Times*, vol. 30, no. 756, p. 32, July 8, 1933.

Humphreys, William Jackson.

1619. Volcanic dust in relation to climate: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 1, pp. 243-245, *Nat. Research Council*, June 1934.

Huner, J., Jr. See Workman, 3786.

Hunt, Charles Butler. See also Pierce, 2624.

1620. Tertiary structural history of parts of northwestern New Mexico (abstract): Washington Acad. Sci., Jour., vol. 24, no. 4, pp. 188-189. April 15, 1934.

Hunt, Walter Frederick.

1621. Memorial of Charles Wilford Cook [1882-1933]: Am. Mineralogist, vol. 19, no. 3, pp. 114-117, March 1934.

Hunter, Campbell M.

1622. The oil prospects of western Canada (with discussion): World Petroleum Congress, London, 1933, Proc., vol. 1, pp. 66-72, 1 fig. (map), 1934; abstract, Petroleum Times, vol. 30, no. 759, p. 180, July 29, 1933.

Hurlburt, C. S., Jr.

1623. (and Gonyer, F. A.). New group of phosphates (abstract): Geol. Soc. America, Proc., 1933, p. 440, June 1934.

Hurst, Macleod Ewart.

1624. Geology of the Sioux Lookout area: Ontario, Dept. Mines, 41st Ann. Rept. (vol. 41, pt. 6), pp. 1-33, 17 figs., (incl. sketch map), 2 pls., (incl. geol. map), 1933.

Hyde, Jesse Earl.

1625. Memorial of Frank Robertson Van Horn [1872-1933]: Geol. Soc. America, Proc., 1933, pp. 273-288, port., June 1934.
1626. Frank Robertson Van Horn, 1872-1933: Ohio Jour. Sci., vol. 34, no. 4, pp. 245-246, July 1934.

Ickes, Eugene Law.

1627. Formulas for calculating stratigraphic thickness exposed between two dips: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 1, pp. 139-142, January 1934.

Illinois, State Geological Survey.

1628. List of publications on the geology, mineral resources, and mineral industries of Illinois; with appended index. 83 pp., September 1, 1933. Urbana, Ill., 1933.

Imb, W. C.

1629. Geological conditions governing location, drilling, and casing of wells: Am. Water Works Assoc., Jour., vol. 25, no. 9, pp. 1207-1215, 3 figs., September 1933.

Imperial Oil, Ltd.

1630. Report on the petroleum possibilities of Cumberland and Pictou Counties, Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1931, pt. 2, 90 pp., 1 fig., 11 pls. (incl. geol. map), 1932.

Ingalls, Albert G.

1631. "Guns" of Seneca Lake: Science, new ser., vol. 79, no. 2056, pp. 479-480, May 25, 1934.

Ingersoll, Leonard Rose. See Fisher, 1103; Hotchkiss, 1564.

Ingerson, Earl.

1632. Relation of critical and supercritical phenomena of solutions to geologic processes: Econ. Geology, vol. 29, no. 5, pp. 454-470, August 1934.

Insley, Herbert.

1633. Minerals with the composition $Al_2O_3 \cdot SiO_2$: *Am. Ceramic Soc., Jour.*, vol. 16, no. 1, pp. 58-60, January 1933.

Ireland, H. Andrew.

1634. The age of the Spavinaw granite: *Oklahoma Acad. Sci., Proc.*, 1930, vol. 10, pp. 72-77, 1930.
1635. Insoluble residues as criteria for pre-Pennsylvanian correlation in Oklahoma (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, p. 237, April 1933.

Irwin, Joseph S.

1636. (and Case, L. C., and Dorsey, George Edwin). Preservation of oil during erosion of reservoir rocks (discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 10, pp. 1271-1275, October 1933.

Israelsky, Merle Cathcart.

1637. A new species of echinoid from Tamaulipas, Mexico: *San Diego Soc. Nat. History, Trans.*, vol. 7, no. 22, pp. 272-282, 1 pl., March 31, 1933.
1638. (and others). Coastal Plain stratigraphic nomenclature: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 12, pp. 1535-1536, December 1933.

Jackson, Charles F.

1639. (and Knaebel, John B., and Wright, C. A.). Geology of lead and zinc deposits (abstract): *Min. Cong. Jour.*, vol. 20, no. 7, pp. 23-24, July 1934.

Jackson, Robert Tracy.

1640. Report on the fossil echinoderms: *Harvard Coll., Mus. Comp. Zoology Ann. Rept.*, 1932-33, p. 48, 1933.
1641. Report on fossil echinoderms: *Harvard Coll., Mus. Comp. Zoology, Ann. Rept.*, 1933-34, pp. 48-49, 1934.

Jacob, Kenneth Donald.

1642. (and others). The composition and distribution of phosphate rock with special reference to the United States: *U. S. Dept. Agr., Tech. Bull.* no. 364, 90 pp., June 1933.

Jacobs, Elbridge Churchill.

1643. Report of the State geologist on the mineral industries of Vermont, 1933-34, 36 pp. [1934].

Jacobsen, Frank E. See Crawford, 773.

Jaggard, Thomas Augustus, Jr.

1644. Elevation changes, horizontal shift, and tilt at Kilauea Volcano (abstract): *Washington Acad. Sci., Jour.*, vol. 23, no. 2, pp. 113-114, February 15, 1933.

Jakosky, John Jay.

1645. (and Wilson, C. H.). Geophysical studies in placer and water-supply problems: *Am. Inst. Min. Met. Eng., Tech. Pub.* no. 515, 18 pp., 11 figs., 1933; abstract, *Trans.*, vol. 110, *Geophysical Prospecting*, p. 121, 1934; abstract, *Mining and Metallurgy*, vol. 14, no. 324, p. 517, December 1933.
1646. Geophysical examination of prospects: *Canadian Min. Jour.*, vol. 55, no. 1, pp. 9-13, 4 figs., January 1934.

Jakosky, John Jay—Continued.

1647. (and Wilson, C. H.). Examining a placer by geophysical methods: Eng. and Min. Jour., vol. 135, no. 2, pp. 71-74, 5 figs., February 1934.

James, Maurice T.

1648. A new Eocene syrphid from Colorado (Diptera): Canadian Entomologist, vol. 64, no. 11, p. 264, 1 fig., November 1932.

Janson, Elsie. See Sears, 3021.

Jarvis, P. W. See Cushman, 819.

Jeffery, Walter H.

1649. Cosmic genesis of petroleum: World Petroleum, New York, vol. 4, no. 2, pp. 55-59, February 1933.

Jeffrey, Edward Charles.

1650. Arthur Hollick, 1857-1933: Science, new ser., vol. 77, No. 2002, pp. 440-441, May 12, 1933.

Jeffreys, Harold.

1651. Insolation and denudation; note on Dr. Blackwelder's paper: Am. Jour. Sci., 5th ser., vol. 26, no. 156, pp. 607-608, December 1933.

Jenkins, Olaf Pitt.

1652. Geologic branch, current notes: Mining in California (California, Dept. Nat. Res., Div. Mines), vol. 28, nos. 3, 4, p. 278, July and October, 1932.

1653. Report accompanying geologic map of northern Sierra Nevada: Mining in California (California, Dept. Nat. Res., Div. Mines), vol. 28, nos. 3, 4, pp. 279-298, 8 figs., geol. map, July and October, 1932.

1654. (and others). Middle California and western Nevada: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 16, Excursion C-1, 116 pp., 19 figs. (incl. geol. map), 18 pls. (incl. geol. maps), 1933. Contains the following:

Lawson, Andrew Cowper. The geology of middle California, pp. 1-12, 2 pls. (incl. geol. map).

Jenkins, Olaf Pitt. The San Francisco peninsula, pp. 13-18, 1 fig. 2 pls.

Davis, William Morris, 1850-1934. San Francisco Bay, pp. 18-21.

Clark, Bruce Laurence. The Berkeley Hills, pp. 21-26, 1 fig., 1 pl.

Matthes, François Émile. Geography and geology of the Sierra Nevada, pp. 26-40, 3 figs.; Up the western slope of the Sierra Nevada by way of the Yosemite Valley, pp. 67-81, 3 figs., 4 pls. (incl. geol. maps).

Blackwelder, Eliot. Eastern slope of the Sierra Nevada, pp. 81-95, 2 figs., 4 pls. (incl. geol. map).

Jones, J. Claude [1877-1932], and Glanella, Vincent Paul. Reno and vicinity, pp. 96-102; Itinerary, Reno to Pyramid Lake and return, pp. 102-108, 1 fig., 3 pls. (incl. maps).

Glanella, Vincent Paul. Itinerary, Reno to Walley Hot Springs and return, pp. 108-116, 3 figs.

1655. Geologic branch, current notes: California Jour. Mines and Geology, vol. 29, nos. 1, 2, pp. 74-75, January and April 1933.

1656. Use of geology in seeking gold: Min. Jour., vol. 17, no. 2, pp. 3-4, Phoenix, Ariz., June 18, 1933.

1657. Geologic branch, current notes: California Jour. Mines and Geology, vol. 30, no. 1, pp. 3-4, 1 fig., January 1934.

1658. Resurrection of early surfaces in the Sierra Nevada (abstract): California Jour. Mines and Geology, vol. 30, no. 1, pp. 5-6, January 1934.

Jenkins, Olaf Pitt—Continued.

1659. (and Wright, William Quinby). California's gold-bearing Tertiary channels: Eng. and Min. Jour., vol. 135, no. 11, pp. 497-502, 5 figs. (incl. geol. map), November 1934.

Jenks, Albert Ernest.

1660. Minnesota Pleistocene *Homo*, an interim communication: Nat. Acad. Sci., Proc., vol. 19, no. 1, pp. 1-6, 3 figs., January 15, 1933.
1661. The discovery of an ancient Minnesota maker of Yuma and Folsom flints: Science, new ser., vol. 80, no. 2070, p. 205, August 31, 1934.

Jenks, William F.

1662. Heavy minerals in the syenites of Pleasant Mountain, Maine: Am. Mineralogist, vol. 19, no. 10, pp. 476-479, 1 fig., October 1934.
1663. Petrology of the alkaline stock at Pleasant Mountain, Maine: Am. Jour. Sci., 5th ser., vol. 28, no. 167, pp. 321-340, 5 figs. (incl. maps), November 1934.

Jenness, Diamond. See Johnston, 1705; Nelson, 2462; Romer, 2802.

Jennings, D. S.

1664. Seepage of ground water and its relation to alkali accumulation: Utah State Agr. College, Agr. Exper. Sta., Circ. 106, 13 pp., 4 figs., July 1934.

Jenny, W. P.

1665. Problems in the geologic interpretation of the earth's major magnetic anomalies: Terrestrial Magnetism, vol. 38, no. 2, pp. 97-105, 4 figs., 2 pls., June 1933.
1666. Florida geology not favorable to oil accumulation: Oil Weekly, vol. 71, no. 3, pp. 23-26, 2 figs., October 2, 1933.
1667. Ergebnisse der magnetischen Vektorenmethode in den Staaten Alabama und Florida, U. S. A.: Gerlands Beitr. Geophysik, Band 42, Heft 4, pp. 413-422, 2 figs., 1934.
1668. Magnetic vector study of Kentucky and southern Michigan: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 1, pp. 97-105, 4 figs. (incl. maps), January 1934.
1669. Do magnetometer surveys fail to reveal commercial structures?: Oil Weekly, vol. 72, no. 13, pp. 16-18, 4 figs., March 12, 1934.
1670. Structural trends on the Gulf coast: Oil Weekly, vol. 74, no. 5, pp. 33-36, 38, 40, 3 figs. (incl. map), July 16, 1934.

Jenson, Joseph.

1671. California oil-field waters: Problems of petroleum geology (Sidney Powers memorial volume), pp. 953-985, Am. Assoc. Petroleum Geologists, 1934.

Jepsen, Glenn Lowell. See also Field, 1077; O'Hara, 2522.

1672. American eusmiloid sabre-tooth cats of the Oligocene epoch: Am. Philos. Soc., Proc., vol. 72, no. 5, pp. 355-369, 1 fig., 4 pls., 1933.

Jewell, Willard B. See Burchard, 490.

Jewett, John M. See also Kansas Geol. Soc., 1745.

1673. Brief discussion of the Bronson group in Kansas: Kansas Geol. Soc., 6th Ann. Field Conf., Guidebook, pp. 99-104 (†), 1 fig., September 1932.

Jewett, John M.—Continued.

1674. Some details of the stratigraphy of the Bronson group of the Kansas Pennsylvanian: *Kansas Acad. Sci., Trans.*, vol. 36, pp. 131-136, 2 figs. [1933]
1675. A newly found locality of glacial striae south of Missouri River: *Kansas Acad. Sci., Trans.*, vol. 37, p. 153, 1934.

Johnson, Douglas Wilson.

1676. (and Bascom, Florence, and Sharp, Henry Staats). Geomorphology of the central Appalachians: *Internat. Geol. Cong., XVI, United States, 1933, Guidebook 7, Excursion A-7*, 50 pp., 28 figs. (incl. maps), 2 pls., 1932.
1677. The correlation of ancient marine levels: *Cong. internat. géographie, Paris, 1931, Compte rendu.*, sec. 2, t. 2, fasc. 1, pp. 42-54, 10 figs., 1933.
1678. Evolution of the drainage system of eastern North America: *Cong. internat. géographie, Paris, 1931, Compte rendu*, sec. 2, t. 2, fasc. 1, pp. 600-606, 3 figs., 1933.
1679. Development of drainage systems and the dynamic cycle: *Geog. Rev.*, vol. 23, no. 1, pp. 114-121, 3 figs., January 1933.
1680. Origin of the Blue Ridge escarpment (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 87, February 28, 1933.
1681. Available relief and texture of topography; a discussion: *Jour. Geology*, vol. 41, no. 3, pp. 293-305, April-May 1933.
1682. Date of local glaciation in the White Mountains: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 149, pp. 399-405, May 1933.
1683. Role of analysis in scientific investigation: *Geol. Soc. America, Bull.*, vol. 44, no. 3, pp. 461-494, 1 fig., June 30, 1933; abbreviated, *Science*, new ser., vol. 77, no. 2007, pp. 569-576, June 16, 1933.
1684. How rivers cut gateways through mountains: *Sci. Monthly*, vol. 38, no. 2, pp. 129-135, 7 figs., February 1934.
1685. (and Mackin, J. Hoover, and Howard, Arthur). Geomorphic studies in the Rocky Mountain region of Wyoming (abstract): *Assoc. Am. Geographers, Annals*, vol. 24, no. 1, pp. 57-58, March 1934.
1686. William Morris Davis [1850-1934]: *Science*, new ser., vol. 79, no. 2055, pp. 445-449, May 18, 1934.
1687. Supposed meteorite scars of South Carolina (abstract): *Science*, new ser., vol. 79, no. 2055, p. 461, May 18, 1934.
1688. (and Howard, Arthur, and Mackin, J. Hoover). Geomorphic researches in the Yellowstone Park and Big Horn Basins, Wyoming (abstract): *Science*, new ser., vol. 79, no. 2055, pp. 461-462, May 18, 1934.
1689. (and Mackin, J. Hoover). Geomorphic studies in the Big Horn Basin, Wyoming (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 55-56, June 1934.

Johnson, E. L.

1690. Stratigraphy of Oakville, Lagarto, and Reynosa formations between Nueces and Guadalupe Rivers, Texas: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 5, pp. 523-525, May 1933.

Johnson, F. A.

1691. Merced formation from Santa Rosa Valley to the Pacific (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, pp. 311-312, May 1934.

Johnson, Floyd L. See Barbat, 161.

Johnson, G. Duncan.

1692. Geology of the mountain uplift transected by the Shoshone Canyon, Wyoming: *Jour. Geology*, vol. 42, no. 8, pp. 809-838, 6 figs. (incl. maps), 1 pl. (geol. map), November-December 1934.

Johnson, Helgi. See Hayes, 1434.

Johnson, Jesse Harlan. See also Behre, 242; Brainerd, 380; Henderson, 1455; Lovering, 2110.

1693. Notes on the geology of the Sangre de Cristo Range (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 1, pp. 56-57, April 1929.
1694. Problems of the Benton in eastern Colorado (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 2, April 1930.
1695. A Pennsylvanian forest in central Colorado (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 3, p. 30, April 1931.
1696. Sink holes at high elevation in Eagle County (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 4, p. 32, August 1932.
1697. (and Brainerd, Arthur E.). Mississippian rocks of Colorado (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, p. 235, April 1933.
1698. Pennsylvania crustaceans from South Park, Colorado (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 5, p. 33, June 1933.
1699. Permian algal reef in South Park, Colorado; *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 7, pp. 863-865, 2 figs., July 1933; abstract, *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 5, p. 32, June 1933.
1700. Fossil algae from the Jurassic of Utah (abstract): *Geol. Soc. America, Proc.*, 1933, p. 331, June 1934.
1701. A coprolite horizon in the Pennsylvanian of Chaffee and Park Counties, Colo.: *Jour. Paleontology*, vol. 8, no. 4, pp. 477-479, 1 fig., December 1934.

Johnson, Meredith E.

1702. The mineral industry of New Jersey for 1931: New Jersey, Dept. Conservation, *Geol. ser., Bull.* 40, 18 pp., 1933.
1703. The mineral industry of New Jersey for 1932: New Jersey, Dept. Conservation, *Geol. ser., Bull.* 41, 21 pp., 4 pls., 1934.

Johnson, Vard.

1704. A quantitative study of crustal shortening during uplift of geosynclines: *Utah Acad. Sci., Proc.*, vol. 10, pp. 43-45, July 1933.

Johnston, A. Walfred. See Baker, 145.

Johnston, C. Stuart. See also Stovall, 3266, 3267.

Johnston, William Alfred.

1705. Quaternary geology of North America in relation to the migration of man: The American aborigines, their origin and antiquity (edited by Diamond Jenness), pp. 9-45, 3 figs. (maps), Univ. Toronto Press, 1933.
1706. (and Uglow, William Lawrence). Placer and vein gold deposits of Barkerville, Cariboo district, British Columbia: Canada, *Geol. Survey, Summary Rept.*, 1932, pt. A 1, pp. 1-75, 4 figs., 1933. (No. 2331.)
1707. Borings for water, oil and gas in British Columbia: Canada, *Geol. Survey, Summary Rept.*, 1932, pt. A 2, pp. 177-178, 1933. (No. 2333.)

Johnston, William Alfred—Continued.

- 1708. Deep borings in the Prairie Provinces: Canada Geol. Survey, Summary Rept., 1932, pt. B, pp. 99-101, 3 pls., 1933. (No. 2329.)
- 1709. Borings in eastern Canada: Canada, Geol. Survey, Summary Rept., 1932, pt. D, pp. 69-71, 1933. (Pub. no. 2330.)
- 1710. Surface deposits and ground-water supply of Winnipeg map area, Manitoba: Canada, Dept. Mines, Geol. Survey, Mem. 174, 110 pp., 3 figs. (maps), 1 pl. (geol. map), 1934. (No. 2363.)
- 1711. Deep borings in British Columbia: Canada, Geol. Survey, Summary Rept., 1933, pt. A, p. 76, 1934. (No. 2350.)
- 1712. Deep borings in the Prairie Provinces: Canada Geol. Survey, Summary Rept., 1933, pt. B, pp. 169-170, 1934. (No. 2353.)
- 1713. Borings in eastern Canada: Canada, Geol. Survey, Summary Rept. 1933, pt. D, pp. 155-156, 1934. (Pub. no. 2351.)

Johnston, William Drumm, Jr.

- 1714. Ground water in the Paleozoic rocks of northern Alabama: Alabama, Geol. Survey, Special Rept. No. 16, pt. 1, text, 414 pp., 54 figs., 22 pls.; pt. 2, well and spring tables, 48 tables, index, map, 1933.
- 1715. (and Cloos, Ernst). Structural history of the fracture systems at Grass Valley, Calif.: Econ. Geology, vol. 29, no. 1, pp. 39-54, 12 figs., January-February 1934; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 88, February 28, 1933.

Jolliffe, F.

- 1716. Block Creek map area, Thunder Bay district, Ontario: Canada, Geol. Survey, Summary Rept., 1933, pt. D, pp. 7-15, 1 pl. (geol. map), 1934. (Pub. no. 2351.)

Jonas, Anna Isabel. See also Bevan, 288; Butts, 513; Hall, 1370; Stose, 3260, 3261.

- 1717. (and Knopf, Eleanor Bliss). Washington to Baltimore, Md., and York, Pa.: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 10, Excursion B-3, pp. 27-31, 1 fig., 1 pl. (both maps), 1932.

- 1718. Granodiorite, its intrusion and replacement by the Air Point granite in Virginia (abstract): Geol. Soc. America, Proc., 1933, p. 88, June 1934.

Jones, Austin E.

- 1719. Earthquakes associated with the 1933 eruption of Mauna Loa, Hawaii: Washington Acad. Sci., Jour., vol. 24, no. 10, pp. 413-418, 1 fig. (map), October 15, 1934.

Jones, Benjamin Earle.

- 1720. (and Stearns, Harold Thornton). Water-power resources of the Umpqua River and its tributaries, Oregon: U. S. Geol. Survey, Water-Supply Paper 636, pp. 221-320, 11 figs., 11 pls. (incl. map), 1930.
- 1721. (and Oakey, Warren, and Stearns, Harold Thornton). Water-power resources of the Rogue River drainage basin, Oregon: U. S. Geol. Survey, Water-Supply Paper 638, pp. 35-97, 17 figs., 25 pls. (incl. maps), 1932.

Jones, Daniel Johnson.

- 1722. (and Stovall, John Willis). Notes on new occurrence of *Petrodus* (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, pp. 237-238, April 1933.
- 1723. (and McFarlan, Arthur Crane). Geology of the Big Sinking pool, Lee County, Ky.: Kentucky, Univ., Bur. Mineral and Topog. Survey, Bull. no. 1, 9 pp. (†), 9 pls. (incl. maps), October 1, 1933.

Jones, Fred O.

- 1724. Significance of chert and flint pebbles in the Fox Hills formation of Colorado (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 6, p. 33, June 1934.

Jones, Islwyn Winwaloc.

- 1725. The Tabletop map area, Gaspé Peninsula: Quebec, Bur. Mines., Ann. Rept. for 1932, pt. D, pp. 5-32, 3 pls. (incl. geol. map, no. 250), 1933.
- 1726. Lead and zinc deposits near Gaspé Bay and on Marsui River: Quebec, Bur. Mines, Ann. Rept. for 1932, pt. D, pp. 33-54, 1 fig., 5 pls. (incl. geol. sketch map, no. 238), 1933.

Jones, J. Claude, 1877-1932. See Jenkins, 1654.

Jones, Richard A.

- 1727. Manner of salt flowage in salt domes: *Oil Weekly*, vol. 66, no. 7, pp. 31-32, 35-36, 2 figs., August 1, 1932.
- 1728. How deep may oil exist in the earth's crust?: *Oil Weekly*, vol. 71, no. 2, pp. 20-30, 2 figs., September 25, 1933.
- 1729. A comparison of Luling, Salt Flat, and Darst Creek-Edwards limestone fields, southwest Texas: *Oil Weekly*, vol. 72, no. 2, pp. 12-13, 16-19, 6 figs., December 25, 1933.
- 1730. Surface geology of northwest part of Government Wells producing district, Duval County [Tex.]: *Oil Weekly*, vol. 74, no. 7 pp. 23-26, 3 figs., July 30, 1934.

Jones, Russell H. B.

- 1731. Temperature relations to ore deposition: *Econ. Geology*, vol. 29, no. 8, pp. 711-724, 3 figs., December 1934.

Jones, Verner.

- 1732. Spring Hill gold deposit, near Helena, Mont.: *Econ. Geology*, vol. 29, no. 6, pp. 544-559, 4 figs., September-October 1934.

Jones, Victor H.

- 1733. Sedimentation in Red River below the mouth of Washita [Ouachita] River: Iowa, Univ., *Studies in Nat. History*, vol. 15, no. 4, 30 pp., 7 figs., 1933.

Jones, Walter Bryan.

- 1734. (and McVay, Thomas Newkirk). Barite deposits of the Sinks district, Bibb County, Ala.: *Econ. Geology*, vol. 29, no. 8, pp. 761-766, 1 fig. (map), December 1934.
- 1735. Bauxite mining in the United States—Alabama: *Mining and Metallurgy*, vol. 15, no. 336, sec. 1, pp. 481-482, 2 figs., December 1934.

Jongmans, Willem Josephus.

- 1736. (and Gothan, Walther Ulrich Eduard Friedrich). Florenfolge und vergleichende Stratigraphie des Karbons der östlichen Staaten Nord-Amerika's; Vergleich mit West-Europa: *Geol. Bur. Nederl. Mijng gebied Heerlen, Jaarvers.*, 1933, pp. 17-44, 1934; abstract, *Pan-Am. Geologist*, vol. 60, no. 3, pp. 230-231, October 1933.

Judson, Sidney A.

1737. (and Stamey, R. A.). Overhanging salt on domes of Texas and Louisiana: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 12, pp. 1492-1520, 13 figs., December 1933; *Oil Weekly*, vol. 71, no. 11, pp. 18-24, no. 12, pp. 18-22, no. 13, pp. 18, 20-24, 13 figs., 1933; *Oil and Gas Jour.*, vol. 32, no. 21, pp. 16, 30, no. 22, pp. 18, 22, no. 25, pp. 16, 18, no. 27, p. 18, 1934, 13 figs.; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 230, April 1933.

Jung, F. W. See Fieldner, 1084.

Just, Evan.

1738. Origin of bauxite deposits: *Econ. Geology*, vol. 28, no. 5, pp. 506-507, August 1933.
1739. Recency of great lava flow of Carrizozo [New Mexico]: *Pan-Am. Geologist*, vol. 62, no. 2, pp. 97-102, 2 pls. (incl. map), September 1934.

Kane, William G.

1740. (and Gierhard, Guy B.). Areal geology of Eocene north of Rio San Juan, northeastern Mexico (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, p. 233, April 1933.

Kansas Geological Society.

1741. Guidebook, 2d annual field conference, Ozark region of Missouri and Arkansas, 20 pp. (†), September 2-9, 1928.
1742. Guidebook, 3d annual field conference [South Dakota, Nebraska, Wyoming, Colorado], 100 pp. (†), illus. (incl. geol. map), September 1929.
1743. Guidebook, 4th annual field conference [Colorado, New Mexico, Texas], 178 pp. (†), illus. (incl. geol. map), September 1930. Includes the following papers:
Folger, Anthony. Generalized stratigraphic sections for Colorado, New Mexico, South Dakota, Wyoming, Kansas, pp. 16-25.
Ver Wiebe, Walter A. Résumé of formations studied in Colorado, pp. 67-73.
Brainerd, A. E. (and Baldwin, H. L., and Keyte, I. A.). Stratigraphic sections in southern Rocky Mountains of Colorado, pp. 74-96.
Baldwin, H. L. (and Brainerd, A. E., and Keyte, I. A.). The Pennsylvanian section at Lost Lake, Colorado, pp. 97-105.
Miller, B. Floyd (and Parker, Ben H., Beeth, Donald, and Hall, E. A.) Stratigraphic sections in northeastern New Mexico, pp. 106-130.
Parker, Ben H. Notes on the occurrence of clastic plugs and dikes in the Cimarron Valley area of Union County, New Mexico, pp. 131-136, sketch map.
Daniels, James I. Data on deep wells in southwestern Kansas and adjoining States, pp. 137-142.
Folger, Anthony. Oil and gas development in southeastern Colorado, southwestern Kansas, southeastern New Mexico, and the Texas Panhandle, pp. 143-161.
1744. Guidebook, 5th annual field conference [Oklahoma-Arkansas], 97 pp. (†), illus. (incl. geol. maps), September 1931. Includes the following papers:
Decker, C. E. General description of formations east of Poolville, p. 17.
Tomlinson, C. W. Descriptions of formations in Arbuckle Mountains and Ardmore Basin, p. 23.
Decker, C. E. Section north of Springer, Okla., p. 26; Simpson group at east end of Arbuckle Mountains (p.31).
Hendricks, Thomas A. Coal between Pittsburg and Red Oak, Okla., p. 35.
Miser, H. D. Origin of Arkansas novaculite, p. 44.
Geologic cross section of central United States:
Folger, Anthony. Introductory remarks, p. 64.

Kansas Geological Society—Continued.

- Thwaites, F. T. Michigan, Wisconsin, Illinois, p. 66.
 Lees, James H. The section across Iowa, p. 71.
 McQueen, H. S. The section across Missouri, p. 75.
 Hall, Roy H. The section across Kansas, p. 80.
 Bush, Fred A. The section across Oklahoma, p. 87.
 Cheney, M. G. The section across Texas, p. 91.
 Sellards, E. H., and Adkins, W. S. Section from Marathon to the Rio Grande, p. 93a.

1745. Guidebook, 6th annual field conference [Kansas, Missouri, Nebraska], 125 pp. (†), illus. (incl. maps), September 1932. Includes the following papers:

- Moore, Raymond C. A reclassification of the Pennsylvanian system in the northern Midcontinent region, pp. 79-98, 4 figs.
 Jewett, John M. Brief discussion of the Bronson group in Kansas, pp. 99-104, 1 fig.
 Ver Wiebe, W. A. (and Vickery, W. R.). Index to the stratigraphy of eastern Kansas and adjoining areas, pp. 105-120.
 Bevan, Arthur. Outline of the Pennsylvanian of the Appalachian region, pp. 121-124.

1746. Guidebook, 7th annual field conference [Missouri, Arkansas, Oklahoma], 54 pp. (†), illus. (incl. maps), September 1933.

1747. Proceedings of the 8th annual field conference [Kansas, Oklahoma, Texas, New Mexico, Colorado], 71 pp. (†), 25 figs. (incl. maps), 3 pls. (incl. geol. map), September 1934. Includes the following papers:

- Ver Wiebe, W. A. Geology of southwestern Kansas and adjacent States, pp. 8-37, 19 figs. (incl. maps), bibliography.
 Taylor, Garvin H. The Hugoton gas area, pp. 57-63, 2 figs.
 Daniels, J. I. Data on deep wells in southwestern Kansas and adjoining States, pp. 67-68.

Kaplow, Edward J. See Dodd, 908.

Kay, George Frederick. See also Alden, 22.

1748. Suggested revision of Pleistocene classification (abstract): Iowa Acad. Sci., Proc., 1931, vol. 38, p. 204 (n. d.).
 1749. Minimum durations of the glacial and interglacial ages in the Pleistocene of Iowa (abstract): Iowa Acad. Sci., Proc., 1931, vol. 38, pp. 204-205 (n. d.).
 1750. Origin of the pebble band on Iowan till (abstract): Iowa Acad. Sci., Proc., 1931, vol. 38, pp. 205-206 (n. d.).
 1751. (and Miller, Paul T.). Pleistocene gravels of Iowa (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 88-89, February 28, 1933.
 1752. (and Leighton, Morris Morgan). Eldoran epoch of the Pleistocene period: Geol. Soc. America, Bull., vol. 44, no. 4, pp. 669-674, August 31, 1933.

Kay, George Marshall. See also Chadwick, 610.

1753. The Ordovician Trenton group in northwestern New York, stratigraphy of the lower and upper limestone formations: Am. Jour. Sci., 5th ser., vol. 26, no. 151, pp. 1-15, 7 figs. (incl. map), July 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 193, February 28, 1933.
 1754. Comprehensive examinations in geology (abstract): Geol. Soc. America, Proc., 1933, pp. 88-89, June 1934.

Kay, J. LeRoy.

1755. The Tertiary formations of the Uinta Basin, Utah: Carnegie Mus., Annals, vol. 23, pp. 357-372, 5 pls. (incl. geol. map), 1934.

Kayser, Victor.

1756. The star garnet: Oregon Mineralogist, vol. 1, no. 3, p. 3, August 1934.

Keith, Arthur. See also Grout, 1337; Longwell, 2085.

1757. Preliminary geologic map of Maine, scale 1:1,000,000, Maine Geol. Survey, 1933.

1758. Orogeny of Maine granites (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 89, February 28, 1933.

1759. Memorial of Albert Perry Brigham [1855-1932]: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 307-317, part., April 30, 1933.

1760. Major structures and intrusions in New England (abstract): Washington Acad. Sci., Jour., vol. 23, no. 10, pp. 486-487, October 15, 1933.

Keller, W. D. See also Tarr, 3314.

1761. Earth resistivity at depths less than 100 feet: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 1, pp. 39-62, 17 figs., January 1934.

1762. A mounting medium of 1.66 index of refraction: Am. Mineralogist, vol. 19, no. 8, p. 384, August 1934.

Kellett, Betty. See also Bassler, 220; Moore, 2406.

1763. Geologic cross section from western Missouri to western Kansas, showing detailed correlation of Permian Big Blue series and Pennsylvanian [with Classification of lower Permian and Pennsylvanian systems of Kansas and Nebraska, 2d ed., by R. C. Moore and G. E. Condra], horizontal scale 1 mile: 5 inches, vertical scale 1 inch: 250 feet, October 1932.

1764. Ostracodes of the upper Pennsylvanian and the lower Permian strata of Kansas; 1, The Aparchitidae, Beyrichiidae, Glyptopleuridae, Kloedenellidae, Kirkbyidae, and Youngiellidae: Jour. Paleontology, vol. 7, no. 1, pp. 59-108, 4 pls., March 1933.

1765. Ostracodes from the upper Pennsylvanian and the lower Permian strata of Kansas; 2, The genus *Bairdia*: Jour. Paleontology, vol. 8, no. 2, pp. 120-138, 5 pls., June 1934; abstract, Geol. Soc. America, Proc., 1933, p. 374, June 1934.

Kelley, Walter Pearson. See Woodford, 3774.

Kellogg, Arthur Remington. See also Packard, 2549.

1766. The search for extinct marine mammals in Maryland: Smithsonian Inst., Explorations and Field Work in 1933, Pub. 3235, pp. 15-17, 2 figs., 1934.

1767. A new cetothere from the Modelo formation at Los Angeles, Calif.: Carnegie Inst. Washington, Pub. 447, Contr. Paleontology, pp. 83-104, 3 figs., 1 pl., January 10, 1934.

Kellum, Lewis Burnett.

1768. Geology of the mountains west of the Laguna district, Coahuila and Durango, Mexico (abstract): Geol. Soc. America, Proc., 1933, p. 89, June 1934.

Kelly, Junea W. See also Eckel, 981.

1769. Limestone weathering and plant associations of the San Francisco region: California Jour. Mines and Geology, vol. 29, nos. 3, 4, pp. 362-367, 3 figs., July and October 1933.

Kelly, Sherwin Finch.

1770. Geophysics in the mining and geological fields: Mining and Metallurgy, vol. 14, no. 313, pp. 30-31, January 1933.
1771. (and Zuschlag, Theodor, and Low, Bela). Discovering gold-quartz veins electrically: Mining and Metallurgy, vol. 15, no. 330, pp. 251-256, 6 figs., June 1934; abstract, Am. Inst. Min. Met. Eng., Trans., vol. 110, Geophysical Prospecting, p. 75, 1934.
1772. Geophysics; its technique explained in simple terms: Mining and Metallurgy, no. 331, pp. 293-297, port., July 1934.

Kelly, Vincent C.

1773. Westernmost Santa Monica Mountains (abstract): Pan-Am. Geologist, vol. 61, no. 4, pp. 308-309, May 1934.

Kelly, William Aultin.

1774. Pennsylvanian stratigraphy near Grand Ledge, Michigan: Jour. Geology, vol. 41, pt. 1, pp. 77-88, 4 figs., January-February 1933.
1775. Pennsylvania[n] Mollusca from Michigan (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 204, February 28, 1933.
1776. Geology of Acatita and Las Delicias areas, Coahuila, Mexico (abstract): Geol. Soc. America, Proc., 1933, pp. 89-90, June 1934.

Kemmerer, J. L., Jr. See Snelgrove, 3143.

Kendall, H. F.

1777. (and Ffolliott, J. H.). Geology applied to mining in the Ducktown district: Mining and Metallurgy, vol. 14, no. 316, pp. 175-179, 2 figs., April 1933.

Kennard, Theodore Gladden.

1778. (and Rambo, A. I.). Occurrence of rubidium, gallium, and thallium in lepidolite from Pala, Calif.: Am. Mineralogist, vol. 18, no. 10, pp. 454-455, 1 fig., October 1933.

Kennedy, W. Q.

1779. Trends of differentiation in basaltic magmas: Am. Jour. Sci., 5th ser., vol. 25, no. 147, pp. 239-256, 2 figs., March 1933.

Kerr, Forrest A.

1780. Whitewater gold belt, Taku River district, British Columbia: Canada, Geol. Survey, Summary Rept., 1932, pt. A 2, pp. 15-28, 1 fig., 1933. (No. 2333.)
1781. Gold in northern British Columbia: Canadian Min. Jour., vol. 54, no. 5, pp. 175-177, illus., May 1933.
1782. Manson River and Slate Creek placer deposits, Omineca district, British Columbia: Canada, Geol. Survey, Summary Rept., 1933, pt. A, pp. 9-29, 1 pl. (map), 1934. (No. 2350.)
1783. Glaciation in northern British Columbia: Royal Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 17-32, 3 pls., May 1934.

Kerr, Paul Francis. See also Berkey, 262, 263; Rogers, 2788; Ross, 2818, 2819, 2822.

1784. Memorial of George Frederick Kunz [1856-1932]: Am. Mineralogist, vol. 18, no. 3, pp. 91-94, port., March 1933.
1785. Geology of the tungsten deposits near Mill City, Nev.: Nevada, Univ., Bull., vol. 28, no. 2, 46 pp., 26 figs., 3 pls. (incl. geol. map), March 15, 1934.

Kester, Ernest Bowman. See Fieldner, 1084.

Kettner, Radim.

1786. Kráterové jezero v. Oregonu (Crater Lake, Oregon): *Věda Přírodní*, ročník 15, číslo, 2-3, pp. 33-43, 3 figs. (incl. geol. map), 3 pls., 1934.

Kew, William Stephen Webster. See Gale, 1199.

Keyes, Charles Rollin.

1787. Naming of Burlington limestone (abstract): *Iowa Acad. Sci., Proc.*, 1930, vol. 37, pp. 273-274, [1931].
1788. Easternmost foldings of ancestral Rockies (abstract): *Iowa Acad. Sci., Proc.*, 1930, vol. 37, pp. 275-276, [1931].
1789. Ancient Iowa orogenics and their present-day impress (abstract): *Iowa Acad. Sci., Proc.*, 1930, vol. 37, pp. 276-277, [1931].
1790. Trenton limestone in Iowa (abstract): *Iowa Acad. Sci., Proc.*, 1931, vol. 38, pp. 206-207 (n. d.).
1791. Larger prospect of our loess mantle [Iowa] (abstract): *Iowa Acad. Sci., Proc.*, 1931, vol. 38, p. 207 (n. d.).
1792. Geosynclinal concept [Iowa] (abstract): *Iowa Acad. Sci., Proc.*, 1931, vol. 38, pp. 207-208 (n. d.).
1793. Arthur Gray Leonard, 1865-1932: *Iowa Acad. Sci., Proc.*, 1933, vol. 40, pp. 31-32, port. [1933?].
1794. Use of Galena as a terranal title in Iowa (abstract): *Iowa Acad. Sci., Proc.*, 1933, vol. 40, p. 133, [1933?].
1795. Contrasted till reliefs (abstract): *Iowa Acad. Sci., Proc.*, 1933, vol. 40, p. 135 [1933?].
1796. Early Yorkic. succession in Iowa: *Pan-Am. Geologist*, vol. 59, no. 1, pp. 57-72, 2 figs., 4 pls., February 1933.
1797. The geological formation: *Pan-Am. Geologist*, vol. 59, no. 1, pp. 73-74, February 1933.
1798. Synonymy of Buffalo River terranal title of Arkansas: *Pan-Am. Geologist*, vol. 59, no. 1, pp. 75-80, 1 fig., February 1933.
1799. Desert mountains of erosion (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 89-90, February 28, 1933.
1800. Late Carbonic homogeny of continental interior: *Pan-Am. Geologist*, vol. 59, no. 2, pp. 127-150, 2 figs., 4 pls., March 1933.
1801. Entitlement of North American glaciations: *Pan-Am. Geologist*, vol. 59, no. 2, pp. 157-160, March 1933.
1802. Diversity of usages of Iowan as till title: *Pan-Am. Geologist*, vol. 59, no. 3, pp. 207-212, April 1933.
1803. Limitations of geographic designation of geologic terranes: *Pan-Am. Geologist*, vol. 59, no. 3, pp. 213-216, April 1933.
1804. Hueco vs. Magdalena in New Mexico; Modoc limestone of eastern Arizona; Synonymy of Devonian Percha shales of New Mexico: *Pan-Am. Geologist*, vol. 59, no. 3, pp. 217-224, 1 pl. April 1933.
1805. Genetic glaciology through its first century: *Pan-Am. Geologist*, vol. 59, no. 4, pp. 283-298, 3 figs., 2 pls., May 1933.
1806. Genesis of desert mountains (abstract): *Pan-Am. Geologist*, vol. 59, no. 4, pp. 304-305, May 1933.
1807. Murchisonian Permian in provincial series: *Pan-Am. Geologist*, vol. 59, no. 4, pp. 299-302, May 1933.

Keyes, Charles Rollin—Continued.

1808. Contrasted reliefs of glacial till terrepleins: *Pan-Am. Geologist*, vol. 59, no. 5, pp. 351-366, 3 figs., 4 pls. (incl. map), June 1933; abstract, vol. 60, no. 1, p. 79, August 1933.
1809. Forecasting of earthquakes: *Pan-Am. Geologist*, vol. 59, no. 5, pp. 367-370, June 1933.
1810. Standard Carbonic succession in diastatic analysis: *Pan-Am. Geologist*, vol. 60, no. 1, pp. 37-54, 2 pls., August 1933.
1811. Quadruple glaciations of Wisconsin epoch: *Pan-Am. Geologist*, vol. 60, no. 1, pp. 55-58, August 1933.
1812. Spargen limestone of Iowa: *Pan-Am. Geologist*, vol. 60, no. 1, pp. 59-63, 1 fig., August 1933.
1813. Titular validity of Golconda limestone: *Pan-Am. Geologist*, vol. 60, no. 1, pp. 63-64, August 1933.
1814. Methodical scheme of geological classification for Iowa: *Pan-Am. Geologist*, vol. 60, no. 2, pp. 111-132, 1 fig., 1 pl. (map), 1 chart, September 1933; abstract, no. 1, pp. 77-78, August 1933; abstract, *Iowa Acad. Sci. Proc.*, 1933, vol. 40, pp. 135-136 [1933?].
1815. Diversity of the interglacial: *Pan-Am. Geologist*, vol. 60, no. 2, pp. 133-136, 1 fig., September 1933.
1816. Cerro Tucumcari and American Jurassic: *Pan-Am. Geologist*, vol. 60, no. 2, pp. 137-139, 1 pl., September 1933.
1817. Kincaid title in preoccupation: *Pan-Am. Geologist*, vol. 60, no. 2, pp. 139-140, September 1933.
1818. Measure of late geologic time: *Pan-Am. Geologist*, vol. 60, no. 3, pp. 205-218, 3 figs., October 1933; abstract, no. 2, pp. 142-143, September 1933.
1819. Crack of doom in Great Basin: *Pan-Am. Geologist*, vol. 60, no. 3, pp. 219-222, October 1933.
1820. Terranal composition of Yorkic Rockfordian series of Iowa: *Pan-Am. Geologist*, vol. 60, no. 3, pp. 223-226, October 1933.
1821. Magnitude of Great Basin erosion: *Pan-Am. Geologist*, vol. 60, no. 4, pp. 287-296, 2 figs., 4 pls., November 1933.
1822. Geological chronology at XVI International Geological Congress: *Pan-Am. Geologist*, vol. 60, no. 4, pp. 297-300, November 1933.
1823. Capitan limestone as great barrier reef (abstract): *Pan-Am. Geologist*, vol. 60, no. 4, p. 306, November 1933.
1824. Type locality of Mississippian Osage group: *Pan-Am. Geologist*, vol. 60, no. 5, pp. 361-368, December 1933.
1825. Volcanic ash falls as exact criteria in correlation: *Pan-Am. Geologist*, vol. 60, no. 5, pp. 369-372, December 1933.
1826. Methodical scheme of geological chronology: *Pan-Am. Geologist*, vol. 61, no. 1, pp. 39-62, 2 figs., 4 time-charts, February 1934; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 90-91, June 1934.
1827. Periodicity in orogenesis: *Pan-Am. Geologist*, vol. 61, no. 1, pp. 63-66, February 1, 1934.
1828. Fundamental crystalline complex in Arizona: *Pan-Am. Geologist*, vol. 61, no. 1, pp. 67-70, 1 fig., February 1934.
1829. Paleozoic diastrophism of Colorado dome: *Pan-Am. Geologist*, vol. 61, no. 2, pp. 107-132, 2 figs., 2 pls., March 1934.
1830. Man in an ice age: *Pan-Am. Geologist*, vol. 61, no. 2, pp. 133-136, March 1934.

Keyes, Charles Rollin—Continued.

1831. Taxonomic status of Bethany title: Pan-Am. Geologist, vol. 61, no. 2, pp. 137-140, March 1934.
1832. Siluric rocks in Arizona (abstract): Pan-Am. Geologist, vol. 61, no. 2, pp. 140-141, March 1934.
1833. Rate of deposition of loess: Pan-Am. Geologist, vol. 61, no. 3, pp. 221-230, 2 pls., April 1934.
1834. Practicability in geological nomenclature: Pan-Am. Geologist, vol. 61, no. 3, pp. 231-234, April 1934.
1835. Ordovician anomaly in New Mexico: Pan-Am. Geologist, vol. 61, no. 3, pp. 235-238, April 1934.
1836. Willow dolomite of upper Mississippi Valley: Pan-Am. Geologist, vol. 61, no. 3, pp. 239-240, April 1934.
1837. Walcott and American Cambrian débâcle: Pan-Am. Geologist, vol. 61, no. 4, pp. 279-290, May 1934.
1838. Essentials of geological definition: Pan-Am. Geologist, vol. 61, no. 4, pp. 293-296, May 1934.
1839. Diverse affinities of so-called Loveland gumboloess of Iowa: Pan-Am. Geologist, vol. 61, no. 4, pp. 297-299, May 1934.
1840. Terran title Grand Canyon: Pan-Am. Geologist, vol. 61, no. 4, pp. 299-300, May 1934.
1841. Medley of Apache group in Arizona (abstract): Pan-Am. Geologist, vol. 61, no. 4, pp. 302-306, May 1934.
1842. Measure of loess accumulation (abstract): Geol. Soc. America, Proc., 1933, p. 90, June 1934.
1843. Genetic types of desert orogeny (abstract): Geol. Soc. America, Proc., 1933, p. 303, June 1934.
1844. Warren Upham, glacialist: Pan-Am. Geologist, vol. 61, no. 5, pp. 321-328, port., June 1934.
1845. Strategic role of Jordan sandstone of Minnesota: Pan-Am. Geologist, vol. 61, no. 5, pp. 355-366, June 1934.
1846. Rhythmic nature of mountain building (abstract): Pan-Am. Geologist, vol. 61, no. 5, pp. 369-370, June 1934.
1847. Cambrian Richmond sandstone of Iowa: Pan-Am. Geologist, vol. 61, no. 5, pp. 379-380, June 1934.
1848. William Morris Davis and American physiography: Pan-Am. Geologist, vol. 62, no. 1, pp. 1-16, August 1934.
1849. Polarine glaciation in retreat: Pan-Am. Geologist, vol. 62, no. 1, pp. 35-54, 6 figs. (incl. maps), August 1934.
1850. Dust storms in geological economy: Pan-Am. Geologist, vol. 62, no. 1, pp. 55-58, August 1934.
1851. Formational nomenclature for Iowa Carbonian: Pan-Am. Geologist, vol. 62, no. 1, pp. 59-64, August 1934.
1852. End of Rocky Mountains: Pan-Am. Geologist, vol. 62, no. 1, pp. 65-66, August 1934.
1853. Note on so-called Iowa marble: Pan-Am. Geologist, vol. 62, no. 1, p. 66, August 1934.
1854. Recessional rivers in glacial role: Pan-Am. Geologist, vol. 62, no. 2, pp. 103-124, 3 figs. (incl. map), 7 pls. (incl. maps), September 1934.
1855. Hemeral subdivision of mappable terranes: Pan-Am. Geologist, vol. 62, no. 2, pp. 125-128, September 1934.
1856. Chouteau limestone in Iowa: Pan-Am. Geologist, vol. 62, no. 2, pp. 129-132, September 1934.

Keyes, Charles Rollin—Continued.

1857. Reconstruction of Iowa's Cretacic stratigraphy (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 136, September 1934.
1858. Extent of Patrician glaciation (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 137, September 1934.
1859. Diversity of Loveland loess (abstract): Pan-Am. Geologist, vol. 62, no. 2, pp. 137-138, September 1934.
1860. (and Beane, B. H.). Modernity in Paleozoic starfishes: Pan-Am. Geologist, vol. 62, no. 3, pp. 197-212, 2 figs., 3 pls., October 1934.
1861. Return to drainage normalcy in glaciated regions: Pan-Am. Geologist, vol. 63, no. 3, pp. 213-214, October 1934.
1862. Ste. Genevieve limestone of Iowa: Pan-Am. Geologist, vol. 62, no. 3, pp. 215-218, October 1934.
1863. Taxonomic anomaly of Cretacic Benton shales: Pan-Am. Geologist, vol. 62, no. 3, pp. 219-221, October 1934.
1864. Aux Vases vs. Ferruginous sandstone in Missouri: Pan-Am. Geologist, vol. 62, no. 3, pp. 222-223, October 1934.
1865. Serial fauna in the making: Pan-Am. Geologist, vol. 62, no. 3, pp. 224-226, October 1934.
1866. Black grassy shale in Iowa: Pan-Am. Geologist, vol. 62, no. 3, pp. 226-230, October 1934.
1867. Glacial concept before Agassiz: Pan-Am. Geologist, vol. 62, no. 4, pp. 283-300, 1 fig., November 1934.
1868. Factual setting of geological definition: Pan-Am. Geologist, vol. 62, no. 4, pp. 301-304, November 1934.
1869. Taxonomic status of Greenhorn limestone: Pan-Am. Geologist, vol. 62, no. 4, pp. 305-308, November 1934.
1870. Synonymy of Hackberry as terranal title: Pan-Am. Geologist, vol. 62, no. 4, p. 308, November 1934.
1871. Thomas Huston Macbride [1848-1934]; his geological work: Pan-Am. Geologist, vol. 62, no. 5, pp. 321-323, port., December 1934.
1872. Geological work of winds on the Great Plains: Pan-Am. Geologist, vol. 63, no. 5, pp. 359-370, December 1934.
1873. Taxonomic status of Wisconsin glacial title: Pan-Am. Geologist, vol. 62, no. 5, pp. 371-374, December 1934.
1874. Faunal integrity of Burlington limestone: Pan-Am. Geologist, vol. 62, no. 5, pp. 375-378, December 1934.

Keyes, Mary G.

1875. Henry Stephens Washington [1867-1934]: Zeitschr. Vulkanologie, Band 16, Heft 1, pp. 1-6, port., December 1934.

Keyte, I. Allen. See Baldwin, 147; Brainerd, 378, 379; Kansas Geol. Soc., 1743.

Keyte, W. Ross. See McCoy, 2145; Trask, 3405.

Kidd, D. F. See also Canada G. S., 562.

1876. Great Bear Lake area, Northwest Territories: Canada, Geol. Survey, Summary Rept., 1932, pt. C, pp. 1-36, 4 figs., 2 pls., map, 1933. (No. 2332.)
1877. Obonga-Kashishibog area, Thunder Bay district, Ontario: Canada, Geol. Survey, Summary Rept., 1933, pt. D, pp. 16-37, 1 fig., 3 pls. (incl. geol. map), 1934. (Pub. no. 2351.)

Kihlstedt, Folke H. See also Lundberg, 2127.

1878. Electrical methods in prospecting for gold (with discussion): Am. Inst. Min. Met. Eng., Trans., vol. 110, Geophysical Prospecting, pp. 62-74, 9 figs., 1934.

Kindle, Edward Martin.

1879. Erosion and sedimentation at Point Pelee: Ontario, Dept. Mines, 42d Ann. Rept. (vol. 42, pt. 2), pp. 1-22, 8 figs. (incl. map), 6 pls., 1933.
1880. A new Silurian eurypterid locality in eastern Canada: Roy. Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 43-48, 1 pl., May 1934.
1881. Role of facies in stratigraphic paleontology: Geol. Soc. America, Proc., 1933, pp. 409-430, June 1934.
1882. Concerning "lake balls", "Cladophora balls", and "coal balls": Am. Midland Naturalist, vol. 15 no. 6, pp. 752-760, 2 figs., November 1934; abstract, Pan-Am. Geologist, vol. 62, no. 2, pp. 155-156, September 1934.

Kindle, L. F.

1883. Moose Mountain-Wanapitei area: Ontario, Dept. Mines, 41st Ann. Rept. (vol. 41, pt. 4), 1932, pp. 29-49, illus., map, 1933.

King, Philip Burke. See also Darton, 847.

1884. An outline of the structural geology of the United States: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 28, 57 pp. 1 pl. (structural map), 1932.
1885. The Cretaceous of west Texas (abstract): Washington Acad. Sci., Jour., vol. 24, no. 4, p. 195, April 15, 1934.
1886. Permian stratigraphy of trans-Pecos Texas: Geol. Soc. America, Bull., vol. 45, no. 4, pp. 697-798, 13 figs., 5 pls., August 31, 1934; abstract, vol. 44, pt. 1, p. 90, February 28, 1933.
1887. Notes on upper Mississippian rocks in trans-Pecos Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 11, pp. 1537-1543, 5 figs., November 1934.

King, Ralph.

1888. North Texas meteorites (abstract): Texas Acad. Sci., Proc., 1933-34, vol. 18, p. 22, 1934.

King, Ralph H.

1889. *Neospirifer dunbari* Ralph H. King, nom. nov.: Jour. Paleontology, vol. 7, no. 4, p. 441, December 1933.

King, Robert Evans.

1890. The Permian of southwestern Coahuila, Mexico: Am. Jour. Sci., 5th ser., vol. 27, no. 158, pp. 98-112, 4 figs. (incl. geol. map), February 1934.
1891. Geological reconnaissance of central Sonora: Am. Jour. Sci., 5th ser., vol. 28, no. 164, pp. 81-101, 4 figs. (incl. geol. maps), August 1934.

Kinney, Edward Donald.

1892. Gold prospects in Kansas: Kansas Acad. Sci., Trans., vol. 37, pp. 155-156, 1934.

Kirby, J. M. See Crook, 800.

Kirk, Charles Townsend.

1893. James Earl Hoover: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 3, pp. 430-431, March 1934.

Kirk, Edwin. See also Reeside, 2725.

1894. The Eureka quartzite of the Great Basin region: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 151, pp. 27-44, July 1933.

1895. *Syndetocrinus*, a new crinoid genus from the Silurian of Canada: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 153, pp. 344-354, 8 figs., September 1933.

1896. *Corynecrinus*, a new Devonian crinoid genus: *U. S. Nat. Mus., Proc.*, vol. 83, no. 2972, pp. 1-7, 1 pl. 1934.

1897. The Lower Ordovician El Paso limestone of Texas and its correlatives: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 168, pp. 443-463, December 1934.

Kirn, A. J. See also Parks, 2578.

1898. (and Parks, Harris Braley). Additions to the knowledge of the paleobotany of Bexar County (abstract): *Texas Acad. Sci., Proc.*, 1933-34, vol. 18, p. 23, 1934.

Kisling, J. W., Jr. See Denison, 895.

Kissock, Alan.

1899. Molybdenum; its mining, milling, and uses: *Mining and Metallurgy*, vol. 14, no. 316, pp. 181-182, 189, 2 figs., April 1933.

Kitson, John E.

1900. Geology of the Connecticut Valley: *Rocks and Minerals*, vol. 9, no. 11, pp. 157-159, November 1934.

Kjellesvig, Erik N.

1901. Note on a new eurypterid from the Moscow shales of New York: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 161, pp. 386-387, May 1934.

1902. Trenton Foraminifera from New York (abstract): *Geol. Soc. America, Proc.*, 1933, p. 340, June 1934.

Kleinpell, Robert Minssen. See also Cushman, 819.

1903. Miocene Foraminifera from Reliz Canyon, Monterey County, Calif. (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 165, February 28, 1933.

1904. Miocene Foraminifera from Contra Costa County, Calif. (abstract): *Pan-Am. Geologist*, vol. 59, no. 5, pp. 375-376, June 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 390, June 1934.

1905. Difficulty of using cartographic terminology in historical geology: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 3, pp. 374-379, March 1934.

Kleinpell, W. D. See Cunningham, 814.

Kline, Virginia. See Ehlers, 991.

Knaebel, John B. See Jackson, 1639.

Knapp, Thomas S.

1906. (and Twinem, Joseph C.). Geologic structure of a small area west of Mill Springs, Ky.: *Michigan Acad. Sci., Papers*, vol. 18, pp. 413-420, 2 pls., (incl. map), 1933.

Knappen, Russell Stafford.

1907. Aniakchak and Veniaminof volcanoes, Alaska (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 90-91, February 28, 1933.

Knight, Cyril Workman.

1908. Central Canada's gold belts: *Canadian Min. Jour.*, vol. 54, no. 3, pp. 98-101, 1 fig., March 1933.

Knight, Garold Louis.

1909. Gerlane formation (abstract): *Geol. Soc. America, Proc.*, 1933, p. 91, June 1934.

Knight, James Brookes.

1910. The location and areal extent of the St. Louis Pennsylvanian outlier: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 145, pp. 25-48, 3 figs., January; no. 146, pp. 166-178, 2 figs., February 1933.
1911. The gastropods of the St. Louis, Mo., Pennsylvanian outlier; 5, The Trocho-Turbinidae: *Jour. Paleontology*, vol. 7, no. 1, pp. 30-58, 4 pls., March 1933.
1912. The gastropods of the St. Louis, Mo., Pennsylvanian outlier; 6, The Neritidae: *Jour. Paleontology*, vol. 7, no. 4, pp. 359-392, 1 fig., 7 pls., December 1933.
1913. The gastropods of the St. Louis, Mo., Pennsylvanian outlier; 7, The Euomphalidae and Platyceratidae: *Jour. Paleontology*, vol. 8, no. 2, pp. 139-166, 7 pls., June 1934; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 372-373, June 1934.
1914. The gastropods of the St. Louis, Mo., Pennsylvanian outlier; 8, The Turritellidae: *Jour. Paleontology*, vol. 8, no. 4, pp. 433-447, 2 pls., December 1934.
1915. *Littorina irrorata*, a post-Pleistocene fossil in Connecticut: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 152, pp. 130-133, August 1933.
1916. A salt-marsh study: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 165, pp. 161-181, 5 figs., September 1934.

Knight, Samuel Howell.

1917. Physical evolution of the Laramie Basin (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 1, p. 24, April 1929.
1918. Cross-lamination in Casper sandstone (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 3, p. 29, April 1931.
1919. Origin of the crinkly structure of the Forelle limestone (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 4, pp. 32-33, August 1932.
1920. Structural relations of the Woods-Jelm area (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 5, p. 34, June 1933.
1921. Physical evolution of the Rocky Mountains of south-central Wyoming (abstract): *Geol. Soc. America, Proc.*, 1933, p. 54, June 1934.
1922. The Laramide orogeny of the Laramie Basin, Wyoming (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 6, pp. 34-35, June 1934.
1923. The saline lake deposits of Wyoming; 1, The Downey Lakes, Albany County, Wyo.: *Wyoming, Geol. Survey, Rept. Inv. no. 1*, 8 pp. (†), 2 pls. (maps), June 1934.

Knopf, Adolph.

1924. Pyrometasmatic deposits: Ore deposits of the Western States (Lindgren volume), pp. 537-557, *Am. Inst. Min. and Met. Eng.*, 1933.
1925. The age of the earth and the age of the ocean: *Nat. Research Council, Bull.*, no. 80, pp. 59-72, June 1931; *Smithsonian Ann. Rept. for 1932*, pp. 193-206, 1933.

Knopf, Eleanora Bliss. See also Jonas, 1717.

1926. Petrotectonics: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 150, pp. 433-470, 25 figs., June 1933.

Kobayashi, Teichi.

1927. The Ozarkian question and my view: *Geol. Soc. Tokyo, Jour.*, vol. 40, no. 473, pp. 49-64 (Japanese; English résumé, pp. 65-69), 2 figs., February 20, 1933.

Koch, H. L. See Wentworth, 3614.

Koch, Lauge.

1928. The geology of the south coast of Washington Land: *Meddelelser om Grönland*, Band 73, Afd. 1, Nr. 1, 39 pp., 15 figs., 3 pls. (incl. geol. map), 1929.
1929. The geology of Inglefield Land: *Meddelelser om Grönland*, Band 73, Afd. 1, Nr. 2, 38 pp., 13 figs., 3 pls. (incl. geol. maps), 1933.
1930. Some new main features in the geological development of Greenland: *Zbiór Prac, E. Romer (Towarz. Geog. Lwów)*, pp. 149-159, 3 maps, 1934.
1931. The Danish 3-year expedition to King Christian X Land: *Geog. Rev.*, vol. 24, no. 1, pp. 599-607, 3 figs. (maps), January 1934.

Koch, Thomas W.

1932. Analysis and effects of current movement on an active fault in Buena Vista Hills oil field, Kern County, Calif.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 6, pp. 694-712, 10 figs., (incl. sketch maps), June 1933.

Koester, Edward A.

1933. Development of the oil and gas resources of Kansas: *Kansas State Geol. Survey, Min. Resources Circ. 3*, (Kansas, Univ., Bull., vol. 35, no. 14), 76 pp., August 1, 1934.

Koschmann, Albert Herbert.

1934. Volcanic history of the Magdalena district (abstract): *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, p. 250, Nat. Research Council, June 1933.
1935. (and Loughlin, Gerald Francis). Dissected pediments in the Magdalena district, New Mexico: *Geol. Soc. America, Bull.*, vol. 45, no. 3, pp. 463-478, 2 figs., 5 pls. (incl. geol. maps), June 30, 1934; abstract, vol. 44, pt. 1, pp. 91-92, February 28, 1933.

Kovarik, Alois Francis.

1936. Uranium as the earth's clock: *Sci. Monthly*, pp. 363-365, April 1933.
1937. Working formula for the age determination of a radioactive mineral: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 159, pp. 193-203, March 1934.

Kramer, William B.

1938. Boulders from Bengalia: *Jour. Geology*, vol. 41, no. 6, pp. 590-621, 6 figs., August-September 1933.
1939. En échelon faults in Oklahoma [with discussion by Robert H. Dott]: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 2, pp. 243-250, 2 figs. (incl. sketch map), February 1934.
1940. Dolomite dikes in the Texas Permian: *Jour. Geology*, vol. 42, no. 2, pp. 193-196, 1 fig., February-March 1934.
1941. Permian ledge makers in Concho County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 12, pp. 1577-1583, 2 figs. (incl. geol. map), December 1934.

Krampert, E. W.

1942. Geological characteristics of producing oil and gas fields in Wyoming, Colorado, and northwestern New Mexico: Problems of petroleum geology (Sidney Powers memorial volume), pp. 719-733, Am. Assoc. Petroleum Geologists, 1934.

Kraus, Edward Henry.

1943. Memorial of Frank Robertson Van Horn [1872-1933]: Am. Mineralogist, vol. 19, no. 3, pp. 101-105, port., March 1934.

Krejci-Graf, Karl.

1944. (and Barton, Donald Clinton). Zur Bildung der Erdöllagerstätten der Golfküste: Petroleum, Band 29, no. 5, pp. 1-4, February 1, 1933.

Krieger, Philip.

1945. The occurrence of strontianite at Sierra Mojada, Mexico: Am. Mineralogist, vol. 18, no. 8, pp. 345-350, 3 figs., August 1933.

Krumbein, William Christian.

1946. Textural and lithological variations in glacial till: Jour. Geology, vol. 41, no. 4, pp. 382-408, 10 figs., May-June 1933.
1947. The dispersion of fine-grained sediments for mechanical analysis: Jour. Sedimentary Petrology, vol. 3, no. 3, pp. 121-135, 5 figs., December 1933.
1948. The probable error of sampling sediments for mechanical analysis: Am. Jour. Sci., 5th ser., vol. 27, no. 159, pp. 204-214, 2 figs., March 1934.
1949. Size frequency distributions of sediments: Jour. Sedimentary Petrology, vol. 4, no. 2, pp. 65-77, 4 figs., August 1934.

Ksanda, C. J. See Tunell, 3422.

Kümmel, Henry Barnard. See also Berkey, 263.

1950. New Jersey coast—the 2 feet per century subsidence myth (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 178, February 28, 1933.

Kugler, H. G.

1951. Contribution to the knowledge of sedimentary volcanism in Trinidad [with discussion]: Inst. Petroleum Technologists, Jour., vol. 19, no. 119, pp. 743-772, 4 pls., September 1933.

Kulling, Oskar.

1952. An account of the localities of the Upper Devonian vertebrate finds in east Greenland in 1929: Meddelelser om Grönland, Band 86, Nr. 2; Copenhagen, Univ., Mus. minéralogie et géologie, Comm. paléont., no. 38, 11 pp., 5 figs., 1931.

Kutchka, Gordon MacMillan.

1953. Notes on the fossil land shells from Bermuda in the collection of the Carnegie Museum: Carnegie Mus., Annals, vol. 22, 1933-34, nos. 2-4, pp. 293-302, 3 pls., May 1934.

Lahee, Frederic Henry. See also Washburne, 3567; Wrather, 3787, 3788, 3790.

1954. Petroleum geology: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 5, pp. 548-557, 2 figs., May 1933; in part, Oil and Gas Jour., vol. 31, no. 46, pp. 33-34, April 6, 1933.

1955. Carbon ratios, foreword: Problems of petroleum geology (Sidney Powers memorial volume), p. 67, Am. Assoc. Petroleum Geologists, 1934.

Lahee, Frederic Henry—Continued.

- 1956. Migration and accumulation of petroleum, foreword: Problems of petroleum geology (Sidney Powers memorial volume), pp. 247–251, Am. Assoc. Petroleum Geologists, 1934.
- 1957. A study of the evidences for lateral and vertical migration of oil: Problems of petroleum geology (Sidney Powers memorial volume), pp. 399–427, Am. Assoc. Petroleum Geologists, 1934.
- 1958. The occurrence of oil and natural gas: Sci. Monthly, vol. 38, no. 5, pp. 467–470, 2 figs., May 1934.

Lake, Mack Clayton. See Singewald, 3101.

Lalicker, Cecil G.

- 1959. Some larval stages of trilobites from the Middle Cambrian of Alabama (abstract): Geol. Soc. America, Proc., 1933, p. 375, June 1934.

Lamar, John Everts. See also Piersol, 2625.

- 1960. (and Willman, Harold Bowen). Results of test drilling of limestone near Morris, Ill.: Illinois State Geol. Survey, Inf. Circ. no. 4, 6 pp. (†), February 1933.
- 1961. (and Willman, Harold Bowen). Rock wool from Illinois; mineral resources: Illinois State Geol. Survey, Bull., no. 61, pp. 21–155, 13 figs. (incl. geol. map), 1934.

Lambert, Jules.

- 1962. (and Sánchez Roig, Mario). Nuevas especies de equinodermos fósiles cubanos: Havana, Inst. nac. invest. cien., Mus. hist. nat., Mem., 1929, vol. 1, no. 1, pp. 143–150, 5 figs., 1930.
- 1963. Note sur le groupe des *Oligopygus*, la nouvelle famille des Haimeidae, et sur quelques échinides fossiles de Cuba: Soc. géol. France, Bull., 5^e sér., t. 1, fasc. 3–4, pp. 289–304, 3 figs., 1 pl., 1931.

Lambert, Walter Davis.

- 1964. The earth as an engineering structure: Military Eng., vol. 25, no. 144, pp. 461–465, 4 figs., November–December 1933.

Lamborn, Raymond Ellwood. See also Stout, 3263, 3265.

- 1965. Data on the thickness and character of certain sedimentary series in Ohio: Ohio Jour. Sci., vol. 34, no. 6, pp. 345–364, 4 figs. (maps), November 1934.

Lambrecht, K.

- 1966. Robert Wilson Shufeldt, 1850–1934: Ornithologische Monatsberichte, 42. Jahr., Nr. 2, pp. 47–50, March 1934.

Lamey, Carl A.

- 1967. The intrusive relations of the Republic granite: Jour. Geology, vol. 41, no. 5, pp. 487–500, 7 figs., July–August 1933.
- 1968. Some metamorphic effects of the Republic granite: Jour. Geology, vol. 42, no. 3, pp. 248–263, 10 figs., April–May 1934.
- 1969. What is the Palmer gneiss (abstract)? : Geol. Soc. America, Proc., 1933, p. 92, June 1934.

LaMotte, Robert Smith.

- 1970. Early Tertiary sequence in vicinity of Seattle (abstract): Pan-Am. Geologist, vol. 61, no. 5, p. 378, June 1934.
- 1971. Upper Miocene flora from 49 Camp, Nevada (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 74, August 1934.

LaMotte, Robert Smith—Continued.

1972. Two upper Miocene florules from central Washington (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 75, August 1934.

Landenberger, J. C., Jr.

1973. (and Crawford, Arthur Lorenzo). Association and paragenesis of the ore and gangue minerals at the great silver-lead mines, Fresnillo, Mexico (abstract): Utah Acad. Sci., Proc., vol. 11, pp. 139-140, July 1934.

Landero, Carlos F. de.

1974. Nota sobre la nomenclatura cristológica: Soc. cient. Antonio Alzate, Mem. y rev., vol. 52, nos. 5-8, pp. 185-198, 1934.

Landes, Kenneth Knight. See also Singewald, 3101.

1975. Caverns in loess: Am. Jour. Sci., 5th ser., vol. 25, no. 146, pp. 137-139, 1 fig., February 1933.
 1976. Origin and classification of pegmatites: Am. Mineralogist, vol. 18, no. 2, pp. 33-56, 2 figs., February 1933; no. 3, pp. 95-103, March 1933.
 1977. (and Ockerman, John William). Origin of domes in Lincoln and Mitchell Counties, Kans.: Geol. Soc. America, Bull., vol. 44, no. 3, pp. 529-540, 3 figs., June 30, 1933.
 1978. (and Courtier, William H.). Field trips by air (abstract): Geol. Soc. America, Proc., 1933, p. 92, June 1934.
 1979. The beryl-molybdenite deposit of Chaffee County, Colo.: Econ. Geology, vol. 29, no. 7, pp. 697-702, November 1934; abstract, Geol. Soc. America, Proc., 1933, p. 441, June 1934.

Landon, Robert Emmanuel.

1980. Deseritization; a process operative during high-temperature mineralization (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 4, pp. 31-32, August 1932.
 1981. Date of recent volcanism in Colorado: Am. Jour. Sci., 5th ser., vol. 25, no. 145, pp. 20-24, 4 figs., January 1933.
 1982. (and Mogilnor, A. H.). Colusite, a new mineral of the sphalerite group: Am. Mineralogist, vol. 18, no. 12, pp. 528-533, 4 figs., December 1933.
 1983. Observations on quartzite gold deposits at Alma, Colo. (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 6, p. 36, June 1934.

Lane, Alfred Church. See also Billings, 302; Foye, 1147.

1984. (and others). Report of the committee on the measurement of geologic time: Nat. Research Council, Ann. Rept., 1932, app. H, 39 pp. (†), 1933.
 1985. (and Wolf, A.). Weathering of the Medford diabase (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 92, February 28, 1933.
 1986. Rating of the geologic clock (abstract): Pan-Am. Geologist, vol. 60, no. 2, pp. 141-142, September 1933.
 1987. Age of Fitchburg granite: Science, new ser., vol. 78, no. 2028, p. 435, November 10, 1933.
 1988. Benjamin Kendall Emerson (1843-1932): Am. Acad. Arts and Sci., Proc., vol. 68, no. 13, pp. 625-627, December 1933.
 1989. William North Rice (1845-1928): Am. Acad. Arts and Sci., Proc., vol. 68, no. 13, pp. 664-665, December 1933.

Lane, Alfred Church—Continued.

- 1990. (and others). Report of the committee on the measurement of geologic time: Nat. Research Council, Div. Geology and Geography, Ann. Rept., 1934, app. K, 86 pp. (†).
- 1991. Fivefold check of uraninite age?: *Am. Mineralogist*, vol. 19, no. 1, pp. 1-13, 2 figs., January 1934.
- 1992. Memorial of Lucius Lee Hubbard [1849-1933]: *Am. Mineralogist*, vol. 19, no. 3, pp. 118-121, port., March 1934.
- 1993. (and Bennett, W. R.). Location of fault by radioactivity: *Beitr. angew. Geophysik*, Band 4, pp. 353-357, 1 fig., 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 92, June 1934.

Lauey, Francis Baker. See Tullis, 3421.

Lang, Arthur Hamilton. See also Canada, G. S., 571, 574.

- 1994. Palmarolle and Taschereau map areas, Abitibi County, Quebec: Canada, Geol. Survey, Summary Rept., 1932, pt. D, pp. 22-35, 1933. (Pub. no. 2330.)
- 1995. Waswanipi Lake area, Quebec: Canada, Geol. Survey, Summary Rept., 1932, pt. D, pp. 36-43, 1933. (Pub. no. 2330.)
- 1996. Gold prospecting—Rouyn-Bell River region, Quebec: *Canadian Min. Jour.*, vol. 54, no. 7, pp. 267-272, illus. (incl. map), July 1933.

Lang, Walter B.

- 1997. Selenite not a certain indicator of wind effect: *Science*, new ser., vol. 80, no. 2066, pp. 117-118, August 3, 1934.

Larochelle, Eugene. See Dufresne, 941.

Larsen, Esper Signius.

- 1998. (and Morris, Frederick Kulne). Origin of the schists and granite of the Wachusett-Coldbrook tunnel, Massachusetts (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 92-93, February 28, 1933.
- 1999. (and Dunham, Kingsley C.). Tilleyite, a new mineral from the contact zone at Crestmore, Calif.: *Am. Mineralogist*, vol. 18, no. 11, pp. 469-473, 1 fig., November 1933.
- 2000. (and Larsen, Esper Signius, III). The age of the earth and of its rocks: *Oregon Mineralogist*, vol. 2, no. 1, pp. 1, 24, January 1934.
- 2001. (and Berman, Harry). The microscopic determination of the non-opaque minerals (2d ed.): *U. S. Geol. Survey, Bull.* 848, 266 pp., 4 figs., 1934.
- 2002. Alkaline rocks of Iron Hill, Colo. (abstract): *Geol. Soc. America, Proc.*, 1933, p. 93, June 1934.

Larsen, Esper Signius, III. See Larsen, E. S., 2000.

Larson, Leigh Marion.

- 2003. Osteology of the California road-runner, Recent and Pleistocene: *California, Univ., Pub. in Zoology*, vol. 32, no. 4, pp. 409-428, 3 figs., 1930.

Lasky, Samuel Grossman.

- 2004. (and Wootton, Thomas Peltier). The metal resources of New Mexico and their economic features: *New Mexico School of Mines, State Bur. Mines and Min. Res., Bull.* no. 7, 178 pp., 4 figs., 2 pls., 1933.
- 2005. Ferric-ferrous ratio in contact-metamorphic deposits: *Econ. Geology*, vol. 29, no. 2, pp. 203-206, 1 fig., March-April 1934.

Laudermilk, J. C.

2006. (and Munz, Philip Alexander.). Plants in *Nothrotherium* dung from Gypsum Cave, Nevada (abstract): Pan-Am. Geologist, vol. 61, no. 5, pp. 375-376, June 1934.

Laudermilk, Jerome Douglas.

2007. (and Woodford, Alfred Oswald). Secondary montmorillonite in a California pegmatite: Am. Mineralogist, vol. 19, no. 6, pp. 260-267, 2 figs., June 1934; abstract, Pan-Am. Geologist, vol. 59, no. 4, p. 315, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 313, June 1934.

Laudon, Lowell Robert.

2008. A *Spirifer disjunctus* fauna in Iowa: Iowa Acad. Sci., Proc., 1930, vol. 37, pp. 251-254, 1 pl. [1931].
2009. Mississippian stratigraphy of Iowa and Missouri (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, October 17, 1932.
2010. The stratigraphy and paleontology of the Gilmore City formation of Iowa: Iowa, Univ., Studies in Nat. History, vol. 15, no. 2, 74 pp., 7 figs., 7 pls., August 1, 1933.
2011. Cedar Valley crinoids (abstract): Geol. Soc. America, Proc., 1933, p. 347, June 1934.
2012. New echinoderms from Le Grand, Iowa (abstract): Geol. Soc. America, Proc., 1933, p. 363, June 1934.

Lauer, Arnold William.

2013. Criteria for petroleum provinces (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, February 15, 1932.

Laurence, Robert A.

2014. (and Sheets, M. M.). Geology of Logan Mountain, Wyoming, and its bearing upon the Heart Mountain overthrust (abstract): Geol. Soc. America, Proc., 1933, pp. 93-94, June 1934.

Lavington, Charles S.

2015. Montana group in eastern Colorado: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 4, pp. 397-410, 5 figs., April 1933.

Law, H. Marvin.

2016. Longhorn Cavern, a reconnaissance survey: Field and Laboratory (Southern Methodist Univ.), vol. 1, no. 2, pp. 34-39, 2 figs. (incl. map), April 1933.

Lawson, Andrew Cowper. See also Jenkins, 1654.

2017. Rain-wash profiles of humid regions (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 154-155, February 28, 1933.
2018. The Eparchean peneplain; an exploitation of the doctrine of isostasy: Geol. Soc. America, Bull., vol. 45, no. 6, pp. 1059-1072, 1 fig., December 31, 1934.

Lay, Douglas. See also Galloway, 1206.

2019. McConnell Creek placer area, Omineca mining division: British Columbia, Dept. Mines, Bull. no. 2, 17 lvs., 1 pl. (†), 1932.
2020. The theory of magma waves: Canadian Min. and Met. Bull., no. 270, pp. 478-481, 1 fig. (map), October 1934.

Lazell, E. W.

2021. Elementary crystallography: Oregon Mineralogist, vol. 2, no. 1, pp. 4, 19, 22, 6 figs., January 1934; no. 2, pp. 8, 16, 8 figs., February 1934; no. 3, p. 6, March 1934; no. 4, pp. 8, 14-15, 15 figs., April 1934; no. 5, pp. 6-7, 9 figs., May 1934; no. 6, p. 6, June 1934; no. 7, pp. 11-12, 6 figs., July 1934; no. 8, pp. 11-12, 9 figs., August 1934; no. 9, pp. 11, 28, 6 figs., September 1934; no. 10, p. 14, 6 figs., October 1934; no. 11, pp. 11, 17, 6 figs., November 1934; no. 12, pp. 11-12, December 1934.

Lee, Bourke.

2022. Death Valley. x, 210 pp., illus., New York, Macmillan Co., 1930.

Lee, Charles Hamilton.

2023. The interpretation of water levels in wells and test holes: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 540-554, 14 figs., Natl. Research Council, June 1934.

Lees, Everett J.

2024. Geology of the Laberge area, Yukon: Royal Canadian Inst., Trans., vol. 20, pt. 1, pp. 1-48, 6 pls., September 1934.

Lees, James Henry. See also Kansas Geol. Soc., 1744.

2025. In memoriam, Dr. George Luther Smith [1852-1930]: Iowa Acad. Sci., Proc., 1930, vol. 37, pp. 37-38 [1931].
2026. The Clarinda oil prospect (abstract): Iowa Acad. Sci., Proc., 1930, vol. 37, p. 274 [1931].

Leet, Lewis Don.

2027. Velocity of elastic waves in granite and norite (abstract): Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, p. 288, Natl. Research Council, June 1933; Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 5, nos. 1, 2, p. 288, June 1933.
2028. Earthquakes and volcanoes: Am. Year Book, 1933, pp. 744-746, 1934.
2029. Analysis of New England microseisms: Gerlands Beitr. Geophysik, Band 42, Heft 2-3, pp. 232-245, 2 figs., 1934.

Lefèvre, M.

2030. Sur la présence de péridiniens dans un dépôt fossile des Barbades: Acad. sci. Paris, Comptes rendus, t. 194, no. 26, pp. 2315-2316, June 27, 1932.
2031. Recherches sur les péridiniens fossiles des Barbades: Mus. nat. hist. nat., Bull., 2^e sér., vol. 5, no. 5, pp. 415-418, June 1933.

Leggette, Ralph Maxwell.

2032. (and Taylor, George H.). Earthquakes instrumentally recorded in artesian wells (abstract): Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 6, no. 1-2, pp. 16-17 (+), September 1934.
2033. Varved clay in Ogden Valley, Utah (abstract): Washington Acad. Sci., Jour., vol. 24, no. 11, p. 493, November 15, 1934.

Leighly, John.

2034. Turbulence and the transportation of rock debris by streams: Geog. Rev., vol. 24, no. 3, pp. 453-464, 6 figs., July 1934; abstract, Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 453-454, Nat. Research Council, June 1934.

Leighton, Henry.

- 2035. Memorial of William Jacob Holland [1848-1932]: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 347-352, port., April 30, 1933.
- 2036. The white clays of Pennsylvania: Pennsylvania Topog. and Geol. Survey, Bull. no. 112, 19 pp. (†), 12 figs. (incl. maps), July 1934.

Leighton, Morris Morgan. See also Alden, 22; Kay, 1752.

- 2037. The naming of the subdivisions of the Wisconsin glacial age: Science, new ser., vol. 77, p. 168, February 10, 1933.
- 2038. (and Powers, William Edwards). Evaluation of boundaries in the mapping of glaciated areas: Jour. Geology, vol. 42, no. 1, pp. 77-87, 6 figs., January-February 1934.
- 2039. The functions of State geological surveys: Assoc. Am. State Geologists, Jour., vol. 5, no. 2, pp. 4-6 (†), April 1, 1934.
- 2040. (and Ekblaw, George Evert). The glaciology of the Decatur region (abstract): Illinois Acad. Sci., Trans., vol. 27, no. 2, p. 111, December 1934.

Leith, Charles Kenneth. See also Hotchkiss, 1563.

- 2041. The changing mineral situation (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, October 1, 1932.
- 2042. (and others). Elements of a national mineral policy, prepared by The Mineral Inquiry, C. K. Leith, chairman. 162 pp., 5 figs., New York, 1933.
- 2043. The pre-Cambrian: Geol. Soc. America, Proc., 1933, pp. 151-180, 1 pl., June 1934.
- 2044. (and others). Report on the [U. S.] Geological Survey: Nat. Research Council, Sci. Advisory Board, Rept., July 31, 1933, to September 1, 1934, pp. 101-117, 5 figs., September 20, 1934.

Lenahan, Thomas. See Schoewe, 2985.

Leonard, Arthur Gray, 1865-1932.

- 2045. Black Butte and its "eruption": North Dakota, Univ., Quart. Jour., vol. 23, nos. 3-4, pp. 160-162, 1933.

Leonard, Frederick Charles.

- 2046. Visitors from cosmic space: Mineralog. Soc. Southern California, Bull., vol. 4, no. 1, pp. 1-3, September 1934.

Leverett, Frank.

- 2047. Meaningless versus significant terms in geological classification: Science, new ser., vol. 77, p. 560, June 9, 1933.
- 2048. Glacial deposits outside the Wisconsin terminal moraine in Pennsylvania: Pennsylvania Geol. Survey, 4th ser., Bull. G 7, 38 figs. (incl. maps), 2 pls. (incl. map), 1934.
- 2049. (and Mac Lachlan, Donald Claude). Pleistocene shore lines and correlative moraines in the Huron and the Saginaw Basins (abstract, with discussion): Geol. Soc. America, Proc., 1933, p. 94, June 1934.

Levorsen, Arville Irving. See also Ashley, 92.

- 2050. Studies in paleogeology: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 9, pp. 1107-1132, 11 figs., September 1933; abstract, Tulsa Geol. Soc., Digest, pp. 1-3, 1933; abstract, Pan-Am. Geologist, vol. 59, no. 3, p. 228, April 1933; vol. 62, no. 2, p. 145, September 1934.

Levorsen, Arville Irving—Continued.

2051. Relation of oil and gas pools to unconformities in the Midcontinent region: Problems of petroleum geology (Sidney Powers memorial volume), pp. 761-784, 9 figs., Am. Assoc. Petroleum Geologists, 1934.

Lewellen, Ethel W.

2052. The Painted Hills of central Oregon: Oregon Mineralogist, vol. 1, no. 5, pp. 1-2, October 1933.
2053. Linnton fossil locality: Oregon Mineralogist, vol. 1, no. 5, p. 8, October 1933.
2054. Cinnabar in Oregon: Oregon Mineralogist, vol. 1, no. 7, pp. 1-2, December 1933.

Lewis, Ivey Foreman. See Cocke, 677.

Lewis, Gilbert Newton.

2055. The genesis of the elements: Phys. Rev., 2d ser., vol. 46, no. 10, pp. 897-901, 2 figs., November 15, 1934.

Lewis, Joseph Volney.

2056. The evolution of the mineral coals: Econ. Geology, vol. 29, no. 1, pp. 1-38, 3 figs., January-February 1934; no. 2, pp. 157-202, 15 figs., March-April 1934.

Lewis, J. Whitney.

2057. Occurrence of oil in igneous rocks of Cuba: Am. Assoc. Petroleum Geologists, Bull., vol. 16, no. 8, pp. 809-818, 1 fig. (map), August 1932.

Lewis, W. Scott.

2058. Occurrence of opal in California: Rocks and Minerals, vol. 8, no. 1, pp. 36-37, March 1933.

Lincoln, Francis Church.

2059. Beryl in the Black Hills: Eng. and Min. Jour., vol. 135, no. 5, pp. 202-203, 1 fig., May 1934.

Lindgren, Waldemar.

2060. Mineral deposits. 4th ed., vii, 930 pp., 332 figs., New York and London, McGraw-Hill Book Co., Inc., 1933.
2061. Differentiation and ore deposition, Cordilleran region of the United States: Ore deposits of the Western States (Lindgren volume), pp. 152-180, 1 fig., Am. Inst. Min. Met. Eng., 1933.
2062. Memorial of Richard Alexander Fullerton Penrose, Jr., December 17, 1863-July 31, 1931; a tribute to his life and achievements: Am. Philos. Soc., Proc., vol. 72, no. 3, pp. 101-114, 1933.
2063. Coronadite "redivivus": Am. Mineralogist, vol. 18, no. 12, pp. 548-550, December 1933.

Linforth, F. A.

2064. Application of geology to mining in the ore deposits at Butte, Montana: Ore deposits of the Western States (Lindgren volume), pp. 695-701, Am. Inst. Min. Met. Eng., 1933.

Link, Theodore August.

2065. (and Moore, P. D.). Structure of Turner Valley gas and oil field, Alberta (with discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 11, pp. 1417-1453, 8 figs. (incl. maps), November 1934.

Lipman, Charles Bernard.

2066. Are there living bacteria in stony meteorites? *Am. Mus. Novitates*, no. 588, 19 pp., 12 figs., December 31, 1932.

Lippincott, Joseph Barlow. See Etcheverry, 1031.

Livingston, Alfred, Jr.

2067. (and Putnam, William C.). Geological journeys in southern California: Los Angeles Junior Coll., Pub. no. 1 (Geol. ser. no. 1), 104 pp., 56 figs., 1 pl., January 30, 1933.

Ljungstedt, Olof Axel. See Stose, 3259.

Lloyd, Edwin Russell.

2068. Coral reefs and atolls (discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 1, pp. 85-87, January 1933.

Lloyd, Hoyes.

2069. An Ontario sand fall: *Canadian Field Naturalist*, vol. 48, no. 6, pp. 93-95, September 1934.

Lobeck, Armin Kohl. See also Berkey, 263.

2070. Atlas of American geology, 91 sheets (unbound), illus., New York, Geog. Press, Columbia Univ., 1932.

2071. Airways of America, Guidebook no. 1, The United Air Lines; a geological and geographical description of the route from New York to Chicago and San Francisco: James Furman Kemp Mem. Ser., Pub. no. 2, 207 pp., 124 figs., New York, Geog. Press, Columbia Univ., 1933.

Lochman, Christina. See also Meyerhoff, 2311.

2072. Fauna of the basal Bonnetterre formation of Missouri (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 335-336, June 1934.

Locke, Augustus. See also Billingsley, 307.

2073. Disseminated copper deposits: Ore deposits of the Western States (Lindgren volume), pp. 616-623, 1 fig., *Am. Inst. Min. Met. Eng.*, 1933.

2074. (and Billingsley, Paul, and Schmitt, Harrison). Some ideas on the occurrence of ore in the western United States: *Econ. Geology*, vol. 29, no. 6, pp. 560-576, September-October 1934; abstract, *Mines Mag.*, vol. 24, no. 11, p. 26, November 1934.

Lockwood, Robinson P.

2075. Role of cap rock in oil accumulation: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 6, pp. 713-731, 7 figs., June 1933.

Loewe, Fritz.

2076. Einige Gletscherbeobachtungen im Umanag-Bezirk Westgrönlands 1932: *Zeitschr. Gletscherkunde*, Band 21, Heft 4-5, pp. 359-365, 3 figs., April 1934.

Logan, William Newton.

2077. Report of the Division of Geology [12th annual report]: Indiana, Dept. Conservation, Ann. Rept. 1930, pp. 21-43 (n. d.).

2078. Report of the Division of Geology: Indiana, Dept. Conservation, 13th Ann. Rept., 1931, Pub. no. 113, pp. 12-28, [1932].

2079. Report of the Division of Geology: Indiana, Dept. Conservation, 14th Ann. Rept., 1932, Pub. no. 124, pp. 18-34, 1933.

Logan, William Newton—Continued.

2080. Geological and structural conditions in the Union oil and gas field: Indiana Acad. Sci., Proc., vol. 42, pp. 149-152, 1 fig. 1933.
 2081. Report of the Division of Geology: Indiana, Dept. Conservation, 15th Ann. Rept., pp. 2-9 [1934?]

Lohman, Stanley William.

2082. Investigation of ground water in the Elizabeth City area, North Carolina: Am. Water Works Assoc., Jour., vol. 26, no. 2, pp. 201-216, 4 figs., February 1934.

Lohmann, Wilhelm.

2083. (and Schaufelberger, Paul). Ueber die Talamanca-Kordillere und das Reventazon-Tal von Costa Rica: Centralbl. Mineralogie, 1934, Abt. B, no. 5, pp. 204-208, 1 fig.
 2084. Stratigraphie und Tektonik des Hochlandes von Costa Rica: Geol. Rundschau, Band 25, Heft 1, pp. 10-26, 1 pl. (geol. map), April 4, 1934.

Longwell, Chester Ray.

2085. (and others). Eastern New York and western New England: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 1, Excursion A-1, 118 pp., 34 figs., 15 pls. (incl. geol. maps), 1933. Contains the following papers:

Longwell, Chester Ray. Abstract, p. 1; Introduction, pp. 2-6, 1 fig. (index map); Geology of the Hudson Valley, pp. 6-8, 1 fig.; New York to Albany, N. Y., pp. 8-13, 2 figs., 3 pls.; Geology of western Vermont and northwestern Massachusetts, pp. 61-68, 1 fig.; Ausable Chasm, N. Y., to St. Albans, Vt., pp. 68-71; St. Albans to Brandon, Vt., pp. 71-75, 2 pls.; Section across the Taconic and Hoosac Ranges, southern Vermont and northwestern Massachusetts, pp. 87-90, 1 fig.; Bennington, Vt., to Amherst, Mass., pp. 90-93, 1 pl.; The Triassic belt of Massachusetts and Connecticut, pp. 93-104, 6 figs., 1 pl.; Hartford to New Haven, Conn., pp. 111-116, 3 figs.; New Haven, Conn., to New York, pp. 116-118.

Ruedemann, Rudolf. Albany to Lake George, N. Y., pp. 14-20, 3 figs.

Balk, Robert. The Adirondack Mountains, pp. 21-36, 3 figs., 1 pl.; Lake George to Ausable Chasm, N. Y., pp. 36-48, 1 fig., 2 pls.

Keith, Arthur. Outline of the structure and stratigraphy of northwestern Vermont, pp. 48-61, 2 figs., 4 pls.

Bain, George William. The Vermont marble belt, pp. 75-80; Brandon to Bennington, Vt., pp. 80-87, 5 figs., 1 pl.; (and Longwell, Chester Ray.) Amherst, Mass., to Hartford, Conn., pp. 105-111, 5 figs.

2086. Rotated faults in the Desert Range, southern Nevada (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 93, February 28, 1933.
 2087. Thrust faults of peculiar type (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 93, February 28, 1933.
 2088. Memorial tribute to John Walter Gregory [1864-1932]: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 414-415, port., April 30, 1933.
 2089. Meaning of the term "roches moutonnées": Am. Jour. Sci., 5th ser., vol. 25, no. 150, pp. 503-504, June 1933.
 2090. Proposed tectonic map of the United States: Science, new ser., vol. 80, no. 2080, pp. 427-428, November 9, 1934.

Longnecker, Oscar M., Jr. See Reed, 2713.

Lonsdale, John Tipton.

2091. (and Day, James R.). Ground-water resources of Webb County, Texas: U. S. Dept. Interior [U. S. Geol. Survey], Press Mem. 68861, 9 pp. (†), 1 pl. (map), February 9, 1933.

Loomis, Frederick Brewster.

- 2092. Two new Miocene entelodonts: *Jour. Mammalogy*, vol. 13, no. 4, pp. 358-362, 3 figs., November 1932.
- 2093. Memorial of Benjamin Kendall Emerson [1843-1932]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 317-325, port., April 30, 1933.
- 2094. The skeleton of *Nannotragulus*: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 149, pp. 390-398, 6 figs., May 1933.
- 2095. Three oreodont skeletons from the lower Miocene of the Great Plains: *Geol. Soc. America, Bull.*, vol. 44, no. 4, pp. 723-734, 9 figs., August 31, 1933; abstract, vol. 44, pt. 1, pp. 199-200, February 28, 1933.

Louderback, George Davis. See also Berkey, 261.

- 2096. (and Ransome, Frederick Leslie). *Geologic report on Kennett, Iron Canyon, and Table Mountain dam sites on Sacramento River: California, Dept. Pub. Works, Water Resources Div., Bull. no. 26, 1931, pp. 431-454, 7 pls., 1933.*
- 2097. *Geologic report on Fairview dam site on Trinity River: California, Dept. Pub. Works, Water Resources Div., Bull. no. 26, 1931, pp. 471-478, 1 fig., 1933.*
- 2098. Memorial of J. Claude Jones [1877-1932]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 374-377, port., April 30, 1933.
- 2099. Notes on the geologic section near Columbia, Calif., with special reference to the occurrence of fossils in the auriferous gravels: *Carnegie Inst. Washington, Pub. 440, Contr. Paleontology*, pp. 7-13, November 1933.

Lougee, Richard J. See also Crosby, 807.

- 2100. Time measurements of an ice readvance at Littleton, N. H. (abstract): *Science*, new ser., vol. 79, no. 2055, p. 462, May 18, 1934.
- 2101. Exposure of the bottom varves at Windsor Locks, Conn. (abstract): *Geol. Soc. America, Proc.*, 1933, p. 452, June 1934.

Loughlin, Gerald Francis. See also Grout, 1337; Henderson, 1455; Koschmann, 1935; Singewald, 3101.

- 2102. (and Behre, Charles Henry, Jr.). Classification of ore deposits: Ore deposits of the Western States (Lindgren volume), pp. 17-55, *Am. Inst. Min. Met. Eng.*, 1933.
- 2103. Further remarks on the Cripple Creek volcano, Colorado (abstract): *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, p. 243, Nat. Research Council, June 1933.
- 2104. (and others). Zoning in certain mining districts in Mosquito Range and San Juan Mountains, Colo. (abstract): *Pan-Am. Geologist*, vol. 60, no. 2, p. 159, September 1933.
- 2105. The United States Geological Survey's point of view (abstract): *Assoc. Am. State Geologists, Jour.*, vol. 5, no. 2, p. 7 (†), April 1, 1934.
- 2106. (and Behre, Charles Henry, Jr.). Zoning of ore deposits, Leadville district, Colo.: *Econ. Geology*, vol. 29, no. 3, pp. 215-254, 10 figs. (incl. maps), May 1934.

Love, David.

- 2107. The geology of the western end of the Owl Creek Mountains, Wyo.: *Wyoming, Geol. Survey, Bull.*, no. 24, 25 pp. (†), 1 fig. (map), 7 pls. (incl. geol. map), April 1934.

Love, David—Continued.

2108. Tertiary history of the southern end of the Absaroka Range, Wyo. (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 6, pp. 31-32, June 1934.

Lovering, Thomas Seward. See also Burbank, 484; Henderson, 1455; Van Tuyl, 3486.

2109. Tungsten deposits: Ore deposits of the Western States (Lindgren volume), pp. 665-671, Am. Inst. Min. Met. Eng., 1933.
2110. (and Johnson, Jesse Harlan). Meaning of unconformities in stratigraphy of central Colorado: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 4, pp. 353-374, 5 figs., April 1933.
2111. Geology and ore deposits of the Breckenridge mining district, Colo.: U. S. Geol. Survey, Prof. Paper 176, 64 pp., 28 figs. (incl. maps), 15 pls. (incl. geol. map), 1934.
2112. Theory of heat conduction applied to geological problems (abstract, with discussion): Geol. Soc. America, Proc., 1933, pp. 95-96, June 1934.

Lowdermilk, Walter Clay.

2113. Acceleration of erosion above geologic norms: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 505-509, Nat. Research Council, June 1934.
2114. (and Rowe, P. B.). Still further studies on absorption of rainfall in its relation to surficial run-off and erosion: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 509-515, 4 figs., Nat. Research Council, June 1934.

Low, Bela. See Kelly, 1771.

Lowe, Ephraim Noble, 1864-1933.

2115. The Eocene formations below the Jackson: Mississippi State Geol. Survey, Bull. no. 25, pp. 1-125, 20 figs., map, 1933.
2116. Mineral resources of Mississippi: Mississippi State Geol. Survey, Bull. no. 24, pp. 12-19, March 1933.

Lowman, Shepard W.

2117. Lower and middle Pennsylvanian stratigraphy of Oklahoma east of the meridian and north of the Arbuckle Mountains (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, December 19, 1932.
2118. Cherokee structural history in Oklahoma (abstract): Tulsa Geol. Soc., Digest, pp. 31-34, 1933.

Lucke, John Becker.

2119. A study of Barnegat Inlet, N. J., and related shore-line phenomena: Shore and Beach, vol. 2, no. 2, pp. 45-93, 47 figs., 3 pls., April 1934.
2120. Bottom conditions in a tidal lagoon (abstract): Geol. Soc. America, Proc., 1933, p. 358, June 1934.
2121. A theory of evolution of lagoon deposits on shore lines of emergence: Jour. Geology, vol. 42, no. 6, pp. 561-584, 11 figs. (incl. maps), August-September 1934.

Lugn, Alvin Leonard.

2122. The geology and mammalian fauna of the Pleistocene of Nebraska; pt. i, Outline of Pleistocene geology of Nebraska: Nebraska State Mus., Bull., vol. 1, no. 41, pp. 319-356, 3 figs., October 1934.

Lugn, Alvin Leonard—Continued.

2123. Pre-Pennsylvanian stratigraphy of Nebraska: Am. Assoc. Petroleum Geologists, Bull., vol 18, no. 12, pp. 1597-1631, 9 figs. (incl. map), December 1934.

Lull, Richard Swann.

2124. A revision of the Ceratopsia or horned dinosaurs: Peabody Mus. Nat. History, Mem., vol. 3, pt. 3, 175 pp., 42 figs. (incl. map), 17 pls., 1933.

2125. Skull of *Triceratops flabellatus* recently mounted at Yale: Am. Jour. Sci., 5th ser., vol. 28, no. 168, pp. 439-442, 3 figs., December 1934.

Luman, E. D.

2126. The Wapanucka formation (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, January 18, 1932.

Lundberg, Hans.

2127. (and Kihlstedt, Folke). Geophysics applied to geology: Canadian Min. Jour., vol. 54, no. 9, pp. 337-342, 5 figs., September 1933.

Lutz, Harold John.

2128. Concerning a geological explanation of the origin and present distribution of the New Jersey Pine Barren vegetation: Ecology, vol. 15, no. 4, pp. 399-406, 2 figs. (geol. maps), October 1934.

Lyden, Joseph P. See Fowler, 1142, 1144, 1145, 1146.

Lyman, George D.

2129. The saga of the Comstock Lode, boom days in Virginia City. 407 pp., front., illus., New York, Charles Scribner's Sons, 1934.

Lynch, Joseph.

2130. Earthquakes of 1933-34 (abstract): Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 6, no. 1, 2, pp. 12-13 (+), September 1934.

Lynch, S. A.

2131. Some Texas localities of *Orbitolina walnutensis* Carsey: Jour. Paleontology, vol. 7, no. 1, pp. 110-111, March 1933.

Lynch, W. A. See White, 3669.

Lynn, William Gardner.

2132. A new snake (*Paleophis virginianus*) from the Eocene of Virginia: Johns Hopkins Univ., Studies in Geology, no. 11, pp. 245-249, 1 pl., 1934.

Lyon, Marcus Ward, Jr.

2133. Origins of Indiana's mammals: Indiana Acad. Sci., Proc., vol. 43, pp. 27-43, 1934.

Macar, Paul F.

2134. Effects of cut-off meanders on the longitudinal profiles of rivers: Jour. Geology, vol. 42, no. 5, pp. 523-536, 1 fig., July-August 1934.

McCabe, Louis Cordell.

2135. The lithology of coal no. 6: Illinois State Acad. Sci., Trans., vol. 25, no. 4, pp. 149-150, June 1933.

McCabe, Louis Cordell—Continued.

2136. (and Mitchell, David Ray, and Cady, Gilbert Haven). Contributions to the study of coal; banded ingredients of no. 6 coal and their heating values as related to washability and characteristics, and preliminary report on unit coal-specific gravity curves of Illinois coal: Illinois State Geol. Survey, Rept. Inv. no. 34, 61 pp., 17 figs. (incl. map), 1934.

McCallie, Samuel Washington. See Anonymous, 3829.

McCallum, H. D.

2137. Darst Creek oil field, Guadalupe County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 1, pp. 16-37, 7 figs., January 1933.

McCarter, W. B.

2138. (and O'Bannon, P. H.) Sugarland oil field, Fort Bend County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 11, pp. 1362-1386, 4 figs., November 1933.

MacCarthy, Gerald Raleigh.

2139. The rounding of beach sands: Am. Jour. Sci., 5th ser., vol. 25, no. 147, pp. 205-224, 5 figs., March 1933.
2140. Calcium carbonate in beach sands: Jour. Sedimentary Petrology, vol. 3, no. 2, pp. 64-67, August 1933.

MacClintock, Paul. See also Chamberlin, 622.

2141. Correlation of the pre-Illinoian drifts of Illinois: Jour. Geology, vol. 41, no. 7, pp. 710-722, 3 figs. (maps), October-November 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 214, February 28, 1933.

McClurkin, J. H. See Russell, 2903.

McCollough, E. H.

2142. Structural influence on the accumulation of petroleum in California: Problems of petroleum geology (Sidney Powers memorial volume), pp. 735-760, 5 figs. (maps), 1 pl. (relief map), Am. Assoc. Petroleum Geologists, 1934.

McConnell, Duncan.

2143. Garnets from Sierra Tlayacac, Morelos, Mexico: Am. Mineralogist, vol. 18, no. 1, pp. 25-29, 2 figs., January 1933.

McCoubrey, A. A.

2144. Observations on the Toby Glacier, Purcell Range: Canadian Alpine Jour., vol. 21, pp. 151-164, 4 figs., 4 pls., 1932.

McCoy, Alexander Watts.

2145. (and Keyte, W. Ross). Present interpretations of the structural theory for oil and gas migration and accumulation: Problems of petroleum geology (Sidney Powers memorial volume), pp. 253-307, 4 figs., Am. Assoc. Petroleum Geologists, 1934.
2146. An interpretation of local structural development in Midcontinent areas associated with deposits of petroleum: Problems of petroleum geology (Sidney Powers memorial volume), pp. 581-627, 19 figs., Am. Assoc. Petroleum Geologists, 1934.

McCoy, Elizabeth. See Williams, 3704.

McCutchin, John A.

2147. Deep-well temperatures in Oklahoma: Oklahoma Acad. Sci., Proc., 1930, vol. 10, pp. 99-101, 1930.

McDermott, Eugene V.

2148. The reflection seismograph (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, December 5, 1932.

McDonald, G. A. See Shepard, 3059.

MacDougall, C. H.

2149. Bed-sediment transportation in open channels: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 491-495, 4 figs., Nat. Research Council, June 1933.

Macelwane, James Bernard.

2150. Earthquakes—what are they?: Sci. Monthly, pp. 457-460, May 1933.
2151. Definition and classification of earthquakes: Nat. Research Council, Bull., no. 90, pp. 1-3, October 1933.
2152. Tectonic earthquakes: Nat. Research Council, Bull., no. 90, pp. 4-8, October 1933.
2153. Plutonic earthquakes: Nat. Research Council, Bull., no. 90, pp. 32-36, October 1933.
2154. Impact or rock-fall earthquakes: Nat. Research Council, Bull., no. 90, pp. 37-40, October 1933.
2155. Earthquake body waves: Nat. Research Council, Bull., no. 90, pp. 106-115, October 1933.
2156. Reflection and refraction of earthquake waves: Nat. Research Council, Bull., no. 90, pp. 116-120, October 1933.
2157. Earthquake surface waves: Nat. Research Council, Bull., no. 90, pp. 121-129, October 1933.
2158. Paths and velocities of earthquake waves in the interior of the earth: Nat. Research Council, Bull., no. 90, pp. 130-136, 1 fig., October 1933.

McFarlan, Arthur Crane. See Jones, 1723.

McFarland, L. R. See Bale, 148.

MacFarlane, John Muirhead.

2159. Berl on natural oil: Science, new ser., vol. 80, no. 2082, pp. 478-479, November 23, 1934.

McGavock, Cecil B.

2160. Large craters of the Alaskan Peninsula (abstract): Virginia Acad. Sci., Proc., 1933-34, p. 54, 1934.

McGehee, Rex. See also Weller, 3592.

2161. Pennsylvanian cycle of Illinois and its significance (abstract): Tulsa Geol. Soc., Digest, pp. 7-11, 1933.

McGill, William Mahone.

2162. Explorations for oil and gas in southwestern Virginia: The Mountain Empire, vol. 1, no. 3, pp. 10-11, 16, September 1932.
2163. Caverns of Virginia: Virginia Geol. Survey, Bull. 35, xvi, 187 pp., 23 figs. (incl. geol. maps), 48 pls., 1933; abstract, Virginia Acad. Sci., Proc., 1932-33, pp. 50-51, [1933].

McGill, William Mahone—Continued.

- 2164. Gold mining in Virginia: *Am. Chem. Soc., Virginia section, Bull.*, vol. 11, no. 3, pp. 32-35, December 1933.
- 2165. An occurrence of amorphous sulphur in Orange County, Va. (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, pp. 53-54, 1934.
- 2166. Gold deposits of Virginia: *Mines Mag. (Colorado School of Mines)*, vol. 24, no. 2, pp. 23-24, February 1934.
- 2167. Coal in Virginia: *Mines Mag.*, vol. 24, nos. 5 and 6, pp. 19-23, 16-17, 21, May and June 1934.
- 2168. Gold-mining operations in northern Virginia: *Min. Cong. Jour.*, vol. 10, no. 20, pp. 12-16, 23, 5 figs., October 1934.

Mac Gillavry, H. J. See also Boissevain, 343.

- 2169. Some rudists from the Alta Verapaz, Guatemala: *K. Akad. Wetensch., Amsterdam, Proc.*, vol. 37, no. 4, pp. 232-238, 8 figs., 1 pl., 1934.

MacGinitie, Harry D.

- 2170. The Trout Creek flora of southeastern Oregon: *Carnegie Inst. Washington, Pub.* no. 416, pp. 21-68, 16 pls., October 26, 1933.
- 2171. Ecological aspects of the floras of the auriferous gravels (abstract): *Geol. Soc. America, Proc.*, 1933, p. 356, June 1934.
- 2172. Tertiary floras of Trinity County, Calif. (abstract): *Pan-Am. Geologist*, vol. 62, no. 1, pp. 75-76, August 1934.

McGrath, Maurice.

- 2173. (and Crawford, Arthur Lorenzo). The occurrence of rare metals in certain ores of the Clifton district, Utah (abstract): *Utah Acad. Sci., Proc.*, vol. 11, p. 163, July 1934.

McGuirt, James. See Shreveport Geol. Soc., 3076.

McIntosh, Franklin G.

- 2174. Two rare and beautiful California gems: *Oregon Mineralogist*, vol. 2, no. 1, p. 10, January 1934.
- 2175. The gems of North Carolina: *Mineralog. Soc. Southern California, Bull.*, vol. 3, no. 9, pp. 45-46, May 1934.
- 2176. Rare gem minerals of America described by expert: *Oregon Mineralogist*, vol. 2, no. 7, pp. 3-4, 30, July 1934; no. 8, pp. 5-6, 21, August 1934.

MacKay, Bertram Reid.

- 2177. Portraying geological structure of Canadian coal fields: *Canadian Min. Met. Bull.*, no. 239, pp. 104-118, 7 figs., March 1932; *Canadian Inst. Min. and Metallurgy, Trans.*, 1932, vol. 35, pp. 104-118, 7 figs., 1933.
- 2178. Geology and coal deposits of Crowsnest Pass area, Alberta: *Canada, Geol. Survey, Summary Rept.*, 1932, pt. B, pp. 21-67, 5 figs., 2 pls., 1933. (No. 2329.)
- 2179. Michel coal area, British Columbia, and Coleman South coal area, Alberta: *Canada, Geol. Survey, Summary Rept.*, 1933, pt. B, pp. 1-31, 3 figs. (incl. sketch map), 3 pls. (incl. geol. sketch map), 1934. (No. 2353.)

McKay, J. Harold. See Hodge, 1542.

McKee, Edwin Dinwiddie.

- 2180. Grand Canyon climates during the age of mammals: *Mus. Northern Arizona, Mus. Notes*, vol. 4, no. 10, pp. 1-7, Flagstaff, April 1932.

McKee, Edwin Dinwiddie—Continued.

- 2181. Some *Fucoides* from Grand Canyon: Grand Canyon Nature Notes, vol. 7, no. 8, pp. 77-81 (†), 3 figs., November 1932.
- 2182. The Coconino sandstone—its history and origin: Carnegie Inst., Washington, Pub. 440, Contr. Paleontology, pp. 77-115, 5 figs. (incl. map), 14 pls., May 1934.
- 2183. Remnants of the age of dinosaurs on south rim of Grand Canyon: Grand Canyon Nature Notes, vol. 9, no. 5, pp. 310-314, August 1934.
- 2184. An investigation of the light-colored cross-bedded sandstones of Canyon de Chelly, Ariz.: Am. Jour. Sci., 5th ser., vol. 28, no. 165, pp. 219-233, 11 figs., September 1934.

Mackin, J. Hoover: See also Johnson, 1685, 1688, 1689.

- 2185. The evolution of the Hudson-Delaware-Susquehanna drainage: Am. Jour. Sci., 5th ser., vol. 26, no. 153, pp. 319-331, September 1933.
- 2186. Terraces in the Susquehanna Valley below Harrisburg, Pa.: Science, new ser., vol. 80, no. 2067, pp. 140-141, August 10, 1934.

McKinley, William C.

- 2187. An occurrence of yellow sphalerite in Mascot, Tenn.: Rocks and Minerals, vol. 10, no. 3, p. 42, March 1933.
- 2188. Many fine geodes collected in Illinois: Oregon Mineralogist, vol. 2, no. 10, p. 23, October 1934.

McKinstry, Hugh Exton. See Graton, 1304.

McKnight, Edwin Thor. See also Henderson, 1455.

- 2189. Mesothermal silver-lead-zinc deposits: Ore deposits of the Western States (Lindgren volume), pp. 582-602, Am. Inst. Min. Met. Eng., 1933.

Mac Lachlan, Donald Claude. See Leverett, 2049.

McLaren, A. J.

- 2190. Gold in Manitoba: Canadian Min. Met. Bull., no. 247, pp. 417-433, 8 figs., November 1932; Canadian Inst. Min. and Metallurgy, Trans., 1932, vol. 35, pp. 417-433, 8 figs., 1933.

McLaughlin, Dean Benjamin.

- 2191. A note on the stratigraphy of the Brunswick formation (Newark) in Pennsylvania: Michigan Acad. Sci., Papers, vol. 18, pp. 421-435, 3 figs. (incl. map), 1933.

McLaughlin, Dean G.

- 2192. Note on the thickness and structure of the Triassic series in Pennsylvania (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 178-179, February 28, 1933.

McLaughlin, Donald Hamilton.

- 2193. Hydrothermal deposits: Ore deposits of the Western States (Lindgren volume), pp. 557-569, Am. Inst. Min. Met. Eng., 1933.
- 2194. (and Sales, Reno Haber). Utilization of geology by mining companies: Ore deposits of the Western States (Lindgren volume), pp. 683-694, Am. Inst. Min. Met. Eng., 1933.
- 2195. Geologic work at the Homestake mine, Lead, S. Dak.: Ore deposits of the Western States (Lindgren volume), pp. 722-729, 2 figs., Am. Inst. Min. Met. Eng., 1933.

McLearn, Frank Harris.

2196. The ammonoid genera *Gastrolites* and *Neogastrolites*: Royal Soc. Canada, Trans., 3d ser., vol. 27, p. cxliii (abstract); sec. 4, pp. 13-25, 4 pls., May 1933.
2197. Pelecypods of the Lower Cretaceous Clearwater formation, northern Alberta: Royal Soc. Canada, Trans., 3d ser., vol. 27, p. cxliv (abstract); sec. 4, pp. 139-156, 3 pls., May 1933.
2198. (and McMahon, J. F.). Buff- and white-burning clays of southern Saskatchewan: Canada, Geol. Survey, Summary Rept., 1933, pt. B, pp. 32-65; app. 1, Ceramic tests, supervised by J. G. Philips, pp. 65-155; app. 2, Petrography of the Whitemud and Willow-bunch clay samples, by F. J. Fraser, pp. 156-157, 1934. (No. 2353.)

McMahon, J. F. See also McLearn, 2198.

2199. Roofing-tile clays and shales of eastern Canada: Canada, Dept. Mines, Mines Branch, Pub. no. 726, pp. 37-66, 1933.

McMasters, John Herbert.

2200. Eocene Lajas formation, Ventura County, Calif. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 217-218, February 28, 1933.
2201. Notes on a middle Eocene formation of Ventura County, Calif.: Micro-paleontology Bull., vol. 4, no. 2, pp. 64-71, 1 pl. (correl. table), July 1, 1933.

MacNeil, Francis Stearns.

2202. The pelecypod genus *Vulsella* in the Ocala limestone of Florida and its bearing on correlation: Washington Acad. Sci., Jour., vol. 24, no. 10, pp. 428-431, 11 figs., October 15, 1934.

Mac Neil, D. J. See Thom, 3359.

MacNelly, H. E.

2203. The use and construction of optical instruments for the mineralogist: Oregon Mineralogist, vol. 2, no. 8, pp. 7-8, 14-15, August 1934; no. 9, pp. 7-8, 27-28, 5 figs., September 1934; no. 10, pp. 9-10, October 1934.

McQueen, Henry Silliman. See Buehler, 471; Kansas Geol. Soc., 1744.

McVay, Thomas Newkirk. See Jones, 1734.

Maddox, D. C.

2204. The artesian-water areas of the west half of Rush Lake and the east half of Elbow quadrangles, southern Saskatchewan: Canada, Geol. Survey, Summary Rept., 1932, pt. B, pp. 75-89, 2 pls., 1933. (No. 2329.)

Mahin, Edward G.

2205. A glacial copper nugget found in St. Joseph County, Ind.: Am. Midland Naturalist, vol. 14, no. 1, pp. 49-50, January 1933.

Malmquist, D. See Backlund, 118.

Malott, Clyde Arnett. See also Shrock, 3077, 3077-a.

2206. (and Shrock, Robert Rakes). Mud stalagmites: Am. Jour. Sci., 5th ser., vol. 25, no. 145, pp. 55-60, 2 figs., January 1933.

Mandy, Joseph T. See Galloway, 1206.

Manger, George Edward.

2207. The geology of San Quintin Bay: Johns Hopkins Univ., Studies in Geology, no. 11, pp. 273-304, 1 pl., 1934.
 2208. A mineral analysis of some common sands and their silica content: Jour. Sedimentary Petrology, vol. 4, no. 3, pp. 141-151, December 1934.

Mansfield, George Rogers. See also Boutwell, 356.

2209. Some deposits of ornamental stone in Montana: U. S. Geol. Survey, Circ. 4, 22 pp. (†), 6 figs., 1 pl. (topog. map), 1933.
 2210. The western phosphate field: Ore deposits of the Western States (Lindgren volume), pp. 491-496, 1 fig. (map), Am. Inst. Min. Met. Eng., 1933.
 2211. The Permian potash field of New Mexico and Texas: Ore deposits of the Western States (Lindgren volume), pp. 496-502, 2 figs., Am. Inst. Min. Met. Eng., 1933.
 2212. The United States Geological Survey, its educational and other services to the public: Assoc. Am. State Geologists, Jour., vol. 5, no. 4, pp. 8-15 (†), October 1, 1934.

Mansfield, Wendell Clay. See also Cook, 727; Stephenson, 3203.

2213. A new species of pecten from the Oligocene near Duncan Church, Washington County, Fla.: Washington Acad. Sci., Proc., vol. 24, no. 8, pp. 331-333, 3 figs., August 15, 1934.

Marble, Charles F.

2214. Some of the world's finest tourmaline found in Maine: Oregon Mineralogist, vol. 2, no. 11, pp. 20-21, November 1934.

Margerie, Emmanuel de.

2215. La méthode des courbes structurales et la tectonique du Colorado: Zbiór Prac, E. Romer (Towarz. Geog. Lwów), pp. 617-643, 2 geol. maps, 1934.

Marliave, Chester.

2216. Geology of the Sacramento River Canyon between Cottonwood Creek and Iron Canyon: California, Dept. Pub. Works, Water Resources Div., Bull. no. 26, 1931, pp. 463-470, 1 pl., 1933.

Marmer, Harry Aaron.

2217. On the determination of mean high water: Am. Jour. Sci., 5th ser., vol. 26, no. 153, pp. 332-343, 5 figs., September 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 176, February 28, 1933.

Marsh, G. Everett.

2218. The constitution of the earth: Gerlands Beitr. Geophysik, Band 42, Heft 4, pp. 430-446, 1934.

Marshall, H. L. See Jacob, 1642.

Marshall, Robert.

2219. Reconnaissance of the northern Koyukuk Valley: U. S. Geol. Survey, Bull. 844, pp. 247-256, 1 pl. (sketch map), 1934.

Martel, Romeo Raoul. See Wood, 3757.

Martens, James Hart Curry.

2220. Mineralogy of sandstones of northern West Virginia: West Virginia Acad. Sci., Proc., vol. 6 (West Virginia Univ., Bull., ser. 33, no. 15), pp. 72-80, March 1933.
 2221. Sand: Rocks and Minerals, vol. 9, no. 3, pp. 29-31, March 1934.

Martin, Handel T. See Wetmore, 3624.

Martin, Lawrence.

2222. The physical geography of Wisconsin (2d ed.): Wisconsin Geol. Survey, Bull. no. 36, xxiii, 609 pp., 211 figs. (incl. maps), 1 pl. (relief map), 1932.

2223. Standard map of the maxima of Pleistocene glaciation in North America (abstract): Geol. Soc. America, Proc., 1933, p. 96, June 1934.

Martindale, Roy E.

2224. Microscopic determination of minerals: Pacific Mineralogist, vol. 1, no. 1, pp. 5-8, May 1934.

Mason, Carol Y.

2225. A new species of *Dicranopeltis*: Am. Midland Naturalist, vol. 15, no. 5, pp. 609-611, 3 figs., September 1934.

Mason, Herbert Louis. See also Chaney, 630, 631.

2226. A phylogenetic series of the California closed-cone pines suggested by the fossil record: Madroño, vol. 2, no. 6, pp. 49-55, 1 pl., February 1932.

2227. Pleistocene flora of the Tomales formation: Carnegie Inst. Washington, Pub. no. 415, Contr. Paleontology, pp. 81-180, 1 fig., 11 pls., October 1934 (preprint October 25, 1934).

Mather, Kirtley Fletcher.

2228. American Association for the Advancement of Science, section E (Geology and geography) [proceedings Atlantic City meeting]: Science, new ser., vol. 77, no. 1988, p. 140, February 3, 1933.

2229. Proceedings of a joint session of section E of the American Association for the Advancement of Science and members of the Geological Society of America, held at Atlantic City, N. J., December 27, 1932: Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 173-180, February 28, 1933.

2230. American Association for the Advancement of Science, section E (Geology and geography) [proceedings of Chicago meeting]: Science, new ser., vol. 78, no. 2013, pp. 73-74, July 28, 1933.

2231. Dynamic and structural geology: Am. Year Book, 1933, pp. 742-744, 1934.

2232. American Association for the Advancement of Science, section E (Geology and geography) [Proceedings Boston meeting]: Science, new ser., vol. 79, no. 2040, p. 101, February 2, 1934.

2233. Proceedings of a joint session of section E of the American Association for the Advancement of Science and members of the Geological Society of America, held at Boston, Mass., December 27 and 28, 1933: Geol. Soc. America, Proc., 1933, pp. 447-456, June 1934.

Matheson, A. F.

2234. Michipicoten River area, Ontario: Canada, Geol. Survey, Summary Rept., 1932, pt. D, pp. 1-21, 1933. (Pub. no. 2330.)

Mathews, Asa A. Lee. See also Boutwell, 356.

2235. (and Pegau, Arthur August). Marble prospects in Giles County, Va.: Virginia, Geol. Survey, Bull. 40, xi, 52 pp., 7 figs., 9 pls. 1934.

Mathews, Asa A. Lee—Continued.

2236. More light on Giles County structure (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, p. 53, 1934.

2237. Possible cryptobatholithic structure in Giles County (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, p. 53, 1934.

Mathews, Edward Bennett. See also Grout, 1337.

2238. Map of Maryland showing geological formations. Scale 1:380,160 or 6 miles to an inch. Maryland Geol. Survey, 1933.

2239. Memorial of Joseph Paxton Iddings [1857-1920]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 352-374, port., April 30, 1933.

Mathias, Henry Edwin.

2240. An occurrence of pyrite having a bearing on its origin (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 2, p. 49, April 1930.

2241. Origin of calcareous sandstone concretions in the Fox Hills formation near Colorado Springs, Colo. (abstract): *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 2, p. 49, April 1930.

Mathiasen, Therkel. See also Freuchen, 1163.

2242. Contributions to the geography of Baffin Land and Melville Peninsula: Fifth Thule Expedition, 1921-24, Rept., vol. 1, no. 3, 104 pp., 38 figs., 3 pls. (maps), 1933.

Mathiesen, Frederick J.

2243. Notes on some fossil plants from east Greenland: *Meddelelser om Grönland*, Band 85, Nr. 4; Copenhagen Univ., Mus. minéralogie et géologie, Comm. paléont., no. 40, 62 pp., 24 figs., 6 pls., 1932.

Matthes, François Émile. See also Jenkins, 1654.

2244. The little "lost valley" on Shepherd's Crest [Sierra Nevada, Calif.]: *Sierra Club, Bull.*, vol. 18, no. 1, pp. 68-80, 3 figs., 2 pls., February 1933.

2245. The Pleistocene diversion of the Mississippi River across Crowley's Ridge, southeastern Missouri (abstract): *Science*, new ser., vol. 77, pp. 459-460, May 12, 1933; *Washington Acad. Sci., Jour.*, vol. 23, no. 12, pp. 572-573, December 15, 1933; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 96-97, June 1934.

2246. On glaciers: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 345-350, Nat. Research Council, June 1933.

2247. Cretaceous sediments in Crowley's Ridge, southeastern Missouri: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 8, pp. 1003-1015, 1 fig., August 1933.

2248. Committee on glaciers of the American Geophysical Union, report for 1931-32: *Internat. Geod. and Geophys. Union, Assoc. Internat. Hydrol. Sci., Bull.*, no. 20, pp. 251-257 [1934].

2249. Wind-faceted pebbles from the glacial drift of Nantucket (abstract): *Washington Acad. Sci., Jour.*, vol. 24, no. 4, pp. 195-196, April 15, 1934.

2250. Ablation of snow fields at high altitudes by radiant solar heat: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 2, pp. 380-385, 5 figs., Nat. Research Council, June 1934.

2251. Report of the committee on glaciers, 1933-34: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 2, pp. 279-285, Nat. Research Council, June 1934.

Matthes, Gerard Hendrick. See also Straub, 3273.

2252. Diversion of sediment at branching channels: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 506-509, Nat. Research Council, June 1933.

Matthew, William Diller, 1871-1930.

2253. Third contribution to the Snake Creek fauna: *Am. Mus. Nat. History, Bull.*, vol. 50, Art. 2, pp. 59-210, 63 figs., 1934.
2254. (and Mook, Charles Craig). New fossil mammals from the Deep River beds of Montana: *Am. Mus. Novitates*, no. 601, 7 pp., 2 figs., March 22, 1933.

Mawdsley, J. B. See Canada G. S., 560.

Maxemin, Juan.

2255. Breves apuntes sobre la fotografia aérea aplicada a la geología del petróleo: *Bol. petróleo*, vol. 34, nos. 4, 5, 6, pp. 206-208, October, November, December 1932.

Maxson, John Haviland. See also Anderson, 69; Campbell, 549, 551, 552.

2256. Economic geology of portions of Del Norte and Siskiyou Counties, northwesternmost California: *California Jour. Mines and Geology*, vol. 29, nos. 1, 2, pp. 123-160, 26 figs., 1 pl. (geol. map), January and April 1933.
2257. Structural relationships of the coast and continental margin of northern California (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 152, February 28, 1933.
2258. Contact conditions of some chromite deposits in serpentine in the Klamath Mountains (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 166, February 28, 1933.
2259. (and Campbell, Ian). Faulting in Bright Angel, Ariz. (abstract): *Pan-Am. Geologist*, vol. 59, no. 4, pp. 303-304, May 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 301, June 1934.
2260. Pre-Cambrian stratigraphy of the Inyo Range (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, pp. 310-311, May 1934.
2261. (and Campbell, Ian). Archean ripple mark in the Grand Canyon: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 166, pp. 298-303, 2 figs., October 1934.

Maxwell, James Melvin.

2262. A petrographic study of the Lyons formation: *Colorado, Univ., Studies*, vol. 22, no. 1, p. 48, November 1934.

Maynard, James E. See also Richardson, 2761.

2263. The petrographic reexamination of quartz-bearing plutonites from Vermont: *Jour. Geology*, vol. 42, no. 2, pp. 146-162, 8 figs., February-March 1934.

Mayo, Evans Blakemore.

2264. Discovery of piedmontite in the Sierra Nevada: *California Jour. Mines and Geology*, vol. 29, nos. 1, 2, pp. 239-243, 3 figs., January and April 1933.
2265. Geology and mineral deposits of Laurel and Convict Basins, southwestern Mono County, Calif.: *California Jour. Mines and Geology*, vol. 30, no. 1, pp. 79-87, 4 figs. (incl. map), 2 pls. (geol. and sketch maps), January 1934.
2266. Preliminary survey of an intraseptum intrusion in eastern California (abstract): *Geol. Soc. America, Proc.*, 1933, p. 97, June 1934.

Mayo, Evans Blakemore—Continued.

2267. (O'Leary, William J.). Oligonite, a manganosiderite from Leadville, Colo.: *Am. Mineralogist*, vol. 19, no. 7, pp. 304-308, 2 figs., July 1934.
2268. The Pleistocene Long Valley lake in eastern California: *Science*, new ser., vol. 80, no. 2065, pp. 95-96, July 27, 1934.

Meacham, Reid Philip.

2269. A stratigraphic analysis of some deep-well records in Kentucky: *Kentucky, Univ., Bur. Mineral and Topog. Survey, Bull. no. 2*, 9 pp., (†) 2 pls. (incl. map), November 1, 1933.

Mead, Roy G.

2270. The Kramer borax deposits in California and the development of other borate ores: *Mining and Metallurgy*, vol. 14, no. 322, pp. 405-409, 4 figs., October 1933.

Meen, V. B.

2271. A description of a few plagioclases: *Toronto, Univ., Studies, Geol. ser.*, no. 35, pp. 37-45, 3 figs., 1933.
2272. Determination of specific gravity of minerals by use of index liquids: *Toronto, Univ., Studies, Geol. ser.*, no. 35, pp. 47-50, 1 fig., 1933.

Mehl, Maurice Goldsmith. See also Branson, 393, 394, 395, 396, 398.

2273. Crocodilian remains from Dakota sandstone of western Kansas (abstract): *Geol. Soc. America, Proc.*, 1933, p. 368, June 1934.

Meinzer, Oscar Edward. See also Thompson, 3374.

2274. Geologic reconnaissance of region adjacent to Guantanamo Bay, Cuba: *Washington Acad. Sci., Jour.*, vol. 23, no. 5, pp. 246-260, 2 figs. (incl. geol. map), May 15, 1933.
2275. Geophysical interpretation of ground-water levels: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 36-37, Nat. Research Council, June 1933.
2276. The history and development of ground-water hydrology: *Washington Acad. Sci., Jour.*, vol. 24, no. 1, pp. 6-32, January 15, 1934.
2277. (and Fishel, V. C.). Tests of permeability with low hydraulic gradients: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 2, pp. 405-409, 3 figs., Nat. Research Council, June 1934.

Melchase, John.

2278. Diatomaceous earth, its nature, occurrence, and use: *Rocks and Minerals*, vol. 8, no. 1, pp. 27-29, 1 fig., March 1933.
2279. A diversity of many fine minerals available in California for collectors: *Oregon Mineralogist*, vol. 2, no. 6, pp. 1-2, 4, June 1934; no. 7, pp. 7-8, 23, July 1934.
2280. Nevada, the mineral collector's Mecca, many localities described: *Oregon Mineralogist*, vol. 2, no. 8, pp. 3-4, 22-23, August 1934; no. 9, pp. 5-6, 30-31, September 1934; no. 10, pp. 3-4, 29-31, October 1934; no. 11, pp. 5-6, 28-30, November 1934; no. 12, pp. 5-6, 26-27, December 1934.

Melton, Frank Armon. See also Cooke, 735.

2281. (and Schriever, William). The Carolina "bays"—are they meteorite scars?: *Jour. Geology*, vol. 41, no. 1, pp. 52-66, 7 figs., January-February 1933; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 94, February 28, 1933; *Sci. Am.*, vol. 149, no. 3, pp. 106-107, illus., September 1933; no. 4, pp. 158-159, 188-189, illus., October 1933; abstract, *Tulsa Geol. Soc., Digest*, p. 12, 1933.

Melton, Frank Armon—Continued.

- 2282. Erosional soil hillocks (abstract): *Geol. Soc. America, Proc.*, 1933, p. 98, June 1934.
- 2283. Fracture patterns in horizontal strata of the southern Central Plains (abstract): *Geol. Soc. Washington, Proc.*, 1933, p. 98, June 1934.
- 2284. Linear and dendritic sink-hole patterns in southeastern New Mexico: *Science, new ser.*, vol. 80, no. 2066, pp. 123-124, 2 figs., August 3, 1934.

Mendenhall, Walter Curran.

- 2285. [Fifty-fourth annual report of the Director of the United States] Geological Survey: U. S. Dept. Interior Ann. Rept., 1933, pp. 203-237, Washington, 1933.
- 2286. The United States Geological Survey: *Sci. Monthly*, pp. 104-120, illus., February 1933.
- 2287. The Sixteenth International Geological Congress: *Science, new ser.*, vol. 78, no. 2021, pp. 247-254, September 22, 1933.
- 2288. [Fifty-fifth annual report of the Director of the United States] Geological Survey: U. S. Dept. Interior, Ann. Rept., 1934, pp. 217-253, Washington, 1934.

Merriam, Charles Warren.

- 2289. Zonal distribution and foreign affinities of *Turritellas* occurring in Cretaceous, Tertiary, and Quaternary deposits on the Pacific coast of North America (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 216, February 28, 1933.
- 2290. Devonian and east-central Nevada (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, p. 311, May 1934.

Merriam, John Campbell.

- 2291. (and others). Continuation of paleontological researches: Carnegie Inst. Washington, Year Book no. 32, pp. 323-330, 1933.
- 2292. (and Stock, Chester). The cats of Rancho La Brea [California]: Carnegie Inst. Washington, News Service Bull., vol. 3, no. 2, pp. 11-16, 11 figs., February 19, 1933.
- 2293. (and Stock, Chester). Tertiary mammals from the auriferous gravels near Columbia, Calif.: Carnegie Inst. Washington, Pub. no. 440, *Contr. Paleontology*, pp. 1-6, 2 figs., November 1933.
- 2294. Present status of the problem of the antiquity of man in North America (abstract): *Science, new ser.*, vol. 78, no. 2032, p. 524, December 8, 1933; abstract, *Pan-Am. Geologist*, vol. 60, no. 5, p. 377, December 1933.
- 2295. (and associates). Continuation of paleontological researches: Carnegie Inst. Washington, Year Book no. 33, pp. 302-313, 1934.
- 2296. Nature and extent of Tertiary formations immediately following the Columbia lava flows of the Northwest (abstract): *Science, new ser.*, vol. 80, no. 2085, pp. 550-551, December 14, 1934.

Merritt, Clifford Addison.

- 2297. (and Minton, J. W.). The dolomites of the Stillwater, Wellington, Garber, Hennessey, and Duncan formations: *Oklahoma Acad. Sci., Proc.*, 1930, vol. 10, pp. 69-71, 7 figs., 1930.

Merritt, Phillip L.

- 2298. Seine-Couthiching problem: *Geol. Soc. America, Bull.*, vol. 45, no. 2, pp. 333-374, 1 fig., 14 pls. (incl. maps), April 30, 1934; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 98-99, June 1934.

Mertie, John Beaver, Jr.

2299. Selected problems of the geology of the Yukon-Tanana region, Alaska (abstract): Washington Acad. Sci., Jour., vol. 23, no. 8, pp. 398-399, August 15, 1933.

2300. Mineral deposits of the Rampart and Hot Springs districts, Alaska: U. S. Geol. Survey, Bull. 844, pp. 163-226, 1 fig. 3 pls. (map), 1934.

Merwin, Herbert Eugene. See Greig, 1323.

Meserve, Frank G.

2301 (and Barbour, Erwin Hinckley). Association of an arrow point with *Bison occidentalis* in Nebraska: Nebraska State Mus., Bull., vol. 1, no. 27, pp. 239-242, 2 figs., February 1932.

Messervey, John Perham.

2302. Feldspar in Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1932, Pamph. no. 10, pp. 157-168, 2 pls., 1933.

2303. Graphite in Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1932, Pamph. no. 11, pp. 181-196, 1 pl., 1933.

2304. Mica in Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1932, Pamph. no. 18, pp. 169-180, 1933.

2305. Molybdenum in Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1932, Pamph. no. 19, pp. 197-210, 1933.

2306. Tin in Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1932, Pamph. no. 28, pp. 211-227, 3 pls., 1933.

Meyerhoff, Howard Augustus. See also Britton, 406.

2307. Geology of Puerto Rico: Puerto Rico, Univ., Mon., ser. B, no. 1, 306 pp., 44 figs., 2 pls. (incl. geol. map), 1933.

2308. Geología del distrito de Fajardo: Rev. obras públicas de Puerto Rico, año 10, no. 1, pp. 287-291, January 1933.

2309. (and Olmsted, Elizabeth W.). Triassic influences on Appalachian drainage (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 94-95, February 28, 1933.

2310. (and Olmsted, Elizabeth W.). Wind gaps and water gaps in Pennsylvania: Am. Jour. Sci., 5th ser., vol. 27, no. 162, pp. 410-416, 1 fig., 2 tables, June 1934.

2311. (and Lochman, Christina). *Crevicephalus* horizon in the Deadwood formation of South Dakota (abstract): Geol. Soc. America, Proc., 1933, p. 99, June 1934.

Michener, Charles E.

2312. The northward extension of the Sweetgrass arch: Jour. Geology, vol. 42, no. 1, pp. 45-61, January-February 1934.

Mikkelsen, Ejnar.

2313. Report on the expedition; the Scoresby Sound Committee's 2d East Greenland expedition in 1932 to King Christian IX's Land: Meddelser om Grönland, Band 104, Nr. 1, 71 pp., 31 figs., 1 pl., 1933.

Mill, Hugh Robert.

2314. William Morris Davis [1850-1934]: Geog. Jour., vol. 84, no. 1, pp. 93-95, July 1934.

Miller, Alden Holmes. See also Howard, 1574.

2315. Additions to the Rancho La Brea avifauna: Condor, vol. 31, pp. 223-224, September 1929.
2316. An extinct icterid from Shelter Cave, N. Mex.: Auk, vol. 49, no. 1, pp. 38-41, 1 pl., January 1932.
2317. (and Ashley, James F.). Goose footprints on a Pliocene mud flat: Condor, vol. 36, pp. 178-179, 1 fig., July-August 1934.

Miller, Andrew Howard.

2318. (and Norman, G. W. H.). The magnetic anomaly of a buried granite ridge near Moncton, New Brunswick (abstract): Royal Soc. Canada, Trans., vol. 27, p. cxlii, 1933.
2319. Gravitational and magnetometric surveys of the Onakawana lignite and Grand Rapids siderite deposits: Canadian Jour. Research, vol. 10, no. 4, pp. 463-478, 10 figs., April 1934.

Miller, Arthur K.

2320. (and Dunbar, Carl Owen, and Condra, George Evert). The nautiloid cephalopods of the Pennsylvanian system in the Midcontinent region: Nebraska Geol. Survey, 2d ser., Bull. 9, 240 pp., 32 figs., 24 pls., 1933.
2321. A mixochoanitic cephalopod from Iowa: Am. Jour. Sci., 5th ser., vol. 26, no. 152, pp. 178-182, 5 figs., August 1933.
2322. (and Thompson, M. L.). The anutiloid cephalopods of the Midway group: Jour. Paleontology, vol. 7, no. 3, pp. 298-324, 4 figs., 5 pls., September 1933.
2323. (and Warren, Percival Sidney). A *Propinacoceras* from North America: Am. Jour. Sci., 5th ser., vol. 26, no. 153, pp. 295-299, 4 figs., September 1933.
2324. (and Carmer, A. M.). Devonian Foraminifera from Iowa: Jour. Paleontology, vol. 7, no. 4, pp. 423-431, December 1933.
2325. (and Cline, L. M.). The cephalopod fauna of the Pennsylvanian Nellie Bly formation of Oklahoma: Jour. Paleontology, vol. 8, no. 2, pp. 171-185, 1 pl., June 1934; abstract, Geol. Soc. America, Proc., 1933, p. 374, June 1934.
2326. Cephalopods of the Phosphoria formation of northwestern United States (abstract): Geol. Soc. America, Proc., 1933, p. 365, June 1934.
2327. The Carboniferous ammonoid genus *Dryochoceras*, a synonym of *Sagittoceras*: Am. Jour. Sci., 5th ser., vol. 28, no. 163, pp. 31-66, 6 figs., July 1934.
2328. (and Owen, John Britts). Cherokee nautiloids of the northern Midcontinent region: Iowa, Univ., Studies in Nat. History, vol. 16, no. 3, pp. 187-272, 7 figs., 12 pls., August 1, 1934.

Miller, B. Floyd. See also Kansas Geol. Soc., 1743.

2329. (and Parker, Ben H., Beeth, Donald, and Hall, E. A.). Stratigraphic sections in northeastern New Mexico: Kansas Geol. Soc., Guidebook, 4th Ann. Field Conf., pp. 106-130 (†), September 1930.

Miller, Benjamin Leroy. See also Berkeley, 262.

2330. Survey of the world graphite situation: Min. Met. Soc. America, Bull., vol. 26, no. 2, pp. 101-112, December 1933.
2331. Limestones of Pennsylvania: Pennsylvania Geol. Survey, 4th ser., Bull. M 20, 729 pp., 37 figs. (incl. maps), 41 pls., 1934.

Miller, Benjamin Leroy—Continued.

2332. Memorial of James Edward Talmadge [1862-1933]: Geol. Soc. America, Proc., 1933, pp. 259-272, port., June 1934.

2333. Memorial of Edward Higginson Williams, Jr. [1849-1933]: Geol. Soc. America, Proc., 1933, pp. 289-298, port., June 1934.

Miller, Charis R. See Teas, 3325.

Miller, Eric Rexford.

2334. The dust fall of November 12-13, 1933: Monthly Weather Rev., vol. 62, no. 1, pp. 14-15, 2 pls. (maps), January 1934.

2335. Meteorology of the dust fall of November 12-13, 1933: Jour. Sedimentary Petrology, vol. 4, no. 2, pp. 78-81, 1 fig., August 1934.

Miller, John Charles. See also Avery, 116; Israelsky, 1638.

2336. Geology of the north and south McCallum anticlines, Jackson County, Colo., with special reference to petroleum and carbon dioxide: U. S. Geol. Survey, Circ. 5, 27 pp. (†), 1 fig., 2 pls., 1934.

Miller, Loye Holmes.

2337. Anomalies in the distribution of fossil gulls: Condor, vol. 26, pp. 173-174, September 1924.

2338. *Branta dickeyi* from the McKittrick Pleistocene: Condor, vol. 26, pp. 178-180, 4 figs., September 1924.

2339. Avifauna of the McKittrick Pleistocene: California Univ., Dept. Geol. Sci., Bull., vol. 15, no. 9, pp. 307-326, 3 figs., April 1925.

2340. The falcons of the McKittrick Pleistocene: Condor, vol. 29, pp. 150-152, 1 fig., May 1927.

2341. The antiquity of the migratory instinct in birds: Condor, vol. 30, pp. 119-120, January 1928.

2342. A new cormorant from the Miocene of California: Condor, vol. 31, no. 4, pp. 167-172, 2 figs., July-August 1929.

2343. Further bird remains from the upper San Pedro Pleistocene: Condor, vol. 32, no. 2, pp. 116-118, 1 fig., March 1930.

2344. A fossil goose from the Ricardo Pliocene: Condor, vol. 32, no. 4, pp. 208-209, 1 fig., July 1930.

2345. Bird remains from the Kern River Pliocene of California: Condor, vol. 33, no. 2, pp. 70-73, 3 figs., March-April 1931.

2346. The Pleistocene storks of California: Condor, vol. 34, no. 5, pp. 212-216, 3 figs., September-October 1932.

2347. The Lucas auk of California: Condor, vol. 35, no. 1, pp. 34-35, January-February 1933.

2348. A Pleistocene record of the flammeolated screech owl: San Diego Soc. Nat. History, Trans., vol. 7, no. 19, pp. 209-210, March 31, 1933.

2349. A new horizon for the extinct goose, *Chendytes*: Science, new ser., vol. 80, no. 2067, pp. 141-142, August 10, 1934.

Miller, Paul T. See also Kay, 1751.

2350. The Iowan gravels in northeastern Iowa (abstract): Iowa Acad. Sci., Proc., 1931, vol. 38, p. 206 (n. d.).

Miller, William John.

2351. Comparison of two granites (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 161-162, February 28, 1933.

2352. Cenozoic history of the San Gabriel Mountains of California (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 166-167, February 28, 1933.

Miller, William John—Continued.

2353. Geologic section across southern Peninsular Mountains of California (abstract): Pan-Am. Geologist, vol. 59, no. 4, p. 314, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 312, June 1934.
2354. Geology of the western San Gabriel Mountains of California: California Univ., Pub. in Math. Phys. Sci., vol. 1, no. 1, pp. 1-114, 6 figs., 14 pls. (incl. geol. map), 1934.
2355. Geomorphology of Peninsular Mountains in southern California (abstract): Pan-Am. Geologist, vol. 61, no. 4, pp. 313-314, May 1934.

Millican, Olin M. See Shuler, 3079.

Milton, Charles. See Ross, 2836.

Miner, Ernest Lavon.

2356. A new *Gleicheniopsis* from the Upper Cretaceous of western Greenland: Am. Jour. Botany, vol. 21, no. 5, pp. 261-264, 6 figs., May 1934.

Miner, Neil E.

2357. Talus slopes of the Gaspé Peninsula: Science, new ser., vol. 79, no. 2045, pp. 229-230, March 9, 1934.

Minor, H. E.

2358. (and Hanna, Marcus Albert), East Texas oil field: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 7, pp. 757-792, 14 figs. (incl. sketch map), July 1933.
2359. Oil-field waters of the Gulf Coastal Plain: Problems of petroleum geology (Sidney Powers memorial volume), pp. 891-905, 9 figs. (incl. maps), Am. Assoc. Petroleum Geologists, 1934.

Minton, J. W. See Merritt, 2297.

Miser, Hugh Dinsmore. See also Ashley, 92; Burchard, 490; Kansas Geol. Soc., 1744.

2360. Some problems of the Ouachita Mountains (abstract): Tulsa Geol. Soc., Digest, pp. 35-38, 1933.
2361. Oklahoma structural salient of the Ouachita Mountains (abstract): Washington Acad. Sci., Jour., vol. 23, no. 2, pp. 110-112, February 15, 1933.
2362. Structural relations of Ouachita geosyncline of Arkansas, Oklahoma, and adjacent States (abstract): Pan-Am. Geologist, vol. 61, no. 2, pp. 155-156, March 1934.
2363. Carboniferous rocks of Ouachita Mountains: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 8, pp. 971-1009, 5 figs. (incl. geol. sketch map), August 1934; abstract, Washington Acad. Sci., Jour., vol. 24, no. 11, pp. 494-495, November 15, 1934.
2364. Relation of Ouachita belt of Paleozoic rocks to oil and gas fields of Mid-Continent region: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 8, pp. 1059-1077, 5 figs. (geol. maps), August 1934; abstract, Pan-Am. Geologist, vol. 59, no. 3, pp. 227-228, April 1933.

Mitchell, David Ray. See McCabe, 2136.

Mitchell, R. L.

2365. (and Ritter, George Joseph). Composition of three fossil woods mined from the Miocene auriferous gravels of California: Am. Chem. Soc., Jour., vol. 56, no. 7, pp. 1603-1605, 1 fig., July 1934; reprinted by U. S. Dept. Agr., Forest Products Lab., 1934.

Mitchell, Robert H.

2366. Notes on another Pennsylvanian footprint from Ohio: Ohio Jour. Sci., vol. 33, no. 1, pp. 48-49, 2 figs., January 1933.
 2367. Laboratory studies of mountain structure; a report of progress: Ohio Jour. Sci., vol. 33, no. 6, pp. 425-434, 2 pls., November 1933.

Mitera, Zygmunt.

2368. Seismic reflection methods and their application for exploration of oil deposits in America: Karpacki Inst. Geol.-Naft., Karpaty II, pp. 8-23, 20 figs., 1934.

Modell, David.

2369. (and Dake, Henry C.). An occurrence of schwartzite in Oregon: Oregon Mineralogist, vol. 2, no. 12, pp. 3-4, December 1934.

Moehlman, Robert S.

2370. (and Gonyer, F. A.). Monticellite from Crestmore, Calif.: Am. Mineralogist, vol. 19, no. 10, pp. 474-476, October 1934.

Moffit, Fred Howard.

2371. The Suslota Pass district, upper Copper River region, Alaska: U. S. Geol. Survey, Bull. 844, pp. 137-162, 1 pl. (geol. map), 1933.

Mogilnor, A. H. See Landon, 1932.

Moneymaker, B. C.

2372. Stratigraphy and structural geology of the Hiwassee River Basin in vicinity of Coleman dam site: Tennessee Valley Authority, General Eng. and Geol. Div., Bull. no. 2, 29 pp., 8 figs. (incl. geol. map), 1 pl., August 1934.

Monroe, Watson Hiner.

2373. Pre-Tertiary rocks from deep wells at Jackson, Mississippi: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 1, pp. 38-51, 2 figs., January 1933.
 2374. Topography and physiography from aerial photographs (abstract): Washington Acad. Sci., Jour., vol. 23, no. 2, pp. 112-113, February 15, 1933.

Montgomery, Arthur.

2375. A recent find of bixbyite and associated minerals in the Thomas Range, Utah: Am. Mineralogist, vol. 19, no. 2, pp. 82-87, 2 figs., February 1934.

Montoulieu, Eduardo I.

2376. Aspecto geográfico, geológico y sísmico del megasismo de Santiago de Cuba de 3 de febrero de 1932: Soc. cubana ing., Rev., vol. 25, no. 1, pp. 5-79, 1 pl., January-February 1933.

Moodie, Roy Lee, 1880-1934.

2377. Studies in paleodontology, 4, The evidences of pyorrhea, dead teeth, and gingival infections in the mandibles of the Pleistocene giant wolf (*Aenocyon dirus*) from Rancho la Brea: Pacific Dental Gazette, vol. 36, no. 7, pp. 414-419, 4 figs., July 1928.
 2378. Studies in paleodontology, 14, A curious example of dental abrasion in an ancient Californian Indian: Pacific Dental Gazette, vol. 37, no. 2, pp. 87-94, 7 figs., February 1929.
 2379. Studies in paleodontology, 15, Dental attrition and its results among certain ancient Indians from southern California: Pacific Dental Gazette, vol. 37, no. 4, pp. 217-227, 11 figs., April 1929.

Moodie, Roy Lee—Continued.

2380. Studies in paleodontology, 16, The California sabre-tooth; the mandibular teeth and associated structures: Pacific Dental Gazette, vol. 37, no. 6, pp. 317-321, 6 figs., June 1929.
2381. Studies in paleodontology, 19, An alveolar abscess in a fossil mammal: Pacific Dental Gazette, vol. 37, no. 7, pp. 428-433, 4 figs., July 1929.
2382. Studies in paleodontology, 20, The teeth and jaws of *Nothrotherium*: Pacific Dental Gazette, vol. 37, no. 11, pp. 677-680, 3 figs., November 1929.
2383. Studies in paleodontology, 26, A deformed molar of a mammoth from the Pleistocene of Texas: Pacific Dental Gazette, vol. 37, no. 11, pp. 683-686, 3 figs., November 1929.
2384. Studies in paleodontology, 22, Apical closure of root canals in adult Pleistocene carnivora: Pacific Dental Gazette, vol. 38, no. 1, pp. 1-4, 4 figs., January 1930.
2385. Studies in paleodontology; The teeth, jaws and palates of pre-Pueblo Indians from New Mexico: Pacific Dental Gazette, vol. 38, no. 3, pp. 127-145, 16 figs. (incl. map), March 1930.
2386. Studies in paleopathology, 25, Hypertrophy in the sacrum of the sabre-tooth, Pleistocene, of southern California: Am. Jour. Surgery, new ser., vol. 8, no. 6, pp. 1313-1315, 2 figs., June 1930.
2387. Studies in paleodontology; Dental abscesses in a dinosaur millions of years old, and the oldest yet known: Pacific Dental Gazette, vol. 38, no. 7, pp. 435-440, 4 figs., July 1930.
2388. Studies in paleodontology; Mandibular and maxillary grooves in a dinosaur: Pacific Dental Gazette, vol. 38, no. 7, pp. 441-443, 3 figs., July 1930.
2389. Studies in paleopathology, 26, Pleistocene luxations: Am. Jour. Surgery, new ser., vol. 9, no. 2, pp. 348-362, 14 figs., August 1930.
2390. Studies in paleopathology, 27, A suggestion of rickets in the Pleistocene: Am. Jour. Surgery, new ser., vol. 10, no. 1, pp. 162-163, 1 fig., October 1930.
2391. Studies in paleopathology, 28, The phenomenon of sacralization in the Pleistocene sabre-tooth: Am. Jour. Surgery, New York, new ser., vol. 10, pp. 587-589, 6 figs., October 1930.
2392. Studies in paleodontology; The teeth of the Piros: Pacific Dental Gazette, vol. 38, no. 12, pp. 795-807, 8 figs. (incl. map), December 1930.
2393. A popular guide to the nature and the environment of the fossil vertebrates of New York: New York State Mus., Handbook no. 12, 122 pp., 40 figs., 1933.

Mook, Charles Craig. See also Matthew, 2254.

2394. Skull characters of *Teleorhinus browni* Osborn: Am. Mus. Novitates, no. 602, 6 pp., 2 figs., March 22, 1933.
2395. A crocodilian skeleton from the Morrison formation at Canyon City, Colo.: Am. Mus. Novitates, no. 671, 8 pp., 4 figs., November 4, 1933.
2396. A skull of *Crocodylus clavis* Cope in the United States National Museum: Am. Mus. Novitates, no. 678, 7 pp., 3 figs., December 2, 1933.
2397. A new species of *Teleorhinus* from the Benton shales: Am. Mus. Novitates, no. 702, 11 pp., 4 figs., March 13, 1934.

Mook, Charles Craig—Continued.

2398. The evolution and classification of the Crocodilia: *Jour. Geology*, vol. 42, no. 3, pp. 295-304, 1 fig., April-May 1934.

Moore, Bernard Nettleton.

2399. Deposits of possible nuée ardente origin in the Crater Lake region, Oregon: *Jour. Geology*, vol. 42, no. 4, pp. 358-375, May-June 1934.
2400. Diatomite and pumice in eastern Oregon: *Am. Inst. Min. Met. Eng., Contr. no 73*, 11 pp., 1 fig. (map), 1934; abstract, *Min. and Met.*, vol. 15, no. 330, p. 263, June 1934.

Moore, E. W. J. See Bisat, 309.

Moore, Elwood S.

2401. Genetic relations of certain igneous rocks in the Canadian Shield: *Royal Soc. Canada, Trans.*, 3d ser., vol. 28, sec. 4, pp. 1-6, May 1934.
2402. Genetic relations of silver deposits and Keweenawan diabases in Ontario: *Econ. Geology*, vol. 29, no. 8, pp. 725-756, 3 figs. (incl. map), December 1934.

Moore, P. D. See also Link, 2065.

2403. The Minudie anticline: Nova Scotia, Dept. Public Works and Mines, *Ann. Rept. on Mines*, 1931, pt. 2, pp. 5-14, 3 figs., 1932.

Moore, Raymond Cecil. See also Ashley, 92; *Kansas Geol. Soc.*, 1745; Kellett, 1763.

2404. *Basslerina*, a new holliniform ostracode genus, with description of new Pennsylvanian species from Texas and Oklahoma: *Denison Univ., Bull.*, vol. 29, no. 2 (*Sci. Lab., Jour.*, vol. 24), pp. 99-114, 3 pls., April 1929.
2405. Pennsylvanian of the northern Midcontinent region: *Internat. Geol. Cong.*, XVI, United States, 1933, Guidebook 20, Excursion C-2, 8 pp., 1 pl. (geol. map), 1932.
2406. A reclassification of the Pennsylvanian system in the northern Midcontinent region: *Kansas Geol. Soc., Guidebook*, 6th Ann. Field Conf., pp. 79-98 (†), 4 figs., formation chart (2d ed. by Moore and Condra, on geologic section by Betty Kellett), September 1932.
2407. *Historical geology*. 673 pp., 413 figs., New York, McGraw-Hill Book Co., 1933.
2408. A reclassification of the Pennsylvanian system in the northern Midcontinent region (abstract): *Tulsa Geol. Soc., Digest*, pp. 13-15, 1933.
2409. Stratigraphic classification of Pennsylvanian and Permian beds in the Midcontinent region (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 95, February 28, 1933; abstract, *Pan-Am. Geologist*, vol. 60, no. 3, p. 233, October 1933.
2410. Early Osage, Mississippian, beds of the Ozark region (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 203-204, February 28, 1933.
2411. Pennsylvanian and Permian facies faunas (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 205, February 28, 1933.
2412. Memorial of Erasmus Haworth [1855-1932]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 338-347, part, April 30, 1933.

Moore, Raymond Cecil—Continued.

2413. The origin and age of the boulder-bearing Johns Valley shale in the Ouachita Mountains of Arkansas and Oklahoma: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 162, pp. 432-453, 4 figs., June 1934.
2414. (and Moss, Rycroft G.). Permian-Pennsylvanian boundary in the northern Midcontinent area (abstract): *Geol. Soc. America, Proc.* 1933, p. 100, June 1934.
2415. (and Elias, Maxim K.). Sedimentation cycles as a guide to stratigraphic classification of the Kansas lower Permian (abstract): *Geol. Soc. America, Proc.*, 1933, p. 100, June 1934.

Morales y Pedroso, Louis.

2416. El terremoto de Santiago de Cuba de 3 de febrero de 1932: *Soc. cubana ing., Rev.*, vol. 25, no. 2, pp. 123-166, 3 figs., 4 pls., March-April 1933.

Moreman, Walter Lafayette.

2417. Arenaceous Foraminifera from the lower Paleozoic of Oklahoma: *Jour. Paleontology*, vol. 7, no. 4, pp. 393-397, 1 pl., December 1933; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 193, February 28, 1933.

Moresi, Cyril K. See Howe, 1579.

Morris, Frederick Kuhne. See also Larsen, 1998.

2418. Eastern Appalachian geosyncline (abstract): *Pan-Am. Geologist*, vol. 61, no. 2, p. 145, March 1934.

Morris, Mark.

2419. The unsoundness of certain types of rocks: *Iowa Acad., Sci. Proc.*, 1931, vol. 38, pp. 175-178 (n. d.).

Morrow, A. L.

2420. Foraminifera and Ostracoda from the Upper Cretaceous of Kansas: *Jour. Paleontology*, vol. 8, no. 2, pp. 186-205, 3 pls., June 1934.

Morse, William Clifford.

2421. Slickensides: *Science*, new ser., vol. 78, no. 2028, p. 436, November 10, 1933.
2422. Ephraim Noble Lowe [1864-1933]: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 3, pp. 428-430, March 1934.

Moss, Rycroft G. See also Moore, 2414.

2423. Preliminary report on ground-water resources of the shallow-water basin in Scott and Finney Counties, Kans.: *Kansas Geol. Survey, Circ.* 5, 7 pp., (†), 3 figs., October 1, 1933.
2424. The geology of Ness and Hodgeman Counties, Kans.: *Kansas Geol. Survey, Bull.* 19, 48 pp., 1 fig. (map), 7 pls. (incl. geol. map), December 1, 1933.
2425. Configuration of the present surface of buried pre-Cambrian rocks east of the Rocky Mountains (abstract): *Geol. Soc. America, Proc.*, 1933, p. 101, June 1934.

Moyer, F. T. See Sisler, 3107.

Mozley, Alan.

2426. Postglacial fossil Mollusca in western Canada: *Geol. Mag.*, vol. 71, no. 842, pp. 370-382, August 1934.

Müllerried, Friedrich K. G.

2427. El Chichón; único volcán en actividad en el sureste de México: Universidad de México, vol. 5, no. 27, pp. 156-170, 3 figs., 4 pls., January-February 1933.
2428. Die Beziehungen der Pachydonten Amerikas zu denen der Alter Welt: Geol. Rundschau, Band 23a (Salomon-Calvi Festschrift), pp. 267-271, 1933.
2429. Das stratigraphische Alter des mexikanischen Schweröles (Chapopote): Geol. Rundschau, Band 23a (Salomon-Calvi Festschrift), pp. 271-274, 1933; Petroleum, Band 30, Nr. 9, pp. 10-12, March 1, 1934.
2430. El género *Plagioptychus* en México: Inst. biología, México, Anales, tomo 4, no. 1, pp. 1-14, 11 figs., 1933.
2431. Estudios paleontológicos y estratigráficos en la región de Tehuacán, Puebla: Inst. biología, México, Anales, tomo 4, no. 1, pp. 33-46, 6 figs., 1933; no. 2, pp. 33-46, 6 figs., 1933; no. 3, pp. 78-93, 8 figs., 1933; no. 4, pp. 309-330, 14 figs., 1933; tomo 5, no. 1, pp. 55-80, 10 figs., 1934; abstract, Neues Jahrb., 1934, Referate, III, Heft 5, pp. 760-761.
2432. Nota preliminar acerca de hallazgo de un gravigrado en capas diluviales de villa F. Madero, D. F. Valle de México: Inst. biología, México, Anales, tomo 4, no. 2, p. 143, 1933.
2433. Un nuevo *Cardium* fósil de la región de Tlaxiaco, Oaxaca: Inst. biología, México, Anales, tomo 4, no. 4, pp. 331-334, 2 figs., 1933; abstract, Neues Jahrb., 1934, Referate, III, Heft 5, pp. 758-759.
2434. Sobre el hallazgo de paquidontos gigantes en el cretácico de Chiapas: Inst. biología, México, Anales, tomo 5, no. 1, pp. 81-82, 1 fig., 1934.
2435. Sobre un gravigrado gigantesco (*Mylodon*) encontrado en el valle de México: Inst. biología, México, Anales, tomo 5, no. 3, pp. 223-236, 12 figs., 1934.

Muench, Oscar Brauer.

2436. The age of a Canadian cyrtolite: Am. Jour. Sci., 5th ser., vol. 25, no. 150, pp. 487-493, June 1933.

Muilenburg, Garrett A. See also Cullison, 811.

2437. (and Goldich, Samuel S.). Petrography and petrology of the Mount Devon diabase porphyry: Am. Jour. Sci., 5th ser., vol. 26, no. 153, pp. 355-367, 1 fig., 2 pls., September 1933.

Muir, J. Lawrence.

2438. Anhydrite-gypsum problem of Blaine formation, Oklahoma (with discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 10, pp. 1297-1312, 5 figs., October 1934.

Muir, John M.

2439. Limestone reservoir rocks in the Mexican oil fields: Problems of petroleum geology (Sidney Powers memorial volume), pp. 377-398, 7 figs. (incl. maps), 1 pl., Am. Assoc. Petroleum Geologists, 1934; abstract, Pan-Am. Geologist, vol. 62, no. 2, p. 147, September 1934.

Muller, Siemon William.

2440. Minutes of the meeting of the Pacific coast branch of the Paleontological Society, University of California at Los Angeles, April 8, 1933: Geol. Soc. America, Proc., 1933, pp. 386-407, June 1934.

Muller, Siemon William—Continued.

2441. Marine Rhaetic in Nevada (abstract) : Pan-Am. Geologist, vol. 59, no. 5, pp. 374-375, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 389, June 1934.

2442. North American Triassic pelecypod *Pseudomonotis subcircularis* (abstract) : Pan-Am. Geologist, vol. 62, no. 1, p. 73, August 1934.

Munz, Philip Alexander. See Lauder milk, 2006.

Murdoch, Joseph.

2443. Amber in California : Jour. Geology, vol. 42, no. 3, pp. 309-310, April-May 1934.

Murphy, F. M.

2444. Geology of a part of the Panamint Range, California : Mining in California (California Dept. Nat. Res., Div. Mines), vol. 28, nos. 3, 4, pp. 329-356, 12 figs., 1 pl., recon. geol. map, July and October, 1932.

Murphy, Robert Emmett.

2445. A preliminary petrologic study of the Hygiene sandstone (abstract) : Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 5, p. 32, June 1933.

Murray, Charles Richard.

2446. Geology and ore deposits of the Adit tunnel and Columbia mine, Ward, Colo. (abstract) : Colorado, Univ., Studies, vol. 22, no. 1, p. 52 November 1934.

Musgrave, George Wallace.

2447. A quantitative study of certain factors affecting soil and water losses as the logical basis for developing practical methods of erosion control : Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 515-521, Nat. Research Council, June 1934.

Muskat, Morris. See Wyckoff, 3803.

Myers, Philip B.

2448. The origin of jaspers in Lehigh and Northampton Counties, Pa. : Pennsylvania Acad. Sci., Proc., vol. 8, pp. 87-92, 1 fig., 1934.

Myers, T. H. See Cathcart, 604.

Nádai, Árpád.

2449. (and Wahl, Arthur M., translator). Plasticity; a mechanics of the plastic state of matter (Engineering Soc. Mon.). xxiii, 349 pp., 396 figs., New York, McGraw-Hill Book Co., 1931.

National Research Council, Division of Geology and Geography.

2450. Annual report, year 1931-32, 238 pp. (†), 4 figs., October 1932.

Contains reports on historical, economic, and physical geology, sedimentation, measurement of geologic time, paleontology, geophysical prospecting, etc.

2451. Annual report, year 1932-33, 202 pp. (†), 1 fig., [1934].

Contains reports on historical, economic, and physical geology, sedimentation, measurement of geologic time, paleontology, geophysical prospecting, etc.

2452. Annual report, year 1933-34, 204 pp. (†), 3 fig., 1934.

Contains reports on historical, economic, and physical geology, sedimentation, measurement of geologic time, paleontology, geophysical prospecting, etc.

National Resources Board.

2453. Report, part 3, Report of the water planning committee, pp. 253-388, 37 figs., 26 pls. (maps), December 1, 1934.

National Resources Board—Continued.

2454. Report, part 4, Report of the planning committee for mineral policy, pp. 389-449, December 1, 1934.
2455. Report, part 5, Report of the Board of Surveys and Maps, pp. 451-455, 1 pl. (map), December 1, 1934.

Natland, Manley L.

2456. The temperature and depth distribution of some recent and fossil Foraminifera in the southern California region: California, Univ., Scripps Inst. Oceanography, Bull., Tech. ser., vol. 3, no. 10, pp. 225-230, 1933; abstract, Pan-Am. Geologist, vol. 59, no. 5, pp. 378-379, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 393, June 1934.

Needham, Claude Ervin.

2457. The petrology of the Tombigbee sands of eastern Mississippi: Jour. Sedimentary Petrology, vol. 4, no. 2, pp. 55-59, August 1934.

Neely, Joe.

2458. Structure of the Whiskey Gap area (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 5, pp. 35-36, June 1933.
2459. The geology of the north end of the Medicine Bow Mountains, Carbon County, Wyo.: Wyoming, Geol. Survey, Bull. no. 25, 15 pp. (+), 1 fig. (map), 3 pls. (incl. geol. map), May 1934.
2460. The Kennedy Peak klippe (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 6, p. 31, June 1934.

Nekhoroshev, V.

2461. On the affinity of some European and North American species of Carboniferous Fenestellae: Soc. paléont. Russie, Annales, t. 5, pt. 2, pp. 105-108, 1926; abstract, Geol. Zentralbl., Ban 38, Nr. 1, p. 44, October 1928.

Nelson, L. A. See Dake, 826.

Nelson, Nels Christian.

2462. The antiquity of man in America in the light of archaeology: The American aborigines, their origin and antiquity [edited by Diamond Jenness], pp. 85-130, Univ. Toronto Press, 1933.

Netick, Frank J. See Crawford, 775.

Nettleton, Lewis Lomax.

2463. Fluid mechanics of salt domes: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 9, pp. 1175-1204, 9 figs., September 1934; no. 12, p. 1712, December 1934.

Neumann, Frank.

2464. The strong-motion records of the southern California earthquake of March 10, 1933 (abstract): Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, p. 272, Nat. Research Council, June 1933; Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 5, nos. 1, 2, June 1933; abstract, Washington Acad. Sci., Jour., vol. 23, no. 11, p. 536, November 15, 1933.
2465. The interior of the earth as revealed by seismological data (abstract): Washington Acad. Sci., Jour., vol. 23, no. 11, pp. 528-529, November 15, 1933.

Neumann, Frank—Continued.

2466. United States earthquakes, 1932: U. S. Coast and Geod. Survey, Serial no. 563, 23 pp., 4 figs., 1934.
2467. A further note on the interpretation of travel-time curves (abstract): Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 6, no. 1-2, pp. 20-21 (†), September 1934.

Nevin, Charles Merrick.

2468. Porosity, permeability, compaction, foreword: Problems of petroleum geology (Sidney Powers memorial volume), pp. 807-810, Am. Assoc. Petroleum Geologists, 1934.

Newcombe, Robert John Burgoyne. See also Plummer, 2642.

2469. Oil and gas fields of Michigan; a discussion of depositional and structural features of the Michigan Basin: Michigan, Dept. Conservation, Geol. Survey Div., Pub. 38 (Geol. ser. 32), 293 pp., 41 figs. (incl. cross sections and maps), 23 tables, 10 pls. (incl. maps), c. 1933.
2470. Structure and accumulation in the Michigan "basin" and its relation to the Cincinnati arch: Problems of petroleum geology (Sidney Powers memorial volume), pp. 531-556, 3 figs. (sketch and geol. maps), Am. Assoc. Petroleum Geologists, 1934.

Newell, Norman D.

2471. Some mid-Pennsylvanian invertebrates from Kansas and Oklahoma; 1, Fusulinidae, Brachiopoda: Jour. Paleontology, vol. 8, no. 4, pp. 422-432, 4 pls. December 1934; abstract, Geol. Soc. America, Proc., 1933, p. 378, June 1934.

Newhouse, Walter Harry.

2472. Mercury in native silver: Am. Mineralogist, vol. 18, no. 7, pp. 295-299, July 1933.
2473. Mineral zoning in the New Jersey-Pennsylvania-Virginia Triassic area: Econ. Geology, vol. 28, no. 7, pp. 613-633, 1 fig. (sketch map), November 1933; abstract, Pan-Am. Geologist, vol. 60, no. 2, pp. 159-160, September 1933.
2474. The temperature of formation of the Mississippi Valley lead-zinc deposits: Econ. Geology, vol. 28, no. 8, pp. 744-750, December 1933.
2475. The source of vanadium, molybdenum, tungsten, and chromium in oxidized lead deposits: Am. Mineralogist, vol. 19, no. 5, pp. 209-220, May 1934.

Newland, David Hale.

2476. (and others). The Paleozoic stratigraphy of New York: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 4, Excursion A-4, 136 pp., 20 figs. (incl. maps), 7 pls. (incl. geol. map), 1933. Contains the following:

Newland, David Hale. Introduction and outline, pp. 1-24, 1 pl. (geol. map).

Goldring, Winifred. Albany to Binghamton, pp. 24-39, 1 fig. (map), 2 pls.

Von Engeln, Oscar Diedrich. The Finger Lake region, pp. 39-69, 4 figs. (incl. maps), 1 pl. (map).

Hartnagle, Charles Andrew. Hornell to East Aurora, pp. 70-73; Niagara Falls to Rochester, pp. 103-105; Rochester to Utica, pp. 115-120, 1 fig. (map).

Sanford, John Theron. East Aurora to Niagara Falls, pp. 73-78.

Taylor, Frank Bursley. Niagara Falls and gorge, pp. 78-103, 5 figs. (maps), 2 pls.

Alling, Harold Lattimore. (and Hoffmeister, John Edward). The Rochester region, pp. 105-115, 5 figs.

Ruedemann, Rudolf. Utica to Albany, pp. 121-136, 3 figs., 1 pl.

Newland, David Hale—Continued.

2477. The prospects for gold discoveries in New York State: New York State Mus., Circ. 12, 6 pp., February 1933.
 2478. Earthquakes in New York State: New York State Mus., Circ. 14, 5 figs., 1 pl. September 1933.

Newman, Mark H. See Singewald, 3101.

New York (State) Department of Conservation, Water Power and Control Commission.

2479. In the matter of the application of the City of New York to the Water Power and Control Commission for the approval of its plans for securing an additional water supply in the boroughs of Brooklyn and Queens and in the County of Nassau: Memorandum of the City of New York, Application no. 681, 42 pp. [New York, 1933?].

Nichols, H. G.

2480. Cariboo gold: Canadian Min. Jour., vol. 54, no. 4, pp. 147-149, illus., April 1933.
 2481. Gold in British Columbia: Mining Mag., vol. 49, no. 1, pp. 23-27, July 1933.
 2482. The Ymir-Sheep Creek goldfield: Canadian Min. Jour., vol. 54, no. 7, pp. 259-264, illus., July 1933.

Nichols, Robert L.

2483. Pebbles rounded in geyser tubes: Jour. Geology, vol. 42, no. 4, pp. 430-432, 1 fig., May-June 1934.
 2484. Quaternary geology of the San Jose Valley, N. Mex. (abstract): Geol. Soc. America, Proc., 1933, p. 453, June 1934.

Nickles, John Milton.

2485. Bibliography of North American geology, 1931 and 1932: U. S. Geol. Survey, Bull. 858, 300 pp., 1934.

Nielsen, Eigil.

2486. Permo-Carboniferous fishes from east Greenland: Meddelelser om Grønland, Band 86, Nr. 3, 63 pp., 7 figs., 16 pls., 1932.

Nininger, Harvey Harlow. See also Figgins, 1085.

2487. Our stone-pelted planet; a book about meteors and meteorites. xxv, 235 pp., 21 figs., Boston, Houghton Mifflin Co., 1933.
 2488. A second stony meteorite from Nebraska: Am. Mineralogist, vol. 18, no. 2, pp. 56-59, 3 figs., February 1933.
 2489. Concerning bacteria in meteorites: Popular Astronomy, vol. 41, no. 4, pp. 214-215, April 1933.
 2490. Observations on the Pojaque meteorite: Mines Mag. (Colorado School of Mines), vol. 23, no. 7, p. 4, 2 figs., July 1933.
 2491. New meteorites from New Mexico (abstract): Pan-Am. Geologist, vol. 60, no. 4, p. 308, November 1933.
 2492. (and Figgins, Jesse Dade). The excavation of a meteorite crater near Haviland, Kiowa County, Kans.: Colorado Mus. Nat. History, Proc., vol. 12, no. 3, pp. 9-15, 3 pls., Nov. 14, 1933.
 2493. "Meteor craters" vs. "steam blowouts": Mines Mag., vol. 23, no. 12, pp. 7-8, 1 fig., December 1933; abstract, Pan-Am. Geologist, vol. 60, no. 4, pp. 308-310, November 1933; Min. Rev., vol. 36, no. 2, pp. 9-11, January 2, 1934.

Nininger, Harvey Harlow—Continued.

2494. The Odessa, Tex., meteor crater: *Popular Astronomy*, vol. 42, no. 1, pp. 46-47, January 1934.
2495. A gold-bearing stony meteorite from Melrose, N. Mex.: *Am. Mineralogist*, vol. 19, no. 8, pp. 370-374, 1 fig., August 1934.
2496. (and Figgins, Jesse Dade). The excavation of a meteorite crater near Haviland, Kans.: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 16, pp. 312-313, 1 fig., October 1934.

Noble, Levi F. See also Gale, 1199.

2497. Rock formations of Death Valley, Calif.: *Science*, new ser., vol. 80, no. 2069, pp. 173-178, August 24, 1934.

Nockolds, S. R.

2498. Some theoretical aspects of contamination in acid magmas: *Jour. Geology*, vol. 41, no. 6, pp. 561-589, August-September 1933.

Noé, Adolf Carl.

2499. Recent studies of the morphology of plants from the Pennsylvanian of Illinois: *Illinois State Acad. Sci., Trans.*, vol. 25, no. 4, p. 129, June 1933.
2500. New research in Illinois coal balls: *Illinois State Acad. Sci., Trans.*, vol. 25, no. 4, p. 151, June 1933.
2501. Our present knowledge of American coal-ball plants (abstract): *Illinois State Acad. Sci., Trans.*, vol. 26, no. 3, p. 103, March 1934.
2502. Ohio Valley coal-ball ecology (abstract): *Geol. Soc. America, Proc.*, 1933, p. 356, June 1934.
2503. New methods in paleobotanical microtechnique (abstract): *Illinois Acad. Sci., Trans.*, vol. 27, no. 2, p. 64, December 1934.
2504. New American plants from the Pennsylvanian period as preserved in coal balls (abstract): *Illinois Acad. Sci., Trans.*, vol. 27, no. 2, p. 112, December 1934.

Noe-Nygaard, Arne.

2505. Remarks on *Mytilus edulis* L., in raised beaches on east Greenland: *Meddelelser om Grönland*, Band 95, Nr. 2, 24 pp., 5 figs, 1 pl., 1932.
2506. Stratigraphical outlines of the area around Fleming Inlet (east Greenland): *Meddelelser om Grönland*, Band 103, Nr. 1, 88 pp., 21 figs., 2 pls. (incl. geol. map), 1934.

Nolan, Thomas Brennan.

2507. (and Anderson, George Harold). The geyser area near Beowawe, Eureka County, Nev.: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 159, pp. 215-299, 13 figs., March 1934.

Norman, G. W. H. See also Canada, G. S., 563; Miller, 2318.

2508. Granville Lake district, northern Manitoba: *Canada Geol. Survey, Summary Rept.*, 1933, pt. C, pp. 23-41, 1 pl. (geol. map), 1934. (No. 2347.)

Norris, Pauline.

2509. Collected writings of Willard Rouse Jillson: *Kentucky State Hist. Soc., Register*, vol. 31, no. 95, pp. 133-145, April 1933; separate, with port., 15 pp., 1933.

Northrop, Stuart Alvord.

2510. Pisolites in a spring deposit (abstract): Geol. Soc. America, Proc., 1933, pp. 369-370, June 1934.

Núñez, Maurilio López.

2511. Informe general sobre el distrito minero de Salazar, Estado de Michoacán: Bol. minero, vol. 34, no. 1, pp. 17-23, July 1932.

Nuttall, Winfred Laurence Falkiner.

2512. Two species of *Miogyopsina* from the Oligocene of Mexico: Jour. Paleontology, vol. 7, no. 2, pp. 175-177, 1 pl., June 1933.

Nutting, Perley Gilman.

2513. The bleaching clays: U. S. Geol. Survey, Circ. 3, 51 pp. (†), 11 figs., 1933.

2514. Some physical and chemical properties of reservoir rocks bearing on the accumulation and discharge of oil: Problems of petroleum geology (Sidney Powers memorial volume), pp. 825-832, Am. Assoc. Petroleum Geologists, 1934.

Nye, Selden Spencer. See Fiedler, 1074.

Oakeshott, G. B. See Clements, 662.

Oakey, Warren. See Jones, 1721.

O'Bannon, P. H. See McCarter, 2138.

O'Brien, Morrough P.

2515. (and Rindlaub, Bruce D.). The transportation of bed load by streams: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 593-603, 5 figs., Nat. Research Council, June 1934.

Ockerman, John William. See Landes, 1977.

Odell, N. E.

2516. The mountains of northern Labrador: Geog. Jour., vol. 82, no. 3, pp. 193-210, 1 fig. (map), 6 pls., September 1933; no. 4, pp. 315-325, 1 fig., 6 pls., October 1933.

Oder, Charles Rollin Lorain.

2517. Preliminary subdivision of the Knox dolomite in east Tennessee: Jour. Geology, vol. 42, no. 5, pp. 469-497, 1 fig., 1 pl. (map), July-August 1934.

Oefelein, Rosalie T.

2518. A mineralogical study of loess near St. Charles, Mo.: Jour. Sedimentary Petrology, vol. 4, no. 1, pp. 36-44, 4 figs., April 1934.

Öpik, Ernest Julius.

2519. Meteorites and the age of the universe: Popular Astronomy, vol. 41, no. 2, pp. 71-79, February 1933.

O'Farrell, Charles. See also Crawford, 769.

2520. Microscopic examination of chromite ore from Klamath River district, Calif. (abstract): Utah Acad. Sci., Proc., vol. 10, p. 69, July 1933.

Oftedal, Ivar.

2521. Note on some rock specimens collected by A. Høygaard and M. Mehren in east Greenland: Norsk geol. tidsskr., Band 11, Heft 3-4, pp. 406-409, 1 fig., map, 1932.

O'Grady, B. T. See Galloway, 1206.

O'Harra, Cleophas Cisney, 1866-1935.

2522. (and others). The Black Hills: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 25, Excursion C-2, 29 pp., 7 figs. (incl. map), 7 pls. (incl. geol. map), 1932. Contains the following:

O'Harra, Cleophas Cisney. General geology, pp. 1-6, 2 figs. (incl. map); (and Connolly, Joseph Peter), Western and Northern Black Hills, pp. 6-17, 3 figs. (incl. map), 4 pls. (incl. geol. map).

Connolly, Joseph Peter. Central Black Hills, pp. 17-23, 2 figs., 3 pls.
Jepsen, Glenn Lowell. White River badlands, pp. 23-25.

Ohlsen, Violet. See Coryell, 757.

Okeson, Clifford J.

2523. Erosion control in Salina Canyon: Utah Acad. Sci., Proc., vol. 11, pp. 143-145, July 1934.

Oklahoma City Geological Society.

2524. Highway geology of Oklahoma. 68 pp., 1 fig., 1 pl. (map), 1932.

Oldham, A. R. See Denison, 895.

O'Leary, William J. See Mayo, 2267.

Olmsted, Elizabeth W. See Meyerhoff, 2309, 2310.

Olpp, William Henry.

2525. Franklin Furnace and its minerals: Mineralog. Soc. Southern California, Bull., vol. 2, no. 9, pp. 3-4, May 1933.

O'Neill, John Johnston.

2526. The Beattie gold mine, Duparquet Township, western Quebec: Quebec, Bur. Mines, Ann. Rept., 1932, pt. C, pp. 3-28, 4 figs., 5 pls. (incl. geol. map), 1933.

2527. (and Gunning, H. C.). Platinum and allied metal deposits of Canada: Canada Dept. Mines, Geol. Survey, Econ. Geology ser., no. 13, 8 figs. (incl. maps), 2 pls. (incl. map), 1934. (No 2346.)

2528. Geology of the Beattie gold mine, Duparquet Township, Quebec: Canadian Min. and Met. Bull., no. 266, Trans. sec., pp. 299-315, 8 figs., June 1934.

Ontario Research Foundation.

2529. A technical and economic investigation of northern Ontario lignite, with seven appendices: Ontario, Dept. Mines, 42d Ann. Rept., 1933 (vol. 42, pt. 3), pp. 1-45, 7 figs., 1933.

Ordóñez, Ezequiel.

2530. El petróleo en México: Rev. mexicana ing. y arq., vol. 10, no. 2, pp. 67-94, 4 figs., February 15, 1932; no. 3, pp. 137-168, March 15, 1932; no. 4, pp. 186-230, April 15, 1932.

2531. Seismic activity in Mexico during June 1932: Seismol. Soc. America, Bull., vol. 23, no. 2, pp. 80-82, April 1933.

Osborn, E. F. See Rainwater, 2687.

Osborn, Henry Fairfield, 1857-1935.

2532. Biological inductions from the evolution of the Proboscidea: Nat. Acad. Sci., Proc., vol. 19, no. 1, pp. 159-163, January 15, 1933.

2533. *Serbelodon burnhami*, a new shovel-tusker from California: Am. Mus. Novitates, no. 639, 5 pp., 2 figs., June 29, 1933.

2534. Mounted skeleton of *Triceratops elatus*: Am. Mus. Novitates, no. 654, 14 pp., 5 figs., September 6, 1933.

Osborn, Henry Fairfield—Continued.

- 2535. Aristogenesis, the creative principle in the origin of species: *Am. Naturalist*, vol. 68, no. 716, pp. 193-235, 9 figs., May-June 1934.
- 2536. Evolution and geographic distribution of the Proboscidea; moeritheres, deinotheres, and mastodonts: *Jour. Mammalogy*, vol. 15, no. 3, pp. 177-184, 3 figs., August 1934.
- 2537. The thirty-nine distinct lines of proboscidean descent, and their migration into all parts of the world except Australia: *Am. Philos. Soc., Proc.*, vol. 74, no. 4, pp. 273-285, 4 figs., August 1934.
- 2538. The dual principles of evolution: *Science*, new ser., vol. 80, no. 2087, pp. 601-605, December 28, 1934.

Osborne, Freleigh Fitz. See also Ellsworth, 1020.

- 2539. Commercial granites of Quebec, part 2, Rivière à Pierre, Guenette, Brownsburg, and other districts: *Quebec, Bur. Mines, Ann. Rept.*, 1932, pt. E, 72 pp., 3 figs., 10 pls. (incl. geol. map), 1933.
- 2540. (and Wilson, N. L.). Some dike rocks from Mount Johnson, Quebec: *Jour. Geology*, vol. 42, no. 2, pp. 180-187, 1 fig., February-March 1934.
- 2541. The Chatham-Grenville composite stock, Quebec: *Royal Soc. Canada, Trans.*, 3d ser., vol. 28, pp. 49-63, 4 figs., 1 pl., May 1934.
- 2542. The contrasting plutonic massifs of Rivière à Pierre, Quebec: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 162, pp. 417-431, 5 figs. (incl. maps), June 1934.
- 2543. Adirondack magnetite deposits: *Econ. Geology*, vol. 29, no. 5, pp. 500-501, August 1934.

Osgood, Wayland.

- 2544. (and Poindexter, O. Floyd). Production and value of minerals and mineral products in Michigan, 1927 to 1931 and prior years: *Michigan Geol. Survey, Summary Rept. no. 1*, 46 pp., (\$), May 1, 1933.

Ott, Willis H.

- 2545. Extensive cinnabar deposits worked at Morton, Wash.: *Oregon Mineralogist*, vol. 2, no. 10, p. 21, October 1934.

Otto, George H.

- 2546. Comparative tests of several methods of sampling heavy mineral concentrates: *Jour. Sedimentary Petrology*, vol 3, no. 1, pp. 30-39, 2 figs., April 1933; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 159, February 28, 1933.

Owen, John Britts. See Miller, 2328.

Owen, R. M. S.

- 2547. Oil and gas potentialities in the Aldersyde area: *Canadian Min. Met. Bull.*, no. 269, pp. 441-444, 1 fig., September 1934; *Petroleum, Times*, vol. 32, no. 822, p. 396, October 13, 1934.

Pabst, Adolf.

- 2548. The measurement of flow structures: *Am. Mineralogist*, vol. 19, no. 4, pp. 137-153, 8 figs., April 1934; abstract, *Pan-Am. Geologist*, vol. 61, no. 5, p. 371, June 1934.

Pack, Frederick James. See Boutwell, 356.

Packard, Earl Leroy.

2549. (and Kellogg, Remington). A new cetothere from the Miocene Astoria formation of Newport, Oregon: Carnegie Inst. Washington, Pub. 447, Contr. Paleontology, pp. 1-62, 24 figs., 3 pls., January 10, 1934.

Page, Ben M.

2550. Fault scarps of 1915 in Pleasant Valley, Nev. (abstract): Pan-Am. Geologist, vol. 61, no. 4, pp. 312-313, May 1934.

Page, L. R.

2551. (and Chapman, R. W.). The dust fall of December 15-16, 1933: Am. Jour. Sci., 5th ser., vol. 28, no. 166, pp. 288-297, 1 fig. (map), October 1933.

Paige, Sidney. See Ransome, 2697.

Palache, Charles.

2552. (and Berman, Harry). Oxidation products of pitchblende from Bear Lake: Am. Mineralogist, vol. 18, no. 1, pp. 20-24, January 1933.
2553. Crystallographic notes on anapaite, ainigmatite, and eudidymite: Zeitschr. Kristallographie, Abt. A, vol. 86, Heft 3-4, pp. 280-291, 5 figs., September 1933.
2554. Minerals from Topaz Mountain, Utah: Am. Mineralogist, vol. 19, no. 1, pp. 14-15, January 1934; abstract, Geol. Soc. America, Proc., 1933, p. 440, June 1934.
2555. Pseudobrookite: Am. Mineralogist, vol. 19, no. 1, pp. 16-20, 1 fig., January 1934; abstract, Geol. Soc. America, Proc., 1933, p. 437, June 1934.
2556. A topaz deposit in Topsham, Maine: Am. Jour. Sci., 5th ser., vol. 27, no. 157, pp. 37-48, 4 figs., January 1934.
2557. Memorial of Victor Goldschmidt [1853-1933]: Am. Mineralogist, vol. 19, no. 3, pp. 106-111, port., March 1934.
2558. Contribution to crystallography; claudetite, minasragrite, samsonite, native selenium, indium: Am. Mineralogist, vol. 19, no. 5, pp. 194-205, 3 figs., May 1934; abstract, Geol. Soc. America, Proc., 1933, p. 436, June 1934.
2559. Crystallography of the uranium oxides: Am. Mineralogist, vol. 19, no. 7, pp. 309-315, July 1934; abstract, Geol. Soc. America, Proc., 1933, p. 437, June 1934.

Palmer, Charles Skeelee.

2560. The nature and significance of meteorites: Popular Astronomy, vol. 41, no. 4, pp. 216-217, April 1933.

Palmer, Dorothy Bryant Kemper.

2561. The Upper Cretaceous age of the orbitoidal genus *Gallowayina* Ellis: Jour. Paleontology, vol. 8, no. 1, pp. 68-70, March 1934; abstract, Geol. Soc. America, Proc., 1933, p. 372, June 1934.
2562. The foraminiferal genus *Gümbelina* in the Tertiary of Cuba: Soc. cubana hist. nat., Mem., vol. 8, no. 2, pp. 73-76, 8 figs., July 1934.
2563. The occurrence of fossil Radiolaria in Cuba: Soc. cubana hist. nat., Mem., vol. 8, no. 2, pp. 77-82, 1 fig., July 1934.
2564. Some large fossil Foraminifera from Cuba: Soc. cubana hist. nat., Mem., vol. 8, no. 4, pp. 235-264, 19 figs., 5 pls., October 1934.

Palmer, Robert Hastings.

2565. Nuevos rudistas de Cuba: *Rev. agricultura*, vol. 14, nos. 15-16, pp. 95-125, 10 pls., 1933.

2566. The geology of Habana, Cuba, and vicinity: *Jour. Geology*, vol. 42, no. 2, pp. 123-145, 5 figs., 1 pl., February-March 1934.

Palmer, Theodore Sherman.

2567. Robert Wilson Shufeldt [1850-1933]: *Auk*, vol. 51, no. 2, pp. 282-283, April 1934.

Panzer, Wolfgang.

2568. Die kalifornische Sierra Nevada als Rumpftreppe: *Geol. Rundschau*, Band 23a (Salomon-Calvi Festschrift), pp. 201-205, 1 fig., 1933.

Parat, Maurice.

2569. (and Drach, Pierre). Le portlandien du Cap Leslie dans le Scoresby Sund (Groenland): *Acad. sci. Paris, Comptes rendus*, t. 196, no. 25, pp. 1909-1911, June 19, 1933.

Pardee, Franklin G. See Hotchkiss, 1563.

Pardee, Joseph Thomas. See also Hewett, 1496.

2570. (and Schrader, Frank Charles). Metalliferous deposits of the Greater Helena mining region, Montana: *U. S. Geol. Survey, Bull.* 842, xi, 318 pp., 36 figs., 47 pls. (incl. maps), 1933.

2571. Placer deposits of the western United States: Ore deposits of the Western States (Lindgren volume), pp. 419-450, 12 figs., *Am. Inst. Min. Met. Eng.*, 1933.

2572. Beach placers of the Oregon coast: *U. S. Geol. Survey, Circ.* 8, 41 pp. (†), 10 figs., 6 pls. (maps), 1934.

Park, Charles Frederick, Jr. See also Gilluly, 1248.

2573. The Girdwood district, Alaska: *U. S. Geol. Survey, Bull.* 849, pp. 381-424, 8 figs. (incl. maps), 1 pl. (geol. map), 1933.

Parker, Ben H. See also *Kansas Geol. Soc.*, 1743; Miller, 2329; Van Tuyl, 3483, 3484, 3485.

2574. Note on occurrence of clastic plugs and dikes in the Cimarron Valley area of Union County, N. Mex.: *Kansas Geol. Soc., Guidebook*, 4th Ann. Field Conf., pp. 131-136 (†), sketch map, September 1930.

2575. Clastic plugs and dikes of the Cimarron Valley area of Union County, N. Mex.: *Jour. Geology*, vol. 41, no. 1, pp. 38-51, 6 figs., January-February 1933.

2576. A review of the geology of Colorado with a contribution to orogeny (abstract): *Mines Mag.*, vol. 24, no. 8, p. 10, August 1934.

2577. Geology of Two Buttes dome in southeastern Colorado (with discussion by C. W. Sanders): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 11, pp. 1544-1547, 1 fig., November 1934.

Parker, F. L. See Cushman, 819.

Parker, W. G. See Hanna, 1387.

Parks, Bryan. See Singewald, 3101.

Parks, Harris Braley. See also Kirn, 1898.

2578. (and Kirn, A. J.). New fossil plant localities in Bexar and adjacent counties (abstract): *Texas Acad. Sci., Proc.*, 1933-34, vol. 18, p. 22, 1934.

Parks, William Arthur.

2579. New species of stromatoporoids, sponges, and corals from the Silurian strata of Baie des Chaleurs: Toronto, Univ., Studies, Geol. ser., no. 33, 40 pp., 8 pls., 1933.
2580. New species of dinosaurs and turtles from the Upper Cretaceous formations of Alberta: Toronto, Univ., Studies, Geol. ser., no. 34, 33 pp., 2 figs., 10 pls., 1933.
2581. Silurian stromatoporoids of Gaspé, Quebec (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 195, February 28, 1933.
2582. New turtles from the Belly River formation of Alberta (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 207, February 28, 1933.
2583. New species of *Champsosaurus* from the Belly River formation of Alberta, Canada: Royal Soc. Canada, Trans., 3d ser., vol. 27, sec. 4, pp. 121-138, 5 pls., May 1933.
2584. Systematic position of *Stromatoporoidea* (abstract): Geol. Soc. America, Proc., 1933, pp. 344-345, June 1934.

Parsons, Arthur Barrette.

2585. The porphyry coppers. xv, 581 pp., 154 figs., front., New York, Am. Inst. Min. Met. Eng., 1933.

Parsons, Arthur Leonard.

2586. Unusual calcite crystal from Godfrey, Ontario (abstract): Geol. Soc. America, Proc., 1933, p. 437, June 1934.

Partlo, Fay Lilford.

2587. (and Service, Jerry Hall). Seismic refraction methods as applied to shallow overburdens: Am. Inst. Min. Met. Eng., Trans., vol. 110, Geophysical Prospecting, pp. 473-492, 10 figs., 1934.

Partridge, Francis Chamberlain.

2588. Methods of handling and determination of detrital grains and crushed rock fragments: Am. Mineralogist, vol. 19, no. 10, pp. 482-487, October 1934.

Patterson, Bryan.

2589. A new species of the amblypod *Titanoides* from western Colorado: Am. Jour. Sci., 5th ser., vol. 25, no. 149, pp. 415-425, 4 figs., May 1933.
2590. A contribution to the osteology of *Titanoides* and the relationships of the Amblypoda: Am. Philos., Soc., Proc., vol. 73, no. 2, pp. 71-101, 13 figs., 2 pls., 1934.

Patterson, Joseph M. See also Graham, 1294.

2591. Permian of Logan and Lincoln Counties, Okla. (with discussion by Ross, John C.): Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 3, pp. 241-256, 3 figs., March 1933.

Patrick, Ruth. See Cocke, 677.

Patton, Leroy Thompson.

2592. Ripple marks of the Merkle dolomite of western Texas and their paleogeographic interpretation: Jour. Sedimentary Petrology, vol. 3, no. 2, pp. 77-82, 2 figs., August 1933.
2593. Geological field courses in American colleges: Pan-Am. Geologist, vol. 60, no. 1, pp. 25-33, August 1933; abstract, no. 4, pp. 307-308, November 1933.

Peacock, M. A.

2594. A suggested form of crystallographic presentation: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 166, pp. 241-254, 12 figs., October 1934.

Peck, Albert Becker.

2595. Proceedings of the fourteenth annual meeting of the Mineralogical Society of America, held at Chicago, Ill., December 28 and 29, 1933: *Geol. Soc. America, Proc.*, 1933, pp. 431-446, June 1934.

Peck, Raymond Elliot.

2596. Late Paleozoic and early Mesozoic Charophyta: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 157, pp. 49-55, 12 figs., January 1934.
2597. The North American trochiliscids, Paleozoic Charophyta: *Jour. Paleontology*, vol. 8, no. 2, pp. 83-119, 2 figs., 5 pls., June 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 331, June 1934.

Pegau, Arthur August. See also Mathews, 2235.

2598. Virginia minerals (abstract): *Virginia Acad. Sci., Proc.*, 1932-33, p. 50 [1933.].
2599. A comparative study of the pre-Cambrian and post-Cambrian granites of Virginia (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, pp. 52-53, 1934.

Peirce, G. G. See Crown, 809.

Penniston, J. B.

2600. The distribution of meteorites: *Popular Astronomy*, vol. 41, no. 3, pp. 171-174, March 1933.

Peoples, Joe W.

2601. Gravity stratification as criterion in interpretation of structure of Stillwater complex, Montana (abstract): *Pan-Am. Geologist*, vol. 60, no. 2, p. 152, September 1933.

Pepper, James F.

2602. The Taconic and Appalachian orogenies in the Hudson River region: *Science*, new ser., vol. 80, no. 2069, p. 186, August 24, 1934.

Perkins, Edward Henry. See also Grout, 1337.

2603. Dissipation of the Wisconsin glacier in Maine (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 95-96, February 28, 1933.
2604. Origin of the Maine eskers (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 453-454, June 1934.

Perkins, George Henry, 1844-1933.

2605. The marble industry of Vermont: *Vermont, State Geologist*, 18th Rept., 1931-32, pp. 1-315, 52 figs. [1933].

Perry, Elwyn L.

2606. The Hawley mineral belt, Massachusetts: *Rocks and Minerals*, vol. 9, no. 7, pp. 93-99, 2 figs. (maps), July 1934.

Perry, Eugene Sheridan.

2607. The Butte mining district, Montana: *Internat. Geol. Cong., XVI, United States*, 1933, Guidebook 23, Excursion C-2, 25 pp., 3 figs., 4 pls. (incl. maps), 1932.
2608. Ground-water resources of Judith Basin, Montana: *Montana, Bur. Mines and Geology, Mem.* no. 7, 30 pp. (†), 3 pls. (incl. maps), 1932.

Perry, Eugene Sheridan—Continued.

- 2609. Possibilities of ground-water supply for certain towns and cities of Montana: Montana, Bur. Mines and Geology, Misc. Contr. no. 2, 49 pp. (†), 70 figs., 2 pls., January 1933.
- 2610. Shallow wells as a source of irrigation water in Frenchtown and Camas Prairie valleys, Montana: Montana, Bur. Mines and Geology, Misc. Contr. no. 5, 8 pp. (†), 2 pls., February 1933.
- 2611. Geological report on Cut Bank field, Montana: Oil and Gas Jour., vol. 32, no. 8, pp. 15, 46, 2 figs., July 13, 1933.
- 2612. Physiography and ground-water supply in the Big Hole Basin, Montana: Montana, Bur. Mines and Geology, Mem. no. 12, 18 pp. (†), 2 figs., 3 pls. (incl. geol. map), June 1934.

Perry, Stuart H. See also Wylie, 3808.

- 2613. Fall of a meteorite in South Carolina: Science, new ser., vol. 78, no. 2023, p. 312, October 6, 1933.
- 2614. The Cherokee Springs meteorite: Popular Astronomy, vol. 42, no. 7, pp. 349-357, 12 figs., August-September 1934.
- 2615. The San Francisco Mountains meteorite: Am. Jour. Sci., 5th ser., vol. 18, no. 165, pp. 202-218, 16 figs., September 1934.

Perry, V. D.

- 2616. Applied geology at Cananea, Sonora: Ore deposits of the Western States (Lindgren volume), pp. 701-709, Am. Inst. Min. Met. Eng., 1933.

Peterson, Olof August, 1865-1933.

- 2617. List of species and description of new material from the Duchesne River Oligocene, Uinta Basin, Utah: Carnegie Mus., Annals, vol. 23, pp. 373-389, 8 figs., November 19, 1934.
- 2618. New titanotheres from the Uinta Eocene in Utah: Carnegie Mus., Annals, vol. 22, 1933-34, nos. 2-4, pp. 351-361, 3 figs., 3 pls., April 10, 1934.

Petar, Alice Virginia. See Tyler, 3437.

Pettijohn, Francis John.

- 2619. (and Ridge, J. D.). A mineral variation series of beach sands from Cedar Point, Ohio: Jour. Sedimentary Petrology, vol. 3, no. 2, pp. 92-94, 1 fig., August 1933.
- 2620. Conglomerate of Abram Lake, Ontario, and its extensions: Geol. Soc. America, Bull., vol. 45, no. 3, pp. 479-506, 1 fig., 5 pls. (incl. geol. map), June 30, 1934; abstract, Proc., 1933, p. 101, June 1934.

Petty, Julian Jay.

- 2621. Evidence of ice action in Teays Valley, West Virginia: Denison Univ., Bull., vol. 34, no. 21 (Sci. Lab., Jour., vol. 29, art. 3), pp. 195-204, 4 figs., December 1934.

Pfordte, Otto F.

- 2622. A geological excursion: Oregon Mineralogist, vol. 2, no. 11, pp. 12, 26-28, November 1934.

Phelps, Robert Thayer. See Howe, 1587.

Philips, J. G. See McLearn, 2198.

Phleger, Fred P., jr.

2623. Notes on certain Ordovician faunas of the Inyo Mountains, Calif.: Southern California Acad. Sci., Bull., vol. 32, pt. 1, pp. 1-21, 7 figs., 1 pl., January-April, 1933.

Pierce, William Gamewell. See also Dane, 839, 840.

2624. (and Hunt, Charles Butler). Geology and mineral resources of north-central Chouteau, western Hill, and eastern Liberty Counties, Montana: U. S. Dept. Interior [U. S. Geol. Survey], Press Mem. 72308, 7 pp. (+), 1 pl. (map), June 20, 1933.

Piersol, Robert James.

2625. (and Lamar, John Everts, and Voskuil, Walter Henry). Anna kaolin as a new decolorizing agent for edible oils: Illinois, Geol. Survey, Rept. Inv. no. 27, 42 pp., 7 figs., 1933.

Piggot, Charles Snowden.

2626. Radium content of ocean-bottom sediments: Am. Jour. Sci., 5th ser., vol. 25, no. 147, pp. 229-238, 3 figs. (incl. map), March 1933.
2627. The isotopic composition of the leads at Great Bear Lake: Jour. Geology, vol. 42, no. 6, pp. 641-645, August-September 1934.

Pijpers, P. J. See also Cushman, 819.

2628. Geology and paleontology of Bonaire (D. W. I.): Geog. en geol. Mededeel. (Utrecht, Rijksuniv., Geog. en mineral-geol. Inst.), Phys.-geol. Reeks no. 8, 103 pp. 147 figs., 2 pls., map, 1933.

Pilsbry, Henry Augustus.

2629. List of land and fresh-water mollusks collected on Andros, Bahamas: Acad. Nat. Sci. Philadelphia, Proc., vol. 82, 1930, pp. 297-302, 2 figs., 1931.
2630. An unusual Cretaceous cirriped: Science, new ser., vol. 77, pp. 283-284, March 17, 1933.
2631. (and Harbison, Anne). Notes on the Miocene of southern New Jersey: Acad. Nat. Sci. Philadelphia, Proc., vol. 85, 1933, pp. 107-120, 1 fig., 3 pls., 1934.
2632. Pliocene fresh-water fossils of the Kettleman Hills and neighboring California oil fields: Nautilus, vol. 48, no. 1, pp. 15-17, July 1934.

Piper, Arthur Maine.

2633. Ground water in southwestern Pennsylvania: Pennsylvania Geol. Survey, 4th ser., Bull. W 1, 406 pp., 40 figs., 1 pl., 1933.
2634. Investigations of underground-water problems in California, New Mexico, and Oregon: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 374-377, Nat. Research Council, June 1933.
2635. Fluctuations of water surface in observation wells and at stream-gaging stations in the Mokelumne area, California, during the earthquake of December 20, 1932: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 471-475, 2 figs., Nat. Research Council, June 1933.
2636. Notes on the relation between the moisture equivalent and the specific retention of water-bearing materials: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 481-487, 2 figs., Nat. Research Council, June 1933.

Piper, Arthur Maine—Continued.

2637. (and Robinson, Thomas William, and Thomas, H. E.). Ground water in the Walla Walla Basin, Oregon-Washington: U. S. Dept. Interior [U. S. Geol. Survey], Press Mem. 77516, 3 pp. (†), October 25, 1933.

Plummer, Frederick Byron. See also Sellards, 3028.

2638. Classification of Tertiary strata of Texas and significant horizons in Gulf coast section (abstract): Pan-Am. Geologist, vol. 59, no. 3, pp. 229-230, April 1933.
2639. Important zone fossils of Tertiary and their identification (abstract): Pan-Am. Geologist, vol. 59, no. 3, p. 238, April 1933.
2640. The geology of Texas, part 3, Cenozoic systems in Texas: Texas, Univ., Bull. no. 3232, pp. 519-818, 27 figs. (incl. maps), 4 pls., [July 1933].
2641. New structural classification of Texas oil reservoirs (abstract): Texas Acad. Sci., Proc., 1933-34, vol. 18, p. 23, 1934.
2642. (and Sargent, E. C., and Newcome, Robert John Burgoyne). Thermal gradients and chemical composition of underground waters in serpentine rocks of central Texas (abstract): Geol. Soc. America, Proc., 1933, pp. 101-102, June 1934.

Plummer, Helen Jeanne.

2643. *Epistominoides* and *Coleites*, new genera of Foraminifera: Am. Midland Naturalist, vol. 15, no. 5, pp. 601-608, 1 pl., September 1934.

Poindexter, O. Floyd. See Osgood, 2544.

Poitevin, Eugene.

2644. The occurrence of wolframite, molybdenite, and other minerals at Square Lake, Queens County, New Brunswick: Canada, Geol. Survey, Summary Rept., 1932, pt. D, pp. 56-57, 1933. (Pub. no. 2330.)

Pond, Walter Franklin.

2645. Geologic map of Tennessee, scale 1:500,000, 4th ed. Tennessee, Dept. Education, Div. Geology, 1933.

Pontier, G.

2646. (and Anthony, R.). Présence d'une prémolaire chez l'*Elephas imperator* Leidy: Acad. sci. Paris, Comptes rendus, t. 196, no. 22, pp. 1686-1687, May 29, 1933.

Ponton, Gerald Mungo. See Cole, 698; Cushman, 819; Gunter, 1357.

Poor, Russell Spurgeon.

2647. Graptolites from Alabama: Rocks and Minerals, vol. 9, no. 3, p. 35, March 1934.

Popenoe, Willis Parkinson.

2648. (and Findlay, W. A.). Transposed hinge structures in lamellibranchs: San Diego Soc. Nat. History, Trans., vol. 7, no. 26, pp. 299-318, 1 pl., October 6, 1933; abstract, Pan-Am. Geologist, vol. 59, no. 5, p. 372, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 387, June 1934.

Portella, Guillermina.

2649. El relieve de Cuba: Cong. internat. géographie, Paris, 1931, Compte rendu, t. 2, fasc. 1, pp. 696-698, 1933.

Porter, William W., II.

2650. Influence of speed of migration of oil on water encroachment at Casmalia, Calif.: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 9, pp. 1133-1136, 1 fig., September 1933.

Posnjak, Eugen. See Bowen, 359, 360; Bramlette, 382.

Postel, A. Williams.

2651. The preparation of clay samples for elutriation by steam agitation: Jour. Sedimentary Petrology, vol. 3, no. 3, pp. 119-120, 1 fig., December 1933.

Potbury, Susan S.

2652. A Pleistocene flora from San Bruno, San Mateo County, Calif.: Carnegie Inst. Washington, no. 415, Contr. Paleontology, pp. 25-44, 2 figs. (maps), 4 pls., October 1934 (preprint, November 1932).

Potter, David.

2653. Botanical evidence of a post-Pleistocene marine connection between Hudson Bay and the St. Lawrence Basin: Rhodora, vol. 34, no. 401, pp. 69-89, 11 maps, May 1932; no. 402, pp. 101-112, June 1932.

Potter, Franklin C. See also Croneis, 796.

2654. Scolecodonts from the upper Richmond of Illinois (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 208-209, February 28, 1933.

Pough, Frederick Harvey.

2655. Octahedrite as an alteration product of titanite: Am. Mineralogist, vol. 19, no. 12, pp. 599-602, December 1934.

Poulsen, Christian.

2656. The lower Cambrian faunas of east Greenland: Meddelelser om Grönland, Band 87, Nr. 6; Copenhagen, Univ., Mus. minéralogie et géologie, Comm. paléont., no. 44, 66 pp., 6 figs. (incl. map), 14 pls. 1932.

2657. The Silurian faunas of north Greenland: Meddelelser om Grönland, Band 72, afd. 2, Nr. 1; Copenhagen, Mus. minéralogie et géologie, Comm. paléont., no. 50, 46 pp., 5 figs., 3 pls., 1934.

Powers, William Edwards. See also Leighton, 2038.

2658. The extinct Lake San Augustin, New Mexico: Science, new ser., vol. 77, pp. 51-52, January 13, 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 96, February 28, 1933.

2659. Multiple glaciation in the Sawatch Range, Colo. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 210-211, February 28, 1933.

2660. (and Behre, Charles Henry, Jr.). Physiographic history of the upper Arkansas River Valley and the Royal Gorge, Colo. (abstract): Assoc. Am. Geographers, Annals, vol. 24, no. 1, p. 64, March 1934.

2661. Physiography of the Royal Gorge of the Arkansas River (abstract): Geol. Soc. America, Proc., 1933, p. 102, June 1934.

Pratt, Joseph Hyde.

2662. Gems and gem minerals of North Carolina: Am. Mineralogist, vol. 18, no. 4, pp. 148-159, April 1933.

Pratt, Wallace Everette.

2663. Hydrogenation and the origin of oil: Problems of petroleum geology (Sidney Powers memorial volume), pp. 235-245, Am. Assoc. Petroleum Geologists, 1934; abstract, Pan-Am. Geologist, vol. 62, no. 2, pp. 146-147, September 1934.

Preston, H. M.

2664. Report on the North Belridge oil field: California Oil Fields (California, Dept. Nat. Res., Div. Oil and Gas), vol. 18, no. 1, pp. 5-24, 3 pls., July-September, 1932.

Price, Paul Holland.

2665. (and Wells, Dana). Mastodon (*Mammot americanum*) remains in river gravels at Point Marion, Pa.: West Virginia Acad. Sci., Proc., vol. 6 (West Virginia Univ., Bull., ser. 33, no. 15), pp. 81-84, 3 figs., March 1933.
2666. Clay dikes in Redstone coal, West Virginia and Pennsylvania: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 12, pp. 1527-1533, 5 figs., December 1933.
2667. Stylolites in sandstone: Jour. Geology, vol. 42, no. 2, pp. 188-192, 4 figs., February-March 1934.
2668. Cone-in-cone in coal (abstract): Geol. Soc. America, Proc., 1933, pp. 102-103, June 1934.

Price, Peter.

2669. The geology and ore deposits of the Horne mine, Noranda, Quebec: Canadian Min. Met. Bull., no. 263, Trans. sec., pp. 108-140, 11 figs., March 1934; discussion, no. 268, pp. 389-391, August 1934.

Price, William Armstrong.

2670. Reynosa problem of south Texas, and origin of caliche: Am. Assoc. Petroleum Geologist, Bull., vol. 17, no. 5, pp. 488-522, 5 figs., May 1933; discussion, no. 10, pp. 1277-1281, October 1933; abstract, Pan-Am. Geologist, vol. 59, no. 3, pp. 230-231, April 1933.
2671. Role of diastrophism in topography of Corpus Christi area, south Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 8, pp. 907-962, 17 figs., August 1933.
2672. Craters formed by air blowers: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 6, pp. 813-816, 2 figs., June 1934.
2673. Thickness and depth of strata: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 6, pp. 817-821, 1 fig., June 1934.
2674. Lissie formation and Beaumont clay in south Texas: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 7, pp. 948-959, 4 figs., July 1934.

Prouty, William Frederick.

2675. Mineral resources of the Tennessee Valley region (abstract): Elisha Mitchell Sci. Soc., Jour., vol. 50, no. 1-2, p. 53, December 1934.
2676. Carolina bays (abstract): Elisha Mitchell Sci. Soc., Jour., vol. 50, no. 1-2, pp. 59-60, December 1934.

Pugh, W. E. See also Helland, 1445.

2677. Certain field problems in reflection seismology: Am. Inst. Min. Met. Eng., Trans., vol. 110, Geophysical Prospecting, pp. 455-472, 3 figs., 1934.

Putnam, William C. See also Livingston, 2067.

2678. (and Webb, Robert W.). Laboratory exercises in physical geology. 60 pp. (\$), Los Angeles, 1934.

Quam, Louis O.

2679. The Rabbit Mountain area as an example of en échelon folding (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 6, p. 31, June 1934.

Quayle, Ernest H. See also Grant, 1299.

2680. Statistical study of some California species of *Cardita* (abstract): Pan-Am. Geologist, vol. 59, no. 5, p. 375, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 389, June 1934.

Quinn, Alonzo Wallace.

2681. Normal faults of the Lake Champlain region: Jour. Geology, vol. 41, no. 2, pp. 113-143, 15 figs., February-March 1933.

Quirke, Terence Thomas.

2682. Arthur Gray Leonard [1865-1932]: North Dakota, Univ., Quart. Jour., vol. 23, nos. 3-4, pp. 147-153, port., 1933.

2683. Memorial of Arthur Gray Leonard [1865-1932]: Geol. Soc. America, Bull., vol. 44, pt. 2, pp. 395-401, port., April 30, 1933.

2684. Origin of watercourses near French River, Ontario (abstract): Geol. Soc. America, Proc., 1933, p. 103, June 1934.

Raasch, Gilbert O. See also Edwards, 987; Twenhofel, 3433; Wanenmacher, 3544.

2685. Wisconsin Cambrian Merostomata (abstract): Geol. Soc. America, Proc., 1933, p. 335, June 1934.

Raguin, Eugène.

2686. Les failles vivantes en Californie: La Terre et la vie, année 4, no. 11, pp. 603-611, 7 figs. November 1934.

Rainwater, E. H.

2687. (and Osborn, E. F., and Behre, Charles Henry, Jr.). Geology of the Calumet district, Colo. (abstract): Geol. Soc. America, Proc., 1933, pp. 103-104, June 1934.

Raisz, Erwin.

2688. Rounded lakes and lagoons of the coastal plains of Massachusetts: Jour. Geology, vol. 42, no. 8, pp. 839-848, 3 figs., November-December 1934.

Rambo, A. I. See Kennard, 1778.

Ramser, Charles Ernest.

2689. Dynamics of erosion in controlled channels: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 488-494, 8 figs., Nat. Research Council, June 1934.

Rand, W. P.

2690. Generation of oil in rocks by shearing pressures; 4-5, Further studies of effects of heat on oil shales: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 10, pp. 1229-1250, 5 figs., October 1933.

Randolph, Gladys C.

2691. Rhodonite, a popular semiprecious gem mineral: Oregon Mineralogist, vol. 2, no. 6, pp. 20-21, June 1934.

Randolph, Gladys C.—Continued.

2692. Many varieties of gem garnet popular over long period of time: *Oregon Mineralogist*, vol. 2, no. 7, pp. 5-6, 28-29, July 1934.
2693. Zircon scientifically the most interesting of all gem stones: *Oregon Mineralogist*, vol. 2, no. 10, pp. 5-6, 27, October 1934.
2694. Emeralds, large flawless specimens, symbols of perfection: *Oregon Mineralogist*, vol. 2, no. 11, pp. 7-8, 28, November 1934.
2695. Quartz minerals widely distributed, many varieties represented: *Oregon Mineralogist*, vol. 2, no. 12, pp. 9-10, December 1934.

Rankin, Charles H., Jr.

2696. Study of well sections in northeastern Colorado: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 4, pp. 422-432, 1 fig., April 1933.

Ransome, Fredrick Leslie, 1868-1935. See also Louderback, 2096.

2697. (and others). Ore deposits of the Southwest: *Internat. Geol. Cong., XVI, United States, 1933, Guidebook 14, Excursion C-1*, 67 pp., 4 figs., 13 pls. (incl. geol. maps), 1932. Contains the following papers:

- Ransome, Frederick Leslie. General geology and summary of ore deposits, pp. 1-23, 4 pls. (incl. geol. map).
- Paige, Sidney. The region around Santa Rita and Hanover, N. Mex., pp. 23-40, 1 fig., 6 pls. (incl. geol. map).
- Tenney, James Brand. The Bisbee mining district [Ariz.], pp. 40-67, 3 figs., 3 pls. (incl. geol. maps).

2698. Historical review of geology as related to western mining: Ore deposits of the Western States (Lindgren volume), pp. 1-16, *Am. Inst. Min. Met. Eng.*, 1933.
2699. Memorial tribute to Johan Herman Lie Vogt [1858-1932]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 419-421, April 30, 1933.
2700. What is a rock?: *Econ. Geology*, vol. 28, no. 5, pp. 502-505, August 1933.

Rasor, Alfred C. See Anderson, 55, 58.

Ravitz, Sol Frederick.

2701. (and Steane, Harold A.) A study of the methods of quantitative microscopic mineralogical analysis (abstract): *Utah Acad. Sci., Proc.*, vol. 11, p. 173, July 1934.

Ravn, Jesper Peter Johansen.

2702. New investigations of the Tertiary at Cape Dalton, east Greenland: *Meddelelser om Grönland, Band, 105, Nr. 1*; Copenhagen, Univ., *Mus. minéralogie et géologie, Comm. paléont.*, no. 49, 15 pp., 3 figs., 1933.

Rawlins, Edwin Lee. See Hill, 1508.

Ray, James Chandler.

2703. The Willow Creek gold-lode district, Alaska; *U. S. Geol. Survey, Bull.* 849, pp. viii, 165-229, 32 figs. (incl. map), 10 pls. (incl. maps), 1933.

Ray, Louis L. See also Hinchey, 1514; Wentworth, 3613.

Raymond, Percy Edward.

2704. Report on invertebrate paleontology: *Harvard Coll., Mus. Comp. Zoology, Ann. Rept.*, 1932-33, pp. 36-38, 1933.
2705. Memorial tribute to Johan Kiaer [1869-1931]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 415-419, April 30, 1933.

Raymond, Percy Edward—Continued.

2706. Report on invertebrate paleontology: Harvard Coll., Mus. Comp. Zoology, Ann. Rept., 1933-34, pp. 39-41, 1934.

Read, Charles Brian. See also Hendricks, 1468.

2707. A new *Trichopitys* from the Carboniferous of Colorado: Washington Acad. Sci., Jour., vol. 23, no. 10, pp. 461-463, 1 fig., October 15, 1933.
 2708. A flora of Pottsville age from the Mosquito Range, Colo.: U. S. Geol. Survey, Prof. Paper 185, pp. 79-96, 1 fig., 3 pls., 1934.
 2709. (and Brown, Roland Wilbur). Genus *Tempskya* in western North America (abstract): Washington Acad. Sci., Jour., vol. 24, no. 4, p. 191, April 15, 1934; abstract, Geol. Soc. America, Proc., 1933, p. 333, June 1934.

Read, Thomas Thornton.

2710. Our mineral civilization. 165 pp., Baltimore, Williams & Wilkins, 1932.

Redfield, John S. See Sheerar, 3043.

Reed, D. W. See Wycoff, 3803.

Reed, John Calvin. See also Gilluly, 1248; Shenon, 3048, 3049, 3050.

2711. The Mount Eielson district, Alaska: U. S. Geol. Survey, Bull. 849, pp. iii-viii, 231-287, 5 figs. (incl. maps), 4 pls. (incl. maps), 1933.
 2712. Gold-bearing gravel of the Nezperce National Forest, Idaho County, Idaho: Idaho, State, Bur. Mines and Geology, Pamph. no. 40, 8 pls. (incl. geol. map), June 1934; abstract, Washington Acad. Sci., Jour., vol. 24, no. 4, pp. 191-192, April 15, 1934.

Reed, Lyman C.

2713. (and Longnecker, Oscar M., Jr.). The geology of Hemphill County, Tex. (with foreword by Charles Laurence Baker): Texas, Univ., Bull. no. 3231, 98 pp., 9 figs., map, January 1933.

Reed, Ralph Daniel. See also Gale, 1199.

2714. Geology of California. 355 pp., 60 figs. (incl. maps), Tulsa, Okla., Am. Assoc. Petroleum Geologists, 1933.
 2715. Oil-bearing Pliocene beds of southern California (abstract): Pan-Am. Geologist, vol. 59, no. 3, p. 231, April 1933.
 2716. Pleistocene history in the Carpinteria district (abstract): Pan-Am. Geologist, vol. 59, no. 4, p. 306, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 304, June 1934.
 2717. Santa Margarita conglomerate of Temblor Range (abstract): Pan-Am. Geologist, vol. 59, no. 4, p. 312, May 1933; abstract, Geol. Soc. America, Proc., 1933, pp. 309-310, June 1934.
 2718. Unsolved geological problems of Pacific coast: Pan-Am. Geologist, vol. 61, no. 3, pp. 179-186, 4 pls. (incl. maps), April 1934.

Reeds, Chester Albert. See also Berkey, 263.

2719. The volcano museum on Mont Pelée: Nat. History, vol. 33, no. 1, pp. 31-40, January-February 1933.
 2720. Comets, meteors, and meteorites: Nat. History, vol. 33, no. 3, pp. 311-324, illus., May-June 1933.
 2721. The Long Beach, California, earthquake: Nat. History, vol. 33, no. 3, pp. 340-341, May-June 1933.
 2722. A 25-year map of major earthquakes: Nat. History, vol. 33, no. 4, pp. 450-451, map, July-August 1933.

Reeds, Chester Albert—Continued.

2723. New piers for giant ships: *Nat. History*, vol. 34, no. 2, pp. 161-175, 17 figs., March-April 1934.

2724. Earthquakes: *Nat. History*, vol. 34, no. 8, pp. 733-747, 14 figs., December 1934.

Reeside, John Bernard, Jr. See also Ashley, 92; Baker, 132.

2725. Stratigraphic nomenclature in the United States: *Internat. Geol. Cong.*, XVI, United States, 1933, Guidebook 29, 7 pp., 10 pls. (tables), 1932. (Includes correlation tables by William C. Alden, Josiah Bridge, Charles L. Gazin, Edwin Kirk, John B. Reeside, Jr., Charles E. Resser, James S. Williams, Wendell P. Woodring.)

Reger, David Bright.

2726. Gravity of oils in the Appalachian province: Problems of petroleum geology (Sidney Powers memorial volume), pp. 101-107, 1 fig. (map), *Am. Assoc. Petroleum Geologists*, 1934.

Reiche, Parry.

2727. Geology of Lucia quadrangle, Monterey County [Calif.] (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, p. 310, May 1934.

Reid, Harry Fielding.

2728. Glaciers and geophysics: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 28-30, *Nat. Research Council*, June 1933.

2729. Magnetic effects attributed to earthquakes: *Nat. Research Council, Bull.*, no. 90, pp. 83-86, October 1933.

2730. The mechanics of earthquakes; the elastic rebound theory; regional strain: *Nat. Research Council, Bull.*, no. 90, pp. 87-103, 6 figs., October 1933.

2731. The conception of the focus: *Nat. Research Council, Bull.*, no. 90, pp. 104-105, October 1933.

Reimann, Irving G.

2732. [Annual report for 1932-33] Division of Geology and Paleontology: *Buffalo Soc. Nat. Sci.*, 72d Ann. Rept., p. 5 [1933].

2733. How the world has changed! [earth history]: *Hobbies* (magazine of *Buffalo Mus. Sci.*), vol. 13, no. 4, pp. 67-73, 1 fig., 1 pl., April, 1933.

2734. Some new finds among the Erie County fossils: *Hobbies* (magazine of *Buffalo Mus. Sci.*), vol. 13, no. 4, pp. 77-78, 3 figs., April 1933.

2735. The work of underground water: *Hobbies* (magazine of *Buffalo Mus. Sci.*), vol. 13, no. 5, pp. 97-98, 1 fig., June 1933.

Reinhart, Philip W.

2736. Tertiary Arcidae of Pacific slope (abstract): *Pan-Am. Geologist*, vol. 59, no. 5, pp. 373-374, June 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 388, June 1934.

Reinoehl, C. O. See Grohskopf, 1332.

Renger, J. J.

2737. Prehistoric marine reptiles from the Cretaceous of Alabama: *Rocks and Minerals*, vol. 9, no. 8, pp. 109-111, 1 fig., August 1934.

Renier, Armand.

2738. Le XVI^e Congrès géologique international, Washington (D. C.), 22-29 juillet, 1933: *Rev. questions scientifiques*, 52^e année, 4^e sér., t. 24. fasc. 3, pp. 398-408, November 20, 1933.

Renton, J. Lewis.

2739. Sagenite agate: *Oregon Mineralogist*, vol. 2, no. 2, pp. 9, 17, February 1934.
 2740. One of Oregon's finest agates: *Oregon Mineralogist*, vol. 2, no. 4, p. 16, 1 fig., April 1934.

Besser, Charles Elmer. See also Howell, 1597; Reeside, 2725; Ulrich, 3441.

2741. (and Howell, Benjamin Franklin). *Olenellus* zone and its faunas in the Appalachians (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 191, February 28, 1933.
 2742. Preliminary generalized Cambrian time scale: *Geol. Soc. America, Bull.*, vol. 44, no. 4, pp. 735-756, August 31, 1933; abstract, vol. 44, pt. 1, pp. 190-191, February 28, 1933.
 2743. Changes in the nomenclature of Cambrian fossils (abstract): *Geol. Soc. America, Proc.*, 1933, p. 379, June 1934.
 2744. Descriptions of new Cambrian fossils (abstract): *Geol. Soc. America, Proc.*, 1933, p. 379, June 1934.
 2745. Recent discoveries of Cambrian beds in the northwestern United States: *Smithsonian Misc. Coll.*, vol. 92, no. 10, 10 pp., November 6, 1934.

Retty, Joseph Arlington.

2746. Reconnaissance along the Coulonge and Black Rivers, Pontiac County: Quebec, Bur. Mines, Ann. Rept. for 1932, pt. D, pp. 83-107, 5 pls. (incl. geol. map, no. 249), 1933.

Reynolds, Dewey A. See Fieldner, 1084.

Reynolds, D. S. See Jacob, 1642.

Rich, John Lyon.

2747. Rock resistance and interfluvial degradation as dominant factors in geomorphology (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 97, February 28, 1933.
 2748. Distribution of oil pools in Kansas in relation to pre-Mississippian structure and areal geology (with discussion by Edson, Fanny C., Howell, J. V., and Folger, Anthony): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 7, pp. 793-815, 2 figs. (sketch maps), July 1933.
 2749. Angular coal fragments as evidence of a long time break in Pennsylvanian sedimentation in eastern Kansas: *Geol. Soc. America, Bull.*, vol. 44, no. 4, pp. 865-870, 4 figs., August 31, 1933.
 2750. Physiography and structure at Cumberland Gap: *Geol. Soc. America, Bull.*, vol. 44, no. 6, pp. 1219-1236, 8 figs., December 31, 1933; abstract, vol. 44, pt. 1, p. 96, February 28, 1933.
 2751. Problems of the origin, migration, and accumulation of oil: Problems of petroleum geology (Sidney Powers memorial volume), pp. 337-345, *Am. Assoc. Petroleum Geologists*, 1934.
 2752. The development of even-crested ridges without peneplanation (abstract): *Assoc. Am. Geographers, Annals*, vol. 24, no. 1, p. 66, March 1934.
 2753. Origin and evolution of rock fans and pediments (abstract): *Geol. Soc. America, Proc.*, 1933, p. 104, June 1934.

Rich, John Lyon—Continued.

2754. Mechanics of low-angle overthrust faulting as illustrated by Cumberland thrust block, Virginia, Kentucky, and Tennessee: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 12, pp. 1584–1596, 9 figs., December 1934; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 232, April 1933.

Richards, G. L., Jr. See Richards, 2759.

Richards, Horace Gardiner.

2755. Marine fossils from New Jersey indicating a mild interglacial stage: *Am. Philos. Soc., Proc.*, vol. 72, no. 3, pp. 181–214, 1 fig., 3 pls. (incl. map), 1933.
2756. A new species of *Hydrocorallinae* from the Pleistocene of New Jersey: *Washington Acad. Sci., Jour.*, vol. 23, no. 4, pp. 211–212, 2 figs., April 15, 1933.
2757. Pleistocene mollusks from Cuba (abstract): *Geol. Soc. America, Proc.*, 1933, p. 367, June 1934.

Richards, J. T.

2758. The collection and interpretation of drill cuttings: *Oklahoma Acad. Sci., Proc.*, 1930, vol. 10, pp. 97–99, 1930.

Richards, L. W.

2759. (and Richards, G. L., Jr.). *Geologic history at a glance*. 2 pls. (folded charts), explanation on inside covers, Stanford Univ. Press, California [n. d., c. 1934].

Richards, Ralph Webster.

2760. (and Waring, Gerald Ashley). *Progress of surveys in the Anthracite Ridge district, Alaska*: *U. S. Geol. Survey, Bull.* 849, pp. 1–27, 1 fig., 2 pls. (incl. geol. map), 1933.

Richardson, Charles Henry, 1862–1935.

2761. (and Maynard, James E.). *The geology and petrography of Athens, Brookline, and Westminster, Vt.*: Vermont, State Geologist, 18th Rept., 1931–32, pp. 316–347, 10 figs. (incl. sketch maps) [1933].
2762. *The areal and structural geology of Putney, Vt.*: Vermont, State Geologist, 18th Rept., 1931–32, pp. 348–357, 5 figs. (incl. sketch map) [1933].

Richardson, George Burr.

2763. *Description of the Somerset and Windber quadrangles*: *U. S. Geol. Survey, Geol. Atlas of U. S., Somerset-Windber folio*, Pennsylvania (no. 224), 14 pp., 12 figs. (incl. maps), 8 maps, sections, 1934.

Richarz, Stephen, 1874–1934.

2764. *Peculiar gneisses and ore formations in the eastern Cascades, Washington*: *Jour. Geology*, vol. 41, no. 7, pp. 757–768, 3 figs., October–November 1933.

Richmond, A. M.

2765. *Annual report of the minister of mines of the Province of British Columbia for the year ended 31st December, 1933*. 365 pp., figs., pls., Victoria, B. C., 1934.

Richter, Rudolf.

2766. *Henry Fairfield Osborn und "Senckenberg"*: *Natur und Volk*, Band 64, Heft 11, pp. 435–439, port., November 1934.

Rickaby, H. C.

2767. Some geological features of the Swayze gold area: Canadian Inst. Min. and Metallurgy, Trans., 1933, vol. 36, pp. 204-216, 5 figs. (incl. geol. map), discussion by M. B. Baker, p. 216 [1934]; Bull. no. 253, May 1933; extract, Mining Mag., vol. 49, no. 6, pp. 375-377, December 1933.

Ridge, J. D. See Pettijohn, 2619.

Ries, Heinrich.

2768. (and Conant, G. D.). The character of sand grains: Am. Foundrymen's Assoc., Trans., vol. 2, no. 10, pp. 353-392, 29 figs., October 1931.

Riley, Christopher.

2769. Some mineral relationships in the Great Bear Lake area: Canadian Min. Jour., vol. 54, no. 4, pp. 137-141, illus. (incl. geol. sketch map), April 1933.
2770. A chalcocite deposit, Great Bear Lake, Canada: Econ. Geology, vol. 28, no. 5, pp. 496-501, August 1933.

Rindlaub, Bruce D. See O'Brien, 2515.

Rittenhouse, Gordon.

2771. A suggested modification of the pipette method: Jour. Sedimentary Petrology, vol. 3, no. 1, pp. 44-45, April 1933.
2772. A laboratory study of an unusual series of varved clays from northern Ontario: Am. Jour. Sci., 5th ser., vol. 28, no. 164, pp. 110-120, 2 figs., August 1934.

Ritter, George Joseph. See Mitchell, 2365.

Ritz, C. H. See Barton, 210.

Roberts, Hugh Marine.

2773. The value of the geological surveys (abstract): Assoc. Am. State Geologists, Jour., vol. 5, no. 2, p. 8 (†), April 1, 1934.

Roberts, Joseph Kent. See also Bevan, 288; Collins, 705.

2774. The Tinsley's Bottom oil field, Clay and Jackson Counties, Tenn.: Tennessee Geol. Survey, Press Bull., 6 pp. (†), 1 pl. (map), March 15, 1926.
2775. (and Collins, R. Lee). Clay industry of Tennessee: Brick and Clay Record, vol. 68, no. 6, pp. 460-463, March 16, 1926.
2776. Oolitic limestone at Bowling Green, Ky.: Rock Products, vol. 29, no. 16, pp. 59-62, 10 figs., August 7, 1926.
2777. The lower York-James Peninsula (abstract): Virginia Acad. Sci., Proc., 1932-33, p. 53 [1933].
2778. Laboratory manual for general geology. 156 pp., University, Va., Jarman's, Inc., 1934.
2779. Natural divisions of Virginia (abstract): Virginia Acad. Sci., Proc., 1933-34, p. 52, 1934.
2780. Greensand and diatomite deposits of Virginia: Am. Chem. Soc., Virginia section, Bull., vol. 11, no. 9, pp. 129-132, June 1934.
2781. Virginia staurolites as gems: Am. Mineralogist, vol. 19, no. 11, pp. 549-552, 2 figs., November 1934.

Robinson, Arthur Herbert Ashburner.

2782. Gold in Canada, 1933: Canada, Dept. Mines, Mines Branch, no. 734, 92 pp., 5 figs. (incl. maps), 1933.

Robinson, H. S.

2783. Notes on the Echo Bay district, Great Bear Lake, Northwest Territories: Canadian Min. Met. Bull., no. 258, pp. 609-628, 7 figs., October 1933.

Robinson, J. H.

2784. The study of the organic remains in the oceanic beds of Barbados with special reference to the diatoms: Barbados Mus. Hist. Soc., Jour., vol. 1, no. 2, pp. 80-84, February 1934.

Robinson, Thomas William. See Piper, 2637.

Robinson, William M. Jr.

2785. The geological aspects of the Colonial National Monument (abstract): Virginia Acad. Sci., Proc., 1932-33, p. 51 [1933].

Rocky Mountain Association of Petroleum Geologists.

2786. Memorandum to Hon. Harold L. Ickes, administrator of the Federal Emergency Administration of Public Works. 21 pp. (\$), November 15, 1933.

Rodeck, Hugo G. See Henderson, 1465.

Roe, W. B.

2787. Clay veins in the Springfield (no. 5) coal (abstract): Illinois Acad. Sci., Trans., vol. 27, no. 2, p. 115, December 1934.

Roebbling, F. W., III. See Snelgrove, 3143.

Rogers, A. A. See Cole, 695.

Rogers, Austin Flint.

2788. (and Kerr, Paul Francis). Thin-section mineralogy. 311 pp., 261 figs., 1 pl., New York, McGraw-Hill Book Co., 1933; abstract, Mines Mag., vol. 24, no. 11, p. 26, November 1934.
2789. Anauxite as a secondary mineral in some volcanic rocks of California and Arizona (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 159-160, February 23, 1933.
2790. Convenient method of using refractive-index liquids (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 165, February 28, 1933.
2791. Structural crystallography: Am. Mineralogist, vol. 18, no. 12, pp. 538-542, December 1933.
2792. A model for biaxial crystals: Am. Mineralogist, vol. 19, no. 5, pp. 206-208, 1 fig., May 1934.
2793. Unique occurrence of vein quartz in Mariposa County (abstract): Pan-Am. Geologist, vol. 61, no. 5, pp. 370-371, June 1934.
2794. Salton volcanic domes of Imperial County [Calif.] (abstract): Pan-Am. Geologist, vol. 61, no. 5, pp. 372-373, June 1934.
2795. Zones as the basis for definition of crystal systems (abstract): Geol. Soc. America, Proc., 1933, pp. 437-438, June 1934.

Rogers, Austin R.

2796. *Cypridella* and *Cypridinella* from Kansas-Missouri Pennsylvanian (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 70, August 1934.

Rogers, Reese F. See Burchard, 490.

Roliff, W. A.

2797. Imperial Oil, Ltd.; development work in Nova Scotia, 1931: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1931, pt. 2, pp. 43-90, 1 fig. 10 pls., 1932.

Rolshausen, F. W. See also Israelsky, 1638.

2798. Occurrence of siderite in cap rock at Carlos dome, Grimes County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 4, pp. 543-546, April 1934.

Romer, Alfred Sherwood.

2799. The Pennsylvanian tetrapods of Linton, Ohio: Am. Mus. Nat. History, Bull., vol. 59, art. 2, pp. 77-147, 26 figs., January 11, 1930.
2800. Man and the vertebrates. 427 pp., 277 figs., Chicago, Univ. Chicago Press [c 1933].
2801. Vertebrate paleontology. vii, 491 pp., 359 figs., Chicago, Univ. Chicago Press [c 1933].
2802. Pleistocene vertebrates and their bearing on the problem of human antiquity in North America: The American aborigines, their origin and antiquity (edited by Diamond Jenness), pp. 47-83, Univ. Toronto Press, 1933.
2803. Eurypterid influence on vertebrate history: Science, new ser., vol. 78, no. 2015, pp. 114-117, August, 11, 1933.
2804. (and Grove, Brandon H.). Fresh versus salt water in early vertebrate evolution (abstract): Geol. Soc. America, Proc., 1933, pp. 361-362, June 1934.
2805. (and Smith, Homer J.). American Carboniferous dipnoans: Jour. Geology, vol. 42, no. 7, pp. 700-719, 7 figs., October-November 1934.

Roosevelt, Quentin.

2806. (and Burden, J. W.). A new species of antilocaprine, *Tetrameryx onusrosagris*, from a Pleistocene cave deposit in southern Arizona: Am. Mus. Novitates, no. 754, 4 pp., 1 fig., November 17, 1934.

Root, A. P., Jr.

2807. (and Simmons, Jesse). The Red Arrow discovery: Eng. and Min. Jour., vol. 135, no. 6, pp. 260-261, June 1934.

Rosaire, Esme Eugene.

2808. (and Adler, Joseph Leopold). Applications and limitations of dip shootings: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 1, pp. 119-132, 5 figs., January 1934.

Rose, S. L.

2809. Phylogeny of the Fusulinidae: Micropaleontology Bull., vol. 4, no. 1, pp. 20-22 (†), 1 pl., March 15, 1933.

Rosenkrans, R. R. See also Whitcomb, 3651.

2810. Bentonite in northern Virginia: Washington Acad. Sci., Jour., vol. 23, no. 9, pp. 413-419, 1 fig., September 15, 1933.
2811. Correlation studies of the central and south-central Pennsylvania bentonite occurrences: Am. Jour. Sci., 5th ser., vol. 27, no. 158, pp. 113-134, 6 figs., February 1934.
2812. Some problems involved in bentonite studies (abstract): Geol. Soc. America, Proc., 1933, p. 380, June 1934.

Rozenkrantz, Alfred. See also Bøgvad, 342.

2813. Neue Fossilfunde in der Unterkreide Ostgrönlands nebst einer Uebersicht das Mesozoikum der Kuhn Insel: Dansk geol. Forening, Meddelelser, Bind 7, Hefte 5, pp. 439-441, 1930.
2814. Oversight over Kridformationen i Østgrönland: Dansk geol. Forening, Meddelelser, Bind 8, Hefte 2, pp. 196-197, 1932.

Rozenkrantz, Alfred—Continued.

2815. The Lower Jurassic rocks of east Greenland: *Meddelelser om Grønland*, Band 110, Nr. 1, 122 pp., 57 figs., 13 pls., 1934.

Ross, Clarence Samuel. See also Bevan, 288; Wells, 3606.

2816. (and others). Physical-chemical factors in the development of a deep-seated type of ore deposit: Ore deposits of the Western States (Lindgren volume), pp. 56-151, *Am. Inst. Min. Met. Eng.*, 1933.
2817. Differentiation as a source of vein and ore-forming materials: Ore deposits of the Western States (Lindgren volume), pp. 128-144, *Am. Inst. Min. Met. Eng.*, 1933.
2818. (and Kerr, Paul Francis). The clay minerals: *Am. Ceramic Soc., Jour.*, vol. 16, no. 1, pp. 57-58, January 1933.
2819. (and Kerr, Paul Francis). Halloysite and allophane: *U. S. Geol. Survey, Prof. Paper* 185, pp. 135-148, 3 figs., 2 pls., 1934.
2820. The origin of the rutile deposits of the Amherst-Nelson County district (abstract): *Virginia Acad. Sci., Proc.*, 1933-34, pp. 54-55, 1934.
2821. Theory trend as to ore genesis: *Eng. and Min. Jour.*, vol. 135, no. 1, pp. 15-18, 2 figs., January 1934.
2822. (and Kerr, Paul Francis). Bentonite and related clays (abstract): *Geol. Soc. America, Proc.*, 1933, p. 380, June 1934.
2823. The role of volatiles in the formation of Virginia titanium deposits (abstract): *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 1, p. 245, Nat. Research Council, June 1934.
2824. Field evidence about the viscosity of lavas: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, 1934, pt. 1, pp. 255-257, Nat. Research Council, June 1934.

Ross, Clyde Polhemus. See also Connolly, 721.

2825. Mineral deposits near the west fork of the Chulitna River, Alaska (with Foreword by P. S. Smith, pp. v-viii, 1 fig.): *U. S. Geol. Survey, Bull.* 849, pp. 289-333, 7 figs. (incl. maps), 3 pls. (incl. geol. map), 1933.
2826. The Valdez Creek mining district, Alaska: *U. S. Geol. Survey, Bull.* 849, pp. viii, 425-468, 5 figs. (maps), 2 pls. (maps), 1933.
2827. The Thunder Mountain mining district: *Am. Inst. Min. Met. Eng., Contr.* no. 23, 10 pp. (†), 1 pl., February 1933.
2828. The ore deposits of Idaho in relation to structural and historical geology: Ore deposits of the Western States (Lindgren volume), pp. 265-272, 1 fig. (map), *Am. Inst. Min. Met. Eng.*, 1933.
2829. Quicksilver deposits: Ore deposits of the Western States (Lindgren volume), pp. 652-658, *Am. Inst. Min. Met. Eng.*, 1933.
2830. Some features of the Idaho batholith: *Northwest Sci.*, vol. 7, no. 2, pp. 33-34, June 1933; abstract, *Washington Acad. Sci., Jour.*, vol. 23, no. 8, pp. 400-401, August 15, 1933; abstract, *Pan-Am. Geologist*, vol. 60, no. 2, p. 154, September 1933.
2831. The lode deposits in the Boise Basin, Idaho: *Econ. Geology*, vol. 28, no. 4, pp. 329-343, 1 fig., June-July 1933.
2832. The Thunder Mountain mining district, Valley County, Idaho: *Econ. Geology*, vol. 28, no. 6, pp. 587-600, 1 fig. (sketch map), September-October 1933.
2833. The Dome mining district, Butte County, Idaho: *Idaho Bur. Mines and Geology, Pamph.* no. 39, 12 pp. (†), 3 pls., geol. maps, December 1933.

Ross, Clyde Polhemus—Continued.

- 2834. Some lode deposits in the northwestern part of the Boise Basin, Idaho: U. S. Geol. Survey, Bull. 846, pp. iii-iv, 239-277, 4 figs. (incl. maps), 10 pls., 1934.
- 2835. Progress report on the examination of the Terlingua quicksilver district, Brewster County, Tex.: Texas, Univ., Bur. Econ. Geology, Min. Res. Circ. no. 7, 4 pp. (‡), April 1934.
- 2836. (and Milton, Charles). Stratigraphic correlation by heavy minerals in Paleozoic beds in Idaho (abstract): Washington Acad. Sci., Jour., vol. 24, no. 4, p. 189, April 15, 1934.
- 2837. Correlation and interpretation of Paleozoic stratigraphy in south-central Idaho: Geol. Soc. America, Bull., vol. 45, no. 5, pp. 937-1000, 2 pls. (incl. geol. map), October 31, 1934; abstract, Proc., 1933, pp. 104-105, June 1934.

Ross, J. C.

- 2838. Garber contracts (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, October 17, 1932.

Ross, John C. See Patterson, 2591.

Rostel, Ernest A.

- 2839. Crater Lake—an epic in volcanology: Nat. History, vol. 33, no. 1, pp. 66-75, illus. (incl. map), January-February 1933.

Roth, Robert.

- 2840. Evidence indicating the limits of Triassic in Kansas, Oklahoma, and Texas (abstract): Tulsa Geol. Soc., Digest, pp. 57-59, 1933.
- 2841. Some Morrison Ostracoda: Jour. Paleontology, vol. 7, no. 4, pp. 398-405, 1 pl., December 1933.
- 2842. Type section of Hermosa formation, Colorado: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 7, pp. 944-947, July 1934.

Rothé, J. P.

- 2843. Observations morphologiques du Scoresby-Sund: Acad. sci. Paris, Comptes rendus, vol. 197, no. 23, pp. 1443-1444, December 4, 1933.

Rothery, Julian Eastman.

- 2844. The newest map of the oldest British colony: Geog. Rev., vol. 24, no. 1, pp. 564-577, 11 figs. (incl. maps), January 1934.

Rothrock, Edgar Paul.

- 2845. Water supplies and geology of Lake Kampeska: South Dakota, State Geol. Survey, Rept. Inv. no. 17, 11 pp. (‡), 8 pls. (incl. geol. map), December 1933.
- 2846. Water supplies at Fort Thompson, S. Dak.: South Dakota Geol. Survey, Rept. Inv. no. 18, 9 pp. (‡), 4 pls., February 1934.
- 2847. The geology of Grant County, S. Dak.: South Dakota Geol. Survey, Rept. Inv. no. 20, 40 pp. (‡), 7 pls. (incl. geol. maps), June 1934.
- 2848. Geology of the Crow Creek dam site: South Dakota, State Geol. Survey, Rept. Inv., no. 23, 11 pp. (‡), 4 pls., October 1934.

Rott, Edward Herman, Jr.

- 2849. Ore deposits of the Gold Circle mining district, Elko County, Nev.: Nevada, Univ., Bull., vol. 25, no. 5, 30 pp., 12 figs. (incl. map), 1 pl. (geol. map), August 1, 1931.

Roundy, Paul Vere.

2850. Preliminary report on the Minudie anticline, Cumberland County, Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1931, pt. 2, pp. 15-21, 1932.

Rouse, John Thomas.

2851. The structure, inclusions, and alteration of the Deer Creek intrusive, Wyoming: Am. Jour. Sci., 5th ser., vol. 26, no. 152, pp. 139-146, 3 figs., August 1933.
2852. The physiography and glacial geology of the Valley region, Park County, Wyo.: Jour. Geology, vol. 42, no. 7, pp. 738-752, 9 figs., October-November 1934.

Rousseau, Jacques.

2853. The part played by some tidal plants in the formation of clay rhizoconcretions: Jour. Sedimentary Petrology, vol. 4, no. 2, pp. 60-64, 4 figs., August 1934.

Rowe, Jesse Perry.

2854. Montana's natural gas and oil development and utilization: Nat. Gas, vol. 14, no. 5, pp. 3-8, 4 figs., May 1933.

Rowe, P. B. See Lowdermilk, 2114.

Rowe, Paul.

2855. A large fragment of a proboscidian tusk found near Glenwood, Iowa, and notes of similar finds (abstract): Iowa Acad. Sci., Proc., 1930, vol. 37, p. 274, [1931].

Rowe, R. C.

2856. The Beattie gold mine: Canadian Min. Jour., vol. 54, no. 12, pp. 455-466, 18 figs., December 1933.

Rowe, W. P. See Conkling, 720.

Rowley, Robert Russell, 1854-1935.

2857. (and Williams, James Steele). Unique coloration of two Mississippian brachiopods: Washington Acad. Sci., Jour., vol. 23, no. 1, pp. 46-58, 4 figs., January 15, 1933.

Roy, Chalmer J. See Billings, 302.

Roy, Sharat Kumar.

2858. A new Devonian trilobite from southern Illinois: Field Mus. Nat. History, Geol. ser., vol. 6, no. 327, pp. 67-82, December 11, 1933.
2859. Memorial of Oliver Cummings Farrington [1864-1933]: Geol. Soc. America, Proc., 1933, pp. 193-210, port., June 1934.

Royce, Stephen.

2860. Secondary concentration of Lake Superior iron ores (discussion): Econ. Geology, vol. 28, no. 3, p. 293, May 1933.

Roys, H. C. See Hassler, 1420.

Ruark, Arthur Edward. See Western, 3616.

Rubey, James Tate.

2861. A list of references on the United States Geological Survey and its work. 21 pp.(†), Washington, D. C., July 15, 1934.

Rubey, William Walden. See also Ashley, 92.

2862. Settling velocity of gravel, sand, and silt particles: Am. Jour. Sci., 5th ser., vol. 25, no. 148, pp. 325-338, 2 figs., April 1933.

Rubey, William Walden—Continued.

2863. The size distribution of heavy minerals within a water-laid sandstone: Jour. Sedimentary Petrology, vol. 3, no. 1, pp. 3-29, 4 figs., April 1933.
2864. Equilibrium conditions in debris-laden streams: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 497-505, 1 fig., Nat. Research Council, June 1933.
2865. Recent movement along border faults in central-western Wyoming (abstract): Geol. Soc. America, Proc., 1933, p. 105, June 1934.

Rude, Gilbert Thomas.

2866. Hydrographic data: Geol. Soc. America, Bull., vol. 44, no. 3, pp. 517-528, 5 figs., June 30, 1933; abstract, pt. 1, p. 97, February 28, 1933.

Ruedeman, Rudolf. See also Longwell, 2085; Newland, 2476.

2867. Guide to the fossil exhibits of the New York State Museum: New York State Mus., Circ. 9, 53 pp., 16 figs., November 1932.
2868. Paleozoic planktonic faunas of North America: Nat. Acad. Sci., Proc., vol. 19, no. 1, pp. 157-159, January 15, 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 97-98, February 28, 1933.
2869. Sargasso seas in Paleozoic time (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 98, February 28, 1933.
2870. *Camptostrotra*, a Lower Cambrian floating hydrozoan: U. S. Nat. Mus., Proc., vol. 82, art. 13, 8 pp., 4 pls., March 1, 1933.
2871. (and Decker, Charles Elijah). Graptolites of Viola limestone (abstract): Pan-Am. Geologist, vol. 59, no. 3, p. 237, April 1933; abstract, Geol. Soc. America, Proc., 1933, p. 373, June 1934.
2872. The Cambrian of the upper Mississippi Valley, part 3, Graptolitoidea: Milwaukee, Public Mus., Bull., vol. 12, no. 3, pp. 307-348, 4 figs., 10 pls., December 22, 1933.
2873. Vorweltliche Meerstiere in lebenden Bildern; "Aquarien der Vorwelt": Natur und Volk (Senckenb. naturf. Gesell.), Band 64, Heft 1, pp. 9-14, 4 figs., January 1934.
2874. Eurypterids from the Lower Devonian of Beartooth Butte, Wyo.: Am. Philos. Soc., Proc., vol. 73, no. 3, pp. 163-167, 2 figs., 3 pls., February 1934.
2875. Eurypterids in graptolite shales: Am. Jour. Sci., 5th ser., vol. 27, no. 161, pp. 374-385, 9 figs., May 1934.
2876. Ecology of black mud shales of eastern New York (abstract): Geol. Soc. America, Proc., 1933, pp. 359-360, June 1934.
2877. Cambrian graptolites: Science, new ser., vol. 80, no. 2062, p. 15, July 6, 1934.
2878. Paleozoic plankton of North America: Geol. Soc. America, Mem. 2, 141 pp., 6 figs., 26 pls., November 1934.

Runner, Joseph James.

2879. Association of certain igneous and sedimentary amphibolites (abstract): Geol. Soc. America, Proc., pp. 443-441, June 1934.
2880. (and Hamilton, R. G.). Metamorphosed calcareous concretions and their genetic and structural significance: Am. Jour. Sci., 5th ser., vol. 28, no. 163, pp. 51-64, 6 figs., (incl. map), July 1934.

Runner, Joseph James—Continued.

2881. Structural significance of metamorphosed calcareous concretions (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 136, September 1934.
2882. Pre-Cambrian geology of the Nemo district, Black Hills, S. Dak.: Am. Jour. Sci., 5th ser., vol. 28, no. 167, pp. 353-372, 5 figs. (incl. geol. map), November 1934.

Russell, Bert.

2883. Continental shelves as dynamic zones; a toggling-shelf orogeny (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 174, February 28, 1933.

Russell, Carl Parcher.

2884. A concise history of scientists and scientific investigations in Yellowstone National Park, with a bibliography of the results of research and travel in the park area, 144 pp. (†), U. S. Office Nat. Parks, Bldgs., and Reservations, [1934].

Russell, Henry Norris.

2885. Meteor Crater: Mus. Northern Arizona, Mus. Notes, vol. 4, no. 3, pp. 1-3, Flagstaff, September 1931.

Russell, Loris Shano.

2886. New data on the Paleocene mammals of Alberta, Canada: Jour. Mammalogy, vol. 13, no. 1, pp. 48-54, 12 figs., February 1932.
2887. On the occurrence and relationships of the dinosaur *Troödon*: Annals and Mag. Nat. History, 10th ser., vol. 9, no. 51, pp. 334-337, March 1932.
2888. A new species of *Merychippus* from the Miocene of Saskatchewan: Canadian Field Naturalist, vol. 47, no. 1, p. 11, 5 figs., January 1933.
2889. (and Wickenden, Robert Thomas Daubigny). An upper Eocene vertebrate fauna from Saskatchewan: Royal Soc. Canada, Trans., 3d ser., vol. 27, sec. 4, pp. 53-66, 1 fig., 1 pl., May 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 199, February 28, 1933.
2890. Reclassification of the fossil Unionidae (fresh-water mussels) of western Canada: Canadian Field Naturalist, vol. 48, no. 1, pp. 1-4, January 1934.
2891. Pleistocene and post-Pleistocene molluscan faunas of southern Saskatchewan: Canadian Field Naturalist, vol. 48, no. 2, pp. 34-37, 11 figs., February 1934.
2892. New fossil fresh-water Mollusca from the Cretaceous and Paleocene of Montana: Washington Acad. Sci., Jour., vol. 24, no. 3, pp. 128-131, 5 figs., March 15, 1934.
2893. Fossil turtles from Saskatchewan and Alberta: Royal Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 101-112, 6 pls., May 1934.
2894. Discovery of middle Eocene Mammalia in British Columbia (abstract): Geol. Soc. America, Proc., 1933, p. 368, June 1934.
2895. Restoration of the horned dinosaur *Chasmosaurus* (abstract): Geol. Soc. America, Proc., 1933, p. 369, June 1934.
2896. Revision of the lower Oligocene vertebrate fauna of the Cypress Hills, Saskatchewan: Royal Canadian Inst., Trans., vol. 20, pt. 1, pp. 49-67, 4 pls., September 1934.

Russell, Richard Dana. See Russell, R. J., 2899.

Russell, Richard Joel.

- 2897. Alpine land forms of the western United States: Geol. Soc. America, Bull., vol. 44, no. 5, pp. 927-950, 8 figs., October 31, 1933; abstract, pt. 1, pp. 98-99, February 28, 1933.
- 2898. Desert-rainfall factor in denudation (abstract): Pan-Am. Geologist, vol. 60, no. 4, p. 316, November 1933.
- 2899. (and Russell, Richard Dana). Dust storm of April 12, 1934, at Baton Rouge, La.: Monthly Weather Rev., vol. 62, no. 5, pp. 162-163, May 1934.

Russell, William Low.

- 2900. The origin of the asphalt deposits of western Kentucky: Econ. Geology, vol. 28, no. 6, pp. 571-586, 2 figs. (incl. map), September-October 1933.
- 2901. Subsurface concentration of chloride brines: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 10, pp. 1213-1228, October 1933.
- 2902. Oil and gas production north of Sebree in Henderson and Webster Counties: Kentucky, Univ., Bur. Mineral and Topog. Survey, Bull. no. 4, 3 pp. (+), 2 pls. (incl. structure map), May 1, 1934.
- 2903. (and McClurkin, J. H.). Oil and gas pools of Hart County, Kentucky: Kentucky Univ., Bur. Mineral and Topog. Survey, ser. 7, Bull. no. 5, 14 pp. (+), 3 pls. (incl. structural maps), June 15, 1934.
- 2904. The Janet gas field, in east-central Powell County: Kentucky, Univ., Bur. Mineral and Topog. Survey, ser. 7, Bull. no. 6, 5 pp. (+), 1 pl. (structural map), June 15, 1934.
- 2905. Some characteristics of organic content of rocks: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 9, pp. 1103-1125, September 1934.
- 2906. Notes on origin of oil in Kentucky: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 9, pp. 1126-1131, September 1934.

Rutherford, H. M.

- 2907. The interpretation of reflection seismograms: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 289-303, 12 figs., Nat. Research Council, June 1933; Seismol. Soc. America, Eastern Sec., Earthquake Notes, vol. 5, nos. 1, 2, pp. 289-303, 12 figs., June 1933.
- 2908. Reflection methods in seismic prospecting: Am. Inst. Min. Met. Eng., Trans., vol. 110, Geophysical Prospecting, pp. 391-410, 9 figs., 1934.

Rutherford, Ralph Leslie. See also Allan, 36.

- 2909. Optically positive cordierite from the Northwest Territories, Canada: Am. Mineralogist, vol. 18, no. 5, p. 216, May 1933.

Rutsch, R.

- 2910. *Strombus dominator delabechei*, nov. subspec. aus den jungmiozänen Bowdenschichten von Jamaika: Eclogae geol. Helvetiae, vol. 24, no. 2, pp. 254-260, 1 fig., 1 pl., December 1931.
- 2911. Beiträge zur Kenntnis tropisch-amerikanischer Tertiärmollusken; 1, Angebliche Rudisten aus dem Tertiär von Trinidad (Brit. Westindien): Eclogae geol. Helvetiae, vol. 27, no. 1, pp. 1-9, 1 fig. June 1934; abstract, Schweizer. naturf. Gesell., Verh., 114. Jahresvers., p. 373, Altdorf, September 1-3, 1933.
- 2912. Beiträge zur Kenntnis tropisch-amerikanischer Tertiärmollusken; 2, Pteropoden und Heteropoden aus dem Miocaen von Trinidad (Brit. Westindien): Eclogae geol. Helvetiae, vol. 27, no. 2, pp. 299-326, map, December 1934.

Rutten, Louis Martin Robert.

2913. Algunos resultados de las investigaciones geológicas de la Comisión científica holandesa en Cuba: Trabajos presentados y leídos en la Sociedad geográfica de Cuba, el 20 de julio de 1933, pp. 7-15, 1 pl., Habana, 1933.

2914. Oude land- en zee-verbindingen in Midden-Amerika en West-Indië: K. nederl. aardr. genootsch., Amsterdam, Tijdschr., vol. 51, pt. 2, no. 4, pp. 551-600, 5 figs. (maps), 2 pls. (incl. maps), 1934.

Ryan Christopher Winfree.

2915. Magnetic separation of minerals and rocks (abstract): Virginia Acad. Sci., Proc., 1932-1933, p. 54, [1933].

2916. The ilmenite-apatite deposits of west-central Virginia: Econ. Geology, vol. 28, no. 3, pp. 266-279, 1 fig., May 1933.

Ryniker, Charles.

2917. Western Oklahoma, Pennsylvanian (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, April 18, 1932.

Säve-Söderbergh, G.

2918. Notes on the Devonian stratigraphy of east Greenland: Meddelelser om Grönland, Band 94, Nr. 4, 40 pp., 16 figs., 1932.

2919. Preliminary note on Devonian stegocephalians from east Greenland: Meddelelser om Grönland, Band 94, Nr. 7, 107 pp., 22 figs., 22 pls. 1932.

2920. A *Diploptera* from east Greenland and the stratigraphical position of the *Osteolepis-Diploptera*-fauna: R. soc. sci. upsaliensis, Nova acta, ser. 4, vol. 9, no. 5, pp. 103-107, 2 figs., 1 pl., 1933.

2921. Further contributions to the Devonian stratigraphy of east Greenland; 1, Results from the summer expedition, 1932; Meddelelser om Grönland, Band 96, Nr. 1, 40 pp., 15 figs., 3 pls., 1933.

Sagul, Cornelio L.

2922. Economic geology and its allied sciences in ancient times: Econ. Geology, vol. 28, no. 1, pp. 20-40, 9 figs., January-February 1933.

Sahinen, Uno M.

2923. The Badger Pass mining district, Beaverhead County, Mont.: Montana, State, Bur. Mines and Geology, Misc. Contr. no. 6, 12 pp. (+), 1 fig. (map), 1 pl. (geol. map), March 1934.

Saint, S. J.

2924. The history of Barbados as revealed by a study of the geological strata of the island: Barbados Mus. Hist. Soc., Jour., vol. 1, no. 2, pp. 57-63, February 1934.

St. Clair, Stuart.

2925. Oil and gas in Kentucky and Tennessee: Problems of petroleum geology (Sidney Powers memorial volume), pp. 515-520, 1 fig. (map), Am. Assoc. Petroleum Geologists, 1934.

Salazar Salinas, Leopoldo.

2926. Los temblores de tierra, su predicción, precauciones posibles: México, Inst. geol., Folleto de divulgación, no. 37, 33 pp., 8 figs., 1 pl. (map), 1931.

Sales, Reno Haber. See also McLaughlin, 2194.

2927. Government surveys and the mining industry from the viewpoint of the mining geologist (abstract): Assoc. Am. State Geologists, Jour., vol. 5, no. 2, p. 8 (+), April 1, 1934.

Salisbury, Rollin D. See Chamberlin, 622.

Salmon, Eleanor S. See Coryell, 760.

Salvatori, Henry.

2928. Correlation of reflection seismograph records in California: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 3, pp. 257-267, 5 figs., March 1933.

Sample, Charles Hurst. See Coryell, 758.

Sampson, Reid J. See also Tucker, 3420.

2929. Mineral resources of a part of the Panamint Range: Mining in California (California Dept. Nat. Res., Div. Mines), vol. 28, nos. 3, 4, pp. 357-376, 4 figs., July and October, 1932.

Sanborn, Ethel Ida. See also Chaney, 625.

2930. Comstock flora of western Oregon (abstract): *Pan-Am. Geologist*, vol. 62, no. 1, p. 74, August 1934.

Sánchez, Pedro C.

2931. The Bay of Acapulco and its relation to the earthquakes in the southern part of the Mexican Republic: *Am. Geophys. Union, Trans.*, 15th Ann. Meeting, June 1934, pt. 1, pp. 83-91, 1 fig. (map), 2 pls. (incl. geol. map), Nat. Research Council, June 1934.

Sánchez Roig, Mario. See also Lambert, 1962.

2932. Revisión de los equinidos fósiles cubanos: *Soc. cubana hist. nat.* Felipe Poey, Mem., vol. 6, no. 1, 2, pp. 6-42, 7 pls., 1923-24.

2933. Nuevas especies de equinidos fósiles cubanos: *Soc. cubana hist. nat.* Felipe Poey, Mem., vol. 6, no. 1, 2, pp. 75-92, 7 pls., 1923-24.

2934. La fauna cretácica de la región central de Cuba: *Soc. cubana hist. nat.* Felipe Poey, Mem., vol. 7, no. 1, 2, pp. 83-102, 10 pls., 1924-26.

2935. Rectificaciones y adiciones al mapa geológico de Cuba: Havana, *Inst. nac. inv. cien., Mus. hist. nat., Mem.*, 1929, vol. 1, no. 1, pp. 99-139, 48 figs., 1930.

Sandberg, Adolph E.

2936. Lava flows on the north shore of Lake Superior (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 105-106, June 1934.

Sander, Bruno.

2937. Petrofabrics (Gefügekunde der Gesteine) and orogenesis: *Am. Jour. Sci.*, 5th ser., vol. 28, no. 163, pp. 37-50, July 1934.

Sanders, C. W. See also Parker, 2577.

2938. Geology of Two Buttes dome in southeastern Colorado: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 7, pp. 860-870, 6 figs. (incl. geol. map), July 1934; 8th Ann. Field Conf., Kansas Geol. Soc., Proc., September 1934.

Sandige, John Roy. See also Howell, 1589.

2939. Foraminifera from the Mesozoic of Montana (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 204, February 28, 1933.

2940. Foraminifera from the Jurassic in Montana: *Am. Midland Naturalist*, vol. 14, no. 2, pp. 174-185, 2 figs., 1 pl., March 1933; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 238, April 1933.

Sanford, John Theron. See also Newland, 2476.

2941. Clinton of western New York (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 194, February 28, 1933.

Sanford, S. N. F.

2942. Fossils of colorful Gay Head: Boston Soc. Nat. History, Bull., no. 71, pp. 3-5, 1 fig., April 1934.

Santillán, Manuel.

2943. Anuario del Instituto de geología, 1932, 162 pp., Mexico, Univ. nac. autónoma, 1933.
2944. Estudio geológico-minero relativo a algunos criaderos minerales que se encuentran en el cerro "El Limón", Balsas, Estado de Guerrero: Bol. minero, vol. 35, no. 5-6, pp. 158-160, May and June 1933.
2945. Explorations for platinum in Mexico (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 152, September 1934.
2946. Beryl and beryllium in Mexico (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 153, September 1934.

Sapper, Karl.

2947. (and Termer, Franz). Einige Bemerkungen über tätige Vulkane von Guatemala und El Salvador: Zeitschr. Vulkanologie, Band 14. Heft 4, pp. 273-287, 2 pls., March 1933.

Sardeson, Frederick William.

2948. Ordovician bentonite zones: Pan-Am. Geologist, vol. 61, no. 1, pp. 19-28, February 1933.
2949. Glacial diversion of Mississippi River in Minnesota: Pan-Am. Geologist, vol. 59, no. 3, pp. 177-189, 1 pl., map, April 1933.
2950. Glacial diversion of Cannon River in Minnesota: Pan-Am. Geologist, vol. 59, no. 4, pp. 259-268, 1 pl., May 1933.
2951. Glacial chronometer in Minnesota: Pan-Am. Geologist, vol. 59, no. 5, pp. 341-350, 1 pl., June 1933.
2952. Stratigraphic affinities of Glenwood shales: Pan-Am. Geologist, vol. 60, no. 2, pp. 81-90, September 1933.
2953. Ordovician complete *Gonioceras*: Pan-Am. Geologist, vol. 61, no. 4, pp. 251-263, 1 pl., May 1934.
2954. Shakopee formation: Pan-Am. Geologist, vol. 62, no. 1, pp. 29-34, August 1934.

Sargent, E. C. See Plummer, 2642.

Savage, John Lucian. See Berkey, 261.

Savage, Thomas Edmund.

2955. The Port Byron limestone and its fauna (abstract): Illinois Acad. Sci., Trans., vol. 27, no. 2, p. 116, December 1934.

Sayre, Albert Nelson. See also Thompson, 3374.

2956. Ground-water resources of Duval County, Tex.: U. S. Dept. Interior [U. S. Geol. Survey], Press Mem. 68862, 14 pp. (†), 1 pl., map, February 12, 1933.
2957. A selected list of papers relating to ground-water hydrology: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 377-379, Nat. Research Council, June 1933.

Schaaf, Downs. See Stout, 3263.

Schafer, Paul A. See Tansley, 3308.

Schäffer, Francis Xavier.

2958. Stratigraphic nomenclature: Science, new ser., vol. 77, no. 1998, p. 368, April 14, 1933.

Schairer, John Frank. See also Bowen, 359, 360.

2959. (and Bowen, Norman Levi). Preliminary report on the system $K_2O-Al_2O_3-SiO_2$ (abstract): Geol. Soc. America, Proc., 1933, pp. 441-442, June 1934.

Schaller, Waldemar Theodore.

2960. Pegmatites: Ore deposits of the Western States (Lindgren volume), pp. 144-151, Am. Inst. Min. Met. Eng., 1933.
 2961. A tephroite crystal from Franklin Furnace, N. J.: Am. Mineralogist, vol. 18, no. 2, pp. 59-62, February 1933.
 2962. A large monazite crystal from North Carolina: Am. Mineralogist, vol. 18, no. 10, pp. 435-439, 1 fig., October 1933.
 2963. Mottramite or psittacinite—a question of nomenclature: Am. Mineralogist, vol. 19, no. 4, pp. 180-181, April 1934.

Schaub, B. M.

2964. The cause of banding in fissure veins: Am. Mineralogist, vol. 19, no. 9, pp. 393-402, 4 figs., September 1934.

Schauelberger, Paul. See also Lohmann, 2083.

2965. Ueber einige Mineral- und Thermalquellen von Costa Rica, 2: Eclogae geol. Helvetiae, vol. 26, no. 2, pp. 281-294, December 1933.

Scheid, Vernon E. See Singewald, 3101.

Schenck, Hubert Gregory. See also Taliaferro, 3300.

2966. Stratigraphic and faunal relations of the Keasey formation of the Oligocene of Oregon (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 217, February 28, 1933.
 2967. Significance of *Lepidocyclina* in California (abstract): Pan-Am. Geologist, vol. 59, no. 4, pp. 319-320, May 1933; vol. 62, no. 2, p. 156, September 1934; abstract, Geol. Soc. America, Proc., 1933, p. 302, June 1934.
 2968. Classification of nuculid pelecypods (abstract): Pan-Am. Geologist, vol. 59, no. 5, p. 373, June 1933; abstract, Geol. Soc. America, Proc., 1933, pp. 387-388, June 1934.
 2969. New records of *Discocyclina* in the California Eocene: Micropaleontology Bull., vol. 4, no. 2, pp. 72-79, 3 figs., July 1, 1933.
 2970. (and Turner, F. Earl). Eocene pleurotomarid from Oregon (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 72, August 1934.

Schenk, Edward T.

2971. Marine Triassic of central Oregon (abstract): Pan-Am. Geologist, vol. 59, no. 5, p. 374, June 1933; abstract, Geol. Soc. America, Proc., 1933, pp. 388-389, June 1934.

Schindewolf, Otto H.

2972. Problems of Devon-Carbonic boundary (abstract): Pan-Am. Geologist, vol. 60, no. 3, p. 228, October 1933.
 2973. Ueber eine oberdevonische Ammonoiten-Fauna aus den Rocky Mountains: Neues Jahrb., Beilage-Band 72, Abt. B, Heft 3, pp. 331-350, 7 figs., 1 pl., July 20, 1934.

Schindler, N. R. See Gill, 1246.

Schlaikjer, Erich Maren.

2974. Contributions to the stratigraphy and paleontology of the Goshen Hole area, Wyoming; 1, A detailed study of the structure and relationships of a new zalambdodont insectivore from the middle Oligocene: Harvard Coll., Mus. Comp. Zoology, Bull., vol. 76, no. 1, 27 pp., 8 figs., 1 pl., November 1933.

2975. A new fossil zalambdodont insectivore: Am. Mus. Novitates, no. 698, 8 pp., 3 figs., March 8, 1934.

2976. Three new oreodonts: Boston Soc. Nat. History, Proc., vol. 40, no. 3, pp. 219-232, December 1934.

Schmitt, F. E.

2977. The importance and necessity of research in the shore protection movement: Shore and Beach, vol. 2, no. 1, pp. 25-29, January 1934.

Schmitt, Harrison. See also Locke, 2074.

2978. Structural associations of certain metalliferous deposits in southwestern United States and northern Mexico: Am. Inst. Min. Met. Eng., Contr. no. 38, 23 pp., 19 figs., 1933.

2979. The Central mining district, N. Mex.: Am. Inst. Min. Met. Eng., Contr. no. 39, 22 pp., 8 figs., 1933.

2980. Determination of ore-shoot bottoms: Eng. and Min. Jour., vol. 134, no. 2, pp. 52-54, 4 figs., February 1933.

Schneider, Hyrum.

2981. Structure of the Wasatch Mountains between American Fork and Spanish Fork Canyons, Utah (abstract): Utah Acad. Sci., Proc., vol. 7, p. 69, July 15, 1930.

2982. Volcanism near Salt Lake City (abstract): Utah Acad. Sci., Proc., vol. 10, p. 49, July 1933.

Schönberg, J. W.

2983. Die Fumarolen des Masaya [Nicaragua]: Zeitschr. Vulkanologie, Band 15, Heft 4, pp. 261-263, September 1934.

Schoewe, Walter Henry.

2984. Glacial striae in Kansas; a new locality: Kansas Acad. Sci., Trans., vol. 36, p. 141, 1933.

2985. (and Lenahan, Thomas). Fossil "nests" in the Brownville limestone at Admire Junction, Kans.: Kansas Acad. Sci., Trans., vol. 36, pp. 142-148, 2 figs. [1933].

Schottenloher, Rudolf.

2986. Die Gebirgsumrahmung des nordamerikanischen Kontinents: Geog. Gesell. Wien, Mitt., Band 77, Nr. 7-9, pp. 129-145, 1 fig., 1934.

Schouten, C.

2987. Structures and texture of synthetic replacements in "open space": Econ. Geology, vol. 29, no. 7, pp. 611-658, 38 figs., November 1934.

Schrader, Frank Charles. See also Pardee, 2570.

2988. Epithermal antimony deposits: Ore deposits of the Western States (Lindgren volume), pp. 658-665, Am. Inst. Min. Met. Eng., 1933.

2989. The McCoy mining district and gold veins in Horse Canyon, Lander County, Nev.: U. S. Geol. Survey, Circ. 10, 13 pp. (+), 2 figs., 1934.

Schrepfer, Hans.

2990. Inselberge in Lappland und Neufundland: Geol. Rundschau, Band 24, Heft 3-4, pp. 137-143, 2 figs., August 31, 1933.

Schreuder, A.

2991. Skull remains of *Amblyrhiza* from St. Martin: Nederlandsche dierkundige Vereeniging, Tijdschr., 3d ser., pt. 3, Afl. 4, pp. 242-266, 6 figs., 2 pls., 1933.

Schriever, William. See Melton, 2281.

Schroeder, Rolf.

2993. Introductory geology, dynamic and structural. 31 pp. (†), 31 figs., Boston, Student Outlines and Translations, Inc., [c 1933].

Schuchert, Charles.

2994. (and Dunbar, Carl Owen). A textbook of geology, part 2, Historical geology (3d ed., largely rewritten). vi, 551, pp., 332 figs., New York, John Wiley & Sons, Inc., 1933.
2995. Cambrian and Ordovician stratigraphy of northwestern Vermont: Am. Jour. Sci., 5th ser., vol. 25, no. 149, pp. 353-381, 2 figs. (incl. geol. sketch map), May 1933.
2996. (and Dunbar, Carl Owen). Stratigraphy of western Newfoundland: Geol. Soc. America, Mem. 1, 123 pp., 8 figs. (incl. maps), 11 pls., April 1934.
2997. Lauge Koch's explorations in east Greenland: Am. Jour. Sci., 5th ser., vol. 27, no. 160, pp. 307-309, April 1934.
2998. Francis Arthur Bather, 1863-1934: Am. Jour. Sci., 5th ser., vol. 28, no. 163, p. 78, July 1934.

Schuette, Curt Nicolaus.

2999. Lahontan quicksilver: Eng. and Min. Jour., vol. 134, no. 8, pp. 329-332, 4 figs. (incl. map), August 1933.

Schütte, K. A.

3000. Das Erdölvorkommen im Conroe-Bezirk (U. S. A.): Kali, Verw. Salze u. Erdöl, Jahrg. 28, Heft 18, pp. 223-227, 6 figs., September 15, 1934.

Schultz, Charles Bertrand. See also Barbour, 179, 180, 181, 183, 187, 188.

3001. Association of artifacts and extinct mammals in Nebraska: Nebraska State Mus., Bull., vol. 1, no. 33, pp. 271-282, 2 figs., November 1932.
3002. The geology and mammalian fauna of the Pleistocene of Nebraska, pt. 2, The Pleistocene mammals of Nebraska: Nebraska State Mus., Bull., vol. 1, no. 41, pp. 357-393, 1 pl. (table), October 1934.

Schultz, John R.

3003. The chert of the Niagara series of the Chicago area (abstract): Illinois State Acad. Sci., Trans., vol. 26, no. 3, p. 104, March 1934.

Schwartz, George Melvin. See also Grout, 1335; Wilcox, 3689.

3004. Alteration of a Colorado granite to sericite schist: Jour. Geology, vol. 41, no. 5, pp. 537-545, 6 figs., July-August 1933.
3005. Paragenesis of the oxidized ores of copper: Econ. Geology, vol. 29, no. 1, pp. 55-75, 12 figs., January-February 1934.
3006. Anorthosites of the Minnesota coast of Lake Superior (abstract): Geol. Soc. America, Proc., 1933, p. 106, June 1934.

Scott, Dukinfield Henry.

3007. *Archaeopitys eastmanii*: Annals of Botany, vol. 47, no. 186, pp. 361-374, 5 figs., 2 pls., April 1933.

Scott, E. R.

3008. (and Behre, Charles Henry, Jr.). Structural control of ore deposition in the Wisconsin-Illinois lead-zinc district (abstract): Illinois Acad. Sci., Trans., vol. 27, no. 2, p. 117, December 1934.

Scott, Gayle. See also Wrather, 3787.

3009. Age of the Midway group: Geol. Soc. America, Bull., vol. 45, no. 6, pp. 1111-1158, 1 fig., 2 pls., December 31, 1934; abstract, Proc., 1933, p. 106, June 1934.

Scott, Harold W. See also Croneis, 793, 794, 795.

3010. Galena and Platteville faunas in northwestern Illinois (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 209, February 28, 1933.
3011. The zoological relationships of the conodonts: Jour. Paleontology, vol. 8, no. 4, pp. 448-455, 2 pls., December 1934.

Scott, Irving Day.

3012. History of the strand dunes of the Michigan Basin (abstract): Geol. Soc. America, Proc., 1933, p. 107, June 1934.

Seaman, David Martin.

3013. New pegmatite locality near Ohio City, Colo.: Oregon Mineralogist, vol. 2, no. 11, p. 23, November 1934.
3014. Opal found at Specimen Mountain, Colo.: Oregon Mineralogist, vol. 2, no. 12, p. 17, December 1934.
3015. Minerals and mineral deposits of the San Juan region, Colo.: Colorado, Univ., Studies, vol. 22, no. 1, p. 60, November 1934.

Searight, Walter Vernon.

3016. The Stoneville coal area: South Dakota, State Geol. Survey, Rept. Inv. no. 22, 20 pp. (†), 6 pls. (incl. geol. map), September 1934.
3017. The geology of central Perkins County, S. Dak.: South Dakota, State Geol. Survey, Rept. Inv. no. 21, 52 pp. (†), 11 pls. (incl. geol. map), September 1934.

Sears, Charles E., Jr.

3018. Origin of the sulphate of the Yellow Sulphur Spring water (abstract): Virginia Acad. Sci., Proc., 1932-33, p. 52, [1933.]

Sears, Julian Ducker.

3019. Regressive sandstones (abstract): Washington Acad. Sci., Jour., vol. 23, no. 8, pp. 397-398, August 15, 1933.
3020. Public Works activities of the United States Geological Survey: Assoc. Am. State Geologists, Jour., vol. 5, no. 2, pp. 9-16 (†), April 1, 1934.

Sears, Paul Bigelow.

3021. (and Janson, Elsie). The rate of peat growth in the Erie Basin: Ecology, vol. 14, no. 4, pp. 348-355, 2 figs., October 1933.
3022. Climatic change as a factor in forest succession: Jour. Forestry, vol. 31, no. 8, pp. 934-942, 3 figs., December 1933.

Secrist, Mark Howard.

3023. Technique for the recovery of Paleozoic arenaceous Foraminifera: Jour. Paleontology, vol. 8, no. 2, pp. 245-246, June 1934.

Sederholm, Jakob Johannes, 1863-1934.

3024. Progress and scope of pre-Cambrian research: Pan-Am. Geologist, vol. 61, no. 2, pp. 81-96, March 1934.

Sederholm, Jakob Johannes—Continued.

3025. Ultrametamorphism and anatexis: *Pan-Am. Geologist*, vol. 61, no. 4, pp. 241-250, May 1934.

Seidl, Erich.

3026. Hohlformdruck-Tektonik, erläutert am Mulden- und Sattelflanken des Appalachischen und des Rhur-Lippe Steinkohlengebiets: *Deutsch. geol. Gesell., Zeitschr.*, Band 85, Heft 2, pp. 118-133, 19 figs., March 30, 1933.

3027. Marginal fracturing and knick pressure as cause of mountain building on east and west borders of North American continent (abstract): *Pan-Am. Geologist*, vol. 61, no. 2, p. 154, March 1934.

Sellards, Elias Howard. See also *Kansas Geol. Soc.*, 1744.

3028. (and Adkins, Walter Scott, and Plummer, Frederick Byron). The geology of Texas, vol. 1, *Stratigraphy: Texas, Univ., Bull. no. 3232*, 1007 pp., 54 figs., 11 pls. (incl. geol. map), [July 1933].

3029. The geology of Texas, part 1, The pre-Paleozoic and Paleozoic systems in Texas: *Texas Univ., Bull. no. 3232*, pp. 15-238, 12 figs. (incl. maps), 6 pls., [July 1933].

3030. The geology of Texas, part 4, Bibliography and subject index of Texas geology: *Texas, Univ., Bull. no. 3232*, pp. 819-996, [July 1933].

Selvig, Walter Alfred. See Fieldner, 1084.

Semmes, Douglas Ramsay.

3031. Memorial, George Irving Adams [1870-1932]: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 1, pp. 103-104, January 1933.

Service, Jerry Hall. See Partlo, 2587.

Sestini, Aldo.

3032. William Morris Davis [1850-1934]: *Riv. geog. italiana (Firenze)*, annata 41, fasc. 1-3, pp. 60-64, January-June, 1934.

Setchell, William Albert.

3033. Thermal overflow, thallophytes and rock building (abstract): *Science*, new ser., vol. 79, no. 2054, p. 435, May 11, 1934.

Seton, Henry.

3034. A new *Heptodon* from the Wind River of Wyoming: *New England Zoological Club, Proc.*, vol. 12, pp. 45-48, May 29, 1931.

Seward, Albert Charles.

3035. Plant records of the rocks: *Smithsonian Ann. Rept. for 1932*, pp. 363-371, 1933.

3036. Note on two Upper Carboniferous pteridosperms from Kentucky: *Brittonia*, vol. 1, no. 4, pp. 195-202, 2 pls., December 1933.

Seyer, William Frederick.

3037. Conversion of fatty and waxy substances into petroleum hydrocarbons (with discussion): *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 10, pp. 1251-1267, 1 fig., October 1933.

Sharp, Henry Staats. See also Johnson, 1676.

3038. The origin of Mountain Lake, Va.: *Jour. Geology*, vol. 41, no. 6, pp. 636-641, 3 figs., August-September 1933.

Shaw, J. A.

- 3039. Report of the division of minerals: Louisiana, Dept. Conservation, 10th Bienn. Rept., 1930-31, pp. 393-478, 15 figs. [1932]
- 3040. A brief survey of the mineral resources of Louisiana: Louisiana, Dept. Conservation, Bull. no. 22 (General Bull., Handbook, Minerals Div.), pp. 31-125, 16 pls. (incl. geol. map), 1933.
- 3041. Report of the division of minerals: Louisiana, Dept. Conservation, 11th Bienn. Rept., 1932-33, pp. 345-466, 38 figs., 1934.

Shedd, Solon.

- 3042. Bibliography of the geology and mineral resources of California, December 31, 1930; California, Dept. Nat. Res., Div. Mines, Geol. Branch, Bull. no. 104, 376, xi pp., ports., March 1932.

Sheerar, Leonard Francis.

- 3043. (and Redfield, John S.). The clays and shales of Oklahoma: Oklahoma, Agr. and Mech. Coll., Div. Eng. Pub., vol. 3, no. 5, Pub. no. 17, 46 figs. (incl. geol. map), 1 pl. (map), September 1932.

Sheets, M. M. See Laurence, 2014.

Sheldon, I. R.

- 3044. Driscoll pool, Duval County, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 7, pp. 816-826, 4 figs., (incl. sketch map), July 1933.

Shenon, Philip John.

- 3045. Geology of the Robertson, Humdinger, and Robert E. gold mines, southwestern Oregon: U. S. Geol. Survey, Bull. 830, pp. 33-55, 1 fig., 9 pls. (incl. map), 1933.
- 3046. Geology and ore deposits of the Takilma-Waldo district, Oregon, including the Blue Creek district: U. S. Geol. Survey, Bull. 846, pp. 141-194, 5 figs. (incl. maps), 14 pls. (incl. maps), 1933.
- 3047. Copper deposits in the Squaw Creek and Silver Peak districts and at the Alameda mine, southwestern Oregon, with notes on the Pennell & Farmer and Banfield prospects: U. S. Geol. Survey, Circ. 2, 24 pp. (+), 5 figs., 6 pls. (incl. geol. maps), 1933.
- 3048. (and Reed, John Calvin). The relationship of the quartz veins to the regional structure in the Elk City district, Idaho (abstract): Washington Acad. Sci., Jour., vol. 23, no. 12, pp. 571-572, December 15, 1933.
- 3049. (and Reed, John Calvin). Geology of the Elk City mining district, Idaho, with special reference to the structural setting of the veins: Am. Inst. Min. Met. Eng., Tech. Pub. no. 562, 22 pp., 7 figs. (incl. maps), 1934; abstract, Mining and Metallurgy, vol. 15, no. 332, pp. 357-358, August 1934.
- 3050. (and Reed, John Calvin). Geology and ore deposits of the Elk City, Orogrande, Buffalo Hump, and Tenmile districts, Idaho County, Idaho: U. S. Geol. Survey, Circ. 9, 89 pp. (+), 13 figs. (incl. maps), 1 pl. (geol. map), 1934.

Shepard, Francis Parker.

- 3051. St. Lawrence (Cabot Strait) submarine trough: Geol. Soc. America, Bull., vol. 42, no. 4, pp. 853-864, 7 figs. (incl. maps), 3 pls. (maps), December 31, 1931.
- 3052. Submarine valleys: Geog. Rev., vol. 23, no. 1, pp. 77-89, 8 figs., January 1933.

Shepard, Francis Parker—Continued.

- 3053. Origin of the Great Lakes Basin (abstract): *Illinois State Acad. Sci., Trans.*, vol. 25, no. 4, p. 152, June 1933.
- 3054. Investigations of submarine valleys: *Am. Geophys. Union, Trans.*, 14th Ann. meeting, 1933; pp. 170-173, 1 fig., Nat. Research Council, June 1933.
- 3055. Canyons beneath the seas: *Sci. Monthly*, pp. 31-39, 4 figs., July 1933.
- 3056. Geological misconceptions concerning the oceans: *Science*, new ser., vol. 78, no. 2027, pp. 406-408, 1 fig., November 3, 1933.
- 3057. Canyons off the New England coast: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 157, pp. 24-36, 4 figs., January 1934; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 99, February 28, 1934.
- 3058. (and Trefethen, J. M., and Cohee, G. V.). Origin of Georges Bank: *Geol. Soc. America, Bull.*, vol. 45, no. 2, pp. 281-302, 4 figs., 3 pls., April 30, 1934; abstract, vol. 44, pt. 1, p. 100, February 28, 1933.
- 3059. (and McDonald, G. A.). Sediments of Santa Monica Bay (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, p. 317, May 1934.
- 3060. Investigations of California submarine canyons (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 107-108, June 1934.
- 3061. American submarine canyons: *Scottish Geog. Mag.*, vol. 50, no. 4, pp. 212-218, 2 figs., 2 pls., July 1934; abstract, *Assoc. Am. Geographers, Annals*, vol. 24, no. 1, pp. 67-68, March 1934.
- 3062. Detailed surveys of submarine canyons: *Science*, new ser., vol. 80, no. 2079, pp. 410-411, November 2, 1934.

Shepherd, Ernest Stanley. See Greig, 1323.

Shepherd, G. Frederick. See also Croneis, 797.

- 3063. The story of opal: *Rocks and Minerals*, vol. 8, no. 1, pp. 1-8, 1 fig., March 1933.

Sherrill, Richard Ellis.

- 3064. Symmetry of northern Appalachian foreland folds: *Jour. Geology*, vol. 42, no. 3, pp. 225-247, 4 figs., April-May 1934.

Sherzer, William Hittell.

- 3065. An interpretation of Bunsen's geyser theory: *Jour. Geology*, vol. 41, no. 5, pp. 501-512, 2 figs., July-August 1933.

Shiarella, N. W.

- 3066. Typical oil-producing structures in the Owensboro field of western Kentucky: *Kentucky, Univ., Bur. Mineral and Topog. Survey, Bull.* no. 3, 14 pp., 12 pls. (incl. structure maps), November 15, 1933.

Shideler, William Henry.

- 3067. New Cincinnati sponges (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 341-342, June 1934.
- 3068. Maysville-Richmond boundary in Kentucky (abstract): *Geol. Soc. America, Proc.*, 1933, p. 342, June 1934.
- 3069. Microfaunas of the lower Arnheim (abstract): *Geol. Soc. America, Proc.*, 1933, p. 342, June 1934.

Shimer, Hervey Woodburn.

3070. An introduction to the study of fossils (plants and animals). 496 pp., 207 figs., New York, Macmillan Co., 1933.

3071. Correlation chart of geologic formations of North America: Geol. Soc. America, Bull., vol. 45, no. 5, pp. 909-936, 5 pls., October 31, 1934; abstract, Proc., 1933, p. 108, June 1934.

Shoemaker, A. H. See Bjorge, 311.

Short, Allan M.

3072. A chemical and optical study of piedmontite from Shadow Lake, Madera County, Calif.: Am. Mineralogist, vol. 18, no. 11, pp. 493-500, 4 figs., November 1933.

Short, Maxwell Naylor.

3073. Public geological surveys and geological education (abstract): Assoc. Am. State Geologists, Jour., vol. 5, no. 2, p. 8 (\$), April 1, 1934.

Shreveport Geological Society.

3074. Ninth annual field trip [Tertiary formations of Mississippi and Alabama], 14 pp., 3 pls. (incl. maps), 1932.

3075. Tenth annual field trip, July 8 and 9, 1933, over the Oligocene and Eocene Jackson formations of Caldwell and Catahoula Parishes, La. 20 pp., 6 pls. [1933].

3076. Eleventh annual field trip; Stratigraphy and paleontological notes on the Eocene (Jackson group), Oligocene, and lower Miocene of Clarke and Wayne Counties, Miss. 52 pp., 10 pls. (incl. map) [1934]. Includes the following papers:

Howe, Henry V. Preliminary paleontologic analysis of the upper and lower Chickasawhay members of the Catahoula formation, pp. 22-28, 2 pls.

McGuirt, James. Bryozoa of the upper and lower Chickasawhay members of the Catahoula formation of Wayne County, Miss., pp. 28-31, 2 pls.

Howe, H. V. (and Hanna, M. A., and Gravel, D. W.). Fossil plates with explanations, fossils present in surface formations of Clarke and Wayne Counties, Miss., and in wells in south Mississippi, pp. 51-52, 6 pls.

Shrock, Robert Rakes. See also Malott, 2206.

3077. (and Malott, Clyde Arnett). The Kentland area of disturbed Ordovician rocks in northwestern Indiana: Jour. Geology, vol. 41, no. 4, pp. 337-370, 6 figs., 1 pl., May-June 1933.

3077a. (and Malott, Clyde Arnett). West Franklin formation of southwestern Indiana (abstract): Geol. Soc. America, Proc., 1933, pp. 363-364, June 1934.

Shropshire, Ralph F.

3078. Preparation of diatomaceous earth: Am. Micr. Soc., Trans., vol. 50, pt. 1, pp. 48-49, January 1931.

Schuler, Ellis William.

3079. (and Millican, Olin M.). Lingual deposition in the Woodbine sands along Copperas Branch, Denton County, Texas; a study in marine sedimentation: Field and Laboratory (Southern Methodist Univ.), vol. 1, no. 1, pp. 15-21, 5 figs. (incl. map), November 1932.

3080. Inspiration Point: Field and Laboratory (Southern Methodist Univ.), vol. 2, no. 1, pp. 11-14, 1 fig., November 1933.

3081. Collecting fossil elephants at Dallas, Tex.: Field and Laboratory (Southern Methodist Univ.), vol. 3, no. 1, pp. 24-29, 3 figs., November 1934.

Shull, Charles Albert.

3082. Fate of a Mississippi River island; a study in river dynamics (abstract): Geol. Soc. America, Proc., 1933, pp. 354-355, June 1934.

Shupack, Benjamin.

3083. Some Foraminifera from western Long Island and New York Harbor: Am. Mus. Novitates, no. 737, 12 pp., 10 figs., August 15, 1934.

Silvestri, A.

3084. Revisione di orbitoline nordamericane e nuova località di chapmanine: Pont. accad. sci. Nuovi Lincei, Mem., ser. 2, vol. 16, pp. 371-394, 2 pls., 1932.
3085. Bibliografia delle fusulinidi: Pont. accad. sci. Nuovi Lincei, Mem., ser. 2, vol. 17, pp. 523-554, 1933.

Simmons, Jesse. See also Root, 2807.

3086. The Homestake mine: Canadian Min. Jour., vol. 54, no. 8, pp. 299-304, 8 figs., August 1933.

Simons, W. H.

3087. Thirty-fifth annual report of the mining industry of Idaho, for the year 1933. 256 pp., illus. [1934].

Simpson, George Gaylord. See also Holmes, 1558.

3088. Hunting extinct animals in Florida: Nat. History, vol. 29, no. 5, pp. 506-518, 14 figs., September-October 1929.
3089. Tertiary land mammals of Florida: Am. Mus. Nat. History, Bull., vol. 59, art. 11, pp. 149-211, 31 figs., June 5, 1930.
3090. A new classification of mammals: Am. Mus. Nat. History, vol. 59, art. 5, pp. 259-293, March 18, 1931.
3091. *Metacheiromys* and the Edentata: Am. Mus. Nat. History, Bull., vol. 59, art. 6, pp. 295-381, April 2, 1931.
3092. Fossil Sirenia of Florida and the evolution of the Sirenia: Am. Mus. Nat. History, Bull., vol. 59, art. 8, pp. 419-503, 23 figs. (incl. map), 1 pl. (table), September 6, 1932.
3093. Mounted skeletons of *Eohippus*, *Merychippus*, and *Hesperosiren*: Am. Mus. Novitates, no. 587, 7 pp., 3 figs., December 15, 1932.
3094. Glossary and correlation charts of North American Tertiary mammal-bearing formations: Am. Mus. Nat. History, Bull., vol. 67, art. 3, pp. 79-121, 8 figs., 1933.
3095. A simplified serial sectioning technique for the study of fossils: Am. Mus. Novitates, no. 634, 6 pp., 1 fig., June 10, 1933.
3096. Critique of a new theory of mammalian dental evolution: Jour. Dental Research, vol. 13, no. 4, pp. 261-272, August 1933.
3097. The ear region and the foramina of the cynodont skull: Am. Jour. Sci., 5th ser., vol. 26, no. 153, pp. 285-294, 5 figs., September 1933.
3098. A Nevada fauna of Pleistocene type and its probable association with man: Am. Mus. Novitates, no. 667, 10 pp., 5 figs., October 23, 1933.

Simpson, Howard Edwin.

3099. Arthur Gray Leonard [1865-1932]: Science, new ser., vol. 77, p. 108, January 27, 1933.

Simpson, Paul F.

3100. The Garrett mastodon: Indiana Acad. Sci., vol. 43, pp. 154-155, 1 fig., 1934.

Sinclair, William John, 1877-1935. See Field, 1077.

Singewald, Joseph Theophilus, Jr.

3101. (and others). Mining districts of the Eastern States: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 2, Excursion A-2, 161 pp., 47 figs., 13 pls. (incl. geol. maps), 1932. Contains the following papers:

- Singewald, Joseph Theophilus, Jr. Introduction, pp. 1-6, 1 fig. (map).
 Von Bernewitz, Max Wilhelm. The Pittsburgh district, Pa., pp. 7-19, 1 fig. (map), 1 pl.
 Loughlin, Gerald Francis. Indiana oolitic limestone, pp. 30-31, 5 figs. (incl. maps), 1 pl.
 Bastin, Edson Sunderland. The fluorspar deposits of southern Illinois, pp. 32-44, 3 figs., 3 pls. (incl. geol. map).
 Buebler, Henry Andrew. The disseminated-lead district of southeastern Missouri, pp. 45-55, 1 fig. (map), 1 pl. (geol. map).
 Lake, Mack Clayton. The iron-ore deposits of Iron Mountain, Mo., pp. 56-67, 6 figs. (incl. maps).
 Steldtmann, Edward. The iron deposits of Pilot Knob, Mo., pp. 68-73, 1 fig.
 Weldman, Samuel. The Tri-State zinc-lead region, pp. 74-91, 5 figs. (incl. maps), 1 pl. (geol. map).
 Branner, George Casper. The Arkansas bauxite deposits, pp. 92-103, 5 figs., 2 pls.
 Landes, Kenneth Knight. (and Parks, Bryan, and Scheid, Vernon E.). Magnet Cove, Ark., pp. 104-112, 3 figs. (maps), 1 pl. (geol. map).
 Burchard, Ernest Francis. The Birmingham district, Ala., pp. 113-125, 3 figs., 1 pl. (geol. map).
 Crickmay, Geoffrey William. The ore deposits of the Cartersville district, Ga., pp. 126-139, 5 figs., 1 pl. (geol. map).
 Emmons, William Harvey. The Ducktown mining district, Tenn., pp. 140-151, 4 figs., 1 pl.
 Newman, Mark H. The Mascot-Jefferson City zinc district of Tennessee, pp. 152-161, 4 figs. (incl. geol. map).

3102. (and others). Genetic groups of hypogene deposits and their occurrence in the western United States: Ore deposits of the Western States (Lindgren volume), pp. 503-682, Am. Inst. Min. Met. Eng., 1933.

3103. Magmatic segregations: Ore deposits of the Western States (Lindgren volume), pp. 504-524, Am. Inst. Min. Met. Eng., 1933.

3104. Mining geology: Mining and Metallurgy, vol. 15, no. 325, pp. 8-10, January 1934.

Singewald, Quentin Dreyer. See also Henderson, 1455; Loughlin, 2104.

3105. (and Butler, Bert Sylvenus). Suggestions for prospecting in the Alma district, Colo.: Colorado Sci. Soc., Proc., vol. 13, no. 4, pp. 89-131, 7 figs., map, 1933.

Sisler, James Donaldson, 1894-1935.

3106. The mineral resources of West Virginia: West Virginia Geol. Survey, Min. ser. 1, Bull. 5, 14 pp. (†), August 1, 1931.

3107. (and Ashley, George Hall, Moyer, F. T., and Hickok, William Orville, 4th). Contributions to oil and gas geology of western Pennsylvania: Pennsylvania Geol. Survey, 4th ser., Bull. M 19, 94 pp., 22 pls., 1933.

Slawson, Chester Baker.

3108. The Jasper conglomerate, an index of drift dispersion: Jour. Geology, vol. 41, no. 5, pp. 546-552, 1 fig., July-August 1933.

3109. Sussexite from Iron County, Mich.: Am. Mineralogist, vol. 19, no. 12, pp. 575-578, December 1934; abstract, Geol. Soc. America, Proc., 1933, pp. 440-441, June 1934.

Smiser, Jerome S.

3110. A study of the echinoid fragments in the Cretaceous rocks of Texas: Jour. Paleontology, vol. 7, no. 2, pp. 123-163, 6 pls., June 1933.

Smith, Alfred Merritt. See also Fulton, 1192.

3111. The mines and mills of Silver City, Nev.: Nevada, Univ., Bull., vol. 26, no. 5, 10 figs. (incl. map), October 1, 1932.

Smith, Edward Staples Cousens.

3112. Contributions to the geology of Maine, 5; An occurrence of garnet in rhyolite: Am. Jour. Sci., 5th ser., vol. 25, no. 147, pp. 225-228, March 1933.

Smith, Ernest Rice.

3113. The physiographic features of Pine Hills Nature Study Park, Montgomery County, Ind.: Indiana Acad. Sci., Proc., vol. 42, pp. 153-161, 11 figs., 1933.

Smith, George Otis. See also Am. Inst. Min. Met. Eng., 52.

3114. Foreword: Ore deposits of the Western States (Lindgren volume), pp. ix-x, Am. Inst. Min. Met. Eng., 1933.

Smith, H. T. U. See also Bryan, 454.

3115. (and Fraser, Horace John). Loessial soil in the vicinity of Boston (abstract): Geol. Soc. America, Proc., 1933, p. 455, June 1934.

Smith, Hampton.

3116. Origin of some siliceous Miocene rocks of California (abstract): Pan-Am. Geologist, vol. 61, no. 5, pp. 376-377, June 1934.

Smith, Homer J. See Romer, 2805.

Smith, Howard Ira.

3117. Potash development in southeastern New Mexico: Am. Inst. Min. Met. Eng., Contr. no. 52, 15 pp., 5 figs., 1933.

3118. Three and a quarter centuries of the potash industry in America: Eng. and Min. Jour., vol. 134, no. 12, pp. 514-518, 4 figs., December 1933.

Smith, John Eliphalet.

3119. Ice caves (abstract): Iowa Acad. Sci., Proc. for 1932, p. 196, [1932].

3120. The Story-Hamilton artesian area (abstract): Iowa Acad. Sci., Proc. for 1932, p. 196, [1932].

3121. Pleistocene geology of central Iowa (abstract): Pan-Am. Geologist, vol. 60, no. 1, p. 75, August 1933.

3122. Geology versus geography in origin of soil material (abstract): Geol. Soc. America, Proc., 1933, p. 454, June 1934.

3123. "The Ledges" and Pennsylvanian problems in Iowa: (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 138, September 1934.

Smith, Laurence Lowe.

3124. Magnetite ores of northern New Jersey: Econ. Geology, vol. 28, no. 7, pp. 658-677, 4 figs., November 1933.

Smith, Maurice G.

3125. Some problems concerning the antiquity of man in the New World: Oklahoma Acad. Sci., Proc., 1930, vol. 10, pp. 79-82, 1930.

Smith, Philip Sidney. See also Ross, 2825.

3126. Mineral industry of Alaska in 1931 and Administrative report: U. S. Geol. Survey, Bull. 844, pp. 1-117, 3 figs., 1933.

Smith, Philip Sidney—Continued.

3127. Past placer-gold production from Alaska: U. S. Geol. Survey, Bull. 857, pp. 93-98, 1 table, 1933.
3128. The Alaskan work of the United States Geological Survey: Sci. Monthly, pp. 408-418, illus., May 1933.
3129. Mineral industry of Alaska in 1932: U. S. Geol. Survey, Bull. 857, pp. 1-91, 3 figs., 1934.
3130. Mineral industry of Alaska in 1933: U. S. Geol. Survey, Bull. 864, pp. 1-81, 3 figs., 1934.

Smith, Richard Wellington. See also Anonymous, 3829.

3131. The shales and brick clays of Georgia: Am. Ceramic Soc., Jour., vol. 16, no. 1, pp. 36-44, 5 figs., January 1933.
3132. Kyanite, vermiculite, and olivine in Georgia: Georgia, Dept. Forestry and Geol. Development, Div. Geol., Inf. Circ. no. 3, 4 pp., 4 figs., 1934.

Smith, Stanley.

3133. On *Xylodes rugosus* sp. nov., a Niagaran coral: Am. Jour. Sci., 5th ser., vol. 26, no. 155, pp. 512, 522, 1 pl., November 1933.
3134. Descriptions of two anthracolithic corals, *Waagenophyllum columbicum* sp. nov. and *Caninia* sp. from British Columbia, and of some species of *Waagenophyllum* from the Tethys (abstract): Geol. Soc. America, Proc., 1933, p. 375, June 1934.

Smith, Warren DuPré.

3135. Geology of the Oregon coast line: Pan-Am. Geologist, vol. 59, no. 1, pp. 33-44, 1 pl., relief map, February 1933; no. 2, pp. 97-114, 1 fig., 2 pls., March 1933.
3136. Special physiographic features of Oregon coast: Pan-Am. Geologist, vol. 59, no. 3, pp. 190-206, 1 fig., 1 pl., April 1933; no. 4, pp. 241-258, 2 figs., 1 pl., May 1933.
3137. Diatomaceous earth in Oregon: Econ. Geology, vol. 29, no. 6, pp. 604-605, September-October 1934.

Smith, William Sidney Tangier.

3138. Marine terraces on Santa Catalina Island: Am. Jour. Sci., 5th ser., vol. 25, no. 146, pp. 123-136, 4 figs., February 1933.

Smithe, Donald D.

3139. Origin of Pilares Pipe (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 163-164, February 28, 1933.

Smithsonian Institution.

3140. Explorations and field work of the Smithsonian Institution in 1932: Smithsonian Inst., Pub. 3213, 96 pp., 98 figs., 1933.
3141. Explorations and field work of the Smithsonian Institution in 1933: Smithsonian Inst., Pub. 3235, 59 pp., 69 figs., 1934.

Snelgrove, Alfred Kitchener.

3142. Chromite deposits of Newfoundland: Newfoundland, Dept. Nat. Res., Geol. Sec., Bull. no. 1, 14 pp. (†), 7 figs., 2 pls., 1934.
3143. (and Roebbing, F. W., III, and Kemmerer, J. L., Jr.). The Blow-me-down intrusive complex, Bay of Islands, Newfoundland: Am. Mineralogist, vol. 19, no. 1, pp. 21-23, 1 fig. (geol. sketch map), January 1934.

Snider, Luther Crocker.

3144. Origin and evolution of petroleum; foreword: Problems of petroleum geology (Sidney Powers memorial volume), pp. 25-26, Am. Assoc. Petroleum Geologists, 1934.

3145. Current ideas regarding source beds for petroleum: Problems of petroleum geology (Sidney Powers memorial volume), pp. 51-66, Am. Assoc. Petroleum Geologists, 1934.

Snyder, Thomas E.

3146. Notes on fossil termites with particular reference to Florissant, Colo.: Biol. Soc. Washington, Proc., vol. 38, pp. 148-166, 1 pl., November 13, 1925.

Soboleff, N. D.

3147. (and Tatarinoff, M. V.). The cause of brittleness in chrysotile asbestos: Econ. Geology, vol. 28, no. 2, pp. 171-177, March-April 1933.

Sohlberg, Rudolph G.

3148. Cinnabar and associated minerals from Pike County, Ark.: Am. Mineralogist, vol. 18, no. 1, pp. 1-8, 8 figs., January 1933.

3149. Petrographic study of quicksilver ores and associated minerals from Pike County, Ark. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 158-159, February 28, 1933.

Soller, Walter.

3150. Logical symbols for point symmetry: Am. Mineralogy, vol. 19, no. 9, pp. 412-420, 3 figs., September 1934.

Sonder, Richard A. See Burri, 497, 498.

Soper, Edgar Kirke.

3151. (and Grant, Ulysses Simpson, IV). Geology and paleontology of a portion of the metropolitan district of Los Angeles, Calif. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 148-149, February 28, 1933.

3152. (and Grant, Ulysses Simpson, IV). Stratigraphy of western Santa Monica Mountains (abstract): Pan-Am. Geologist, vol. 61, no. 4, p. 308, May 1934.

Soyster, Hale Bryan.

3153. (and others). Review of the petroleum industry in the United States, April, 1934: U. S. Geol. Survey, Circ. 11, 50 pp. (†), 1934.

Sparks, Neil R. See also Byerly, 520, 521, 522.

Spath, Leonard Frank.

3154. The invertebrate faunas of the Bathonian-Callovian deposits of Jame-son Land (east Greenland): Meddelelser om Grönland, vol. 87, Nr. 7, 158 pp., 14 figs., 26 pls., 1932.

Spence, Hugh Swaine.

3155. Bentonite: Canada, Dept. Mines, Mines Branch, no. 626, 36 pp., 2 figs. (incl. sketch map), 9 pls., 1924.

Spencer, Leonard James.

3156. Meteorite craters as topographical features on the earth's surface: Geog. Jour., vol. 81, no. 3, pp. 227-248, 3 figs., 4 pls., March 1933.

3157. George Frederick Kunz [1856-1932]: Geol. Soc. London, Quart. Jour., no. 355, vol. 89, pt. 3, p. xcvi, August 25, 1933.

Spieker, Edmund Maute.

3158. Stratigraphic relations of the Wasatch formation, central Utah (abstract) : *Geol. Soc. America, Proc.*, 1933, pp. 108-109, June 1934.

Spitaler, Rudolph.

3159. Ueber die Erdbeben in Kalifornien: *Gerlands Beitr. Geophysik.*, Band 42, Heft 2-3, pp. 321-328, 1934.

Sprunk, George C. See also Fieldner, 1084.

3160. (and Thiessen, Reinhard). Spores of certain American coals: *Fuel*, vol. 11, no. 10, pp. 360-370, 12 figs., October 1932.

Squires, Henry Dayton.

3161. Strike-slip faulting in the Acadian Appalachians: *Wisconsin, Acad. Sci., Trans.*, vol. 28, pp. 153-170, 4 figs., 1933.

Stadnichenko, Taisia Maximovna.

3162. Experimental studies bearing on origin of petroleum (abstract) : *Pan-Am. Geologist*, vol. 62, no. 2, p. 146, September 1934.
3163. Progressive regional metamorphism of the Lower Kittanning coal bed of western Pennsylvania: *Econ. Geology*, vol. 29, no. 6, pp. 511-543, 10 figs. (incl. map), September-October 1934.

Stagner, Howard Ralph.

3164. The geology of the Carter Lake area, Colo.: *Colorado, Univ., Studies*, vol. 21, no. 1 (*Colorado, Univ., Bull.*, vol. 33, no. 16), p. 76, November 1933.
3165. Échelon structures in the Carter Lake area (abstract) : *Colorado-Wyoming Acad. Sci., Jour.*, vol. 1, no. 6, p. 33, June 1934.

Stalder, Walter.

3166. Gas on Marysville Buttes, Sutter County, Calif.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 4, p. 443, April 1933.

Staley, William L.

3167. Life processes. 356 pp., 119 figs., 2 pls., New York, printed for the author, 1934.

Stamey, R. A. See Judson, 1737.

Standley, Paul Carpenter.

3168. Edward M. Shepard, 1854-1934: *Science*, new ser., vol. 79, no. 2061, p. 582, June 29, 1934.

Stanley, George M.

3169. Pleistocene potholes in the Cloche Mountains of Ontario: *Michigan Acad. Sci., Papers*, vol. 19, pp. 401-412, 2 figs., 3 pls., 1934.

Stansfield, J. See Cockfield, 684.

Stanton, Timothy William. See also Ashley, 92.

3170. The evolution of the geologic map of the United States (abstract) : *Washington Acad. Sci., Jour.*, vol. 23, no. 10, p. 485, October 15, 1934.

Stanton, W. Layton, jr.

3171. Structure of a portion of the southern Santa Lucia Range (abstract) : *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 147-148, February 28, 1933.

Stark, John Thomas.

3172. Heavy minerals in the Tertiary intrusives of central Colorado: *Am. Mineralogist*, vol. 19, no. 12, pp. 586-592, 1 fig. (map), December 1934.
3173. Reverse faulting in the Sawatch Range: *Geol. Soc. America, Bull.*, vol. 46, no. 6, pp. 1001-1016, 6 figs. (maps), December 31, 1934; abstract, *Proc.*, 1933, p. 109, June 1934.

Starliper, Aaron. See Crawford, 772, 776.

Staub, Walther.

3174. Die Strasse von Florida, ein ertrunkenes Flusstal: *Gesell. Erdkunde Berlin, Zeitschr.*, Heft 5-6, pp. 216-218, August 1933.

Stauffer, Clinton Raymond. See also Thiel, 3355.

3175. (and Thiel, George Alfred). The limestones and marls of Minnesota; part 1, The limestones and dolomites of Minnesota, by Clinton R. Stauffer; part 2, The marls of Minnesota, by George A. Thiel: *Minnesota Geol. Survey, Bull.* 23, 193 pp., 93 figs. (incl. maps), 1933.
3176. Middle Ordovician Polychaeta from Minnesota: *Geol. Soc. America, Bull.*, vol. 44, no. 6, pp. 1173-1218, 3 pls., December 31, 1933: abstract, vol. 44, pt. 1, p. 192, February 28, 1933.
3177. Type Paleozoic sections in the Minnesota Valley: *Jour. Geology*, vol. 42, no. 4, pp. 337-357, May-June 1934.
3178. (and Thiel, George Alfred). Jordan-Oneota contact along the Minnesota River (abstract): *Geol. Soc. America, Proc.*, 1933, p. 109, June 1934.
3179. Conodont fauna of the Decorah shale (abstract): *Geol. Soc. America, Proc.*, 1933, p. 341, June 1934.

Steane, Harold A. See Ravitz, 2701.

Stearn, Noel Hudson.

3180. Mining and furnacing quicksilver ore [Arkansas]: *Eng. and Min. Jour.*, vol. 134, no. 1, pp. 22-24, 3 figs. (incl. maps), January 1933.
3181. Structure from sedimentation at Parnell Hill quicksilver mine, Arkansas: *Econ. Geology*, vol. 29, no. 2, pp. 146-156, 3 figs., March-April 1934.

Stearns, Harold Thornton. See also Jones, 1720, 1721.

3182. Volcanoes of Hawaii and the Pacific: *Mid-Pacific Mag.*, vol. 29, no. 5, pp. 748-755, 8 figs., May 1925.
3183. Geology of Yellowstone National Park: *Mid-Pacific Mag.*, vol. 44, no. 4, pp. 360-364, 4 figs., April 1932.
3184. The building of Oahu: *Mid-Pacific Mag.*, vol. 47, no. 3, pp. 202-210, 6 figs., March 1934.
3185. Future ground-water supplies for Honolulu, Hawaii: *U. S. Geol. Survey, Press Mem.*, 20 pp., 1 pl., March 21, 1934.

Stearns, Margaret Dorothy.

3186. The petrology of the Marshall formation of Michigan: *Jour. Sedimentary Petrology*, vol. 3, no. 3, pp. 99-112, 1 fig., geol. map, December 1933.

Stearns, Norah Dowell.

3187. A remarkable intermittent spring [Afton, Wyo.]: *Mid-Pacific Mag.*, vol. 45, no. 3, pp. 216-218, 2 figs., March 1933.

Steckschulte, Victor C.

- 3188. Geographical distribution of deep-focus earthquakes: *Am. Geophys. Union, Trans.*, 14th Ann. Meeting, 1933, pp. 311-312, Nat. Research Council, June 1933; *Seismol. Soc. America, Eastern Sec., Earthquake Notes*, vol. 5, nos. 1, 2, June 1933.
- 3189. Deep-focus earthquakes and allied problems (abstract): *Seismol. Soc. America, Eastern Sec., Earthquake Notes*, vol. 6, no. 1-2, p. 11 (†), September 1934.

Steen, Margaret C.

- 3190. The British Museum collection of Amphibia from the middle coal measures of Linton, Ohio: *Zool. Soc. London, Proc.*, pt. 4, pp. 849-891, 21 figs., 6 pls., January 1931.
- 3191. The amphibian fauna from the South Joggins, Nova Scotia: *Zool. Soc. London, Proc.*, pt. 3, pp. 465-504, 27 figs., 5 pls., September 1934.

Steidtmann, Edward. See also Singewald, 3101.

- 3192. (and Young, W. F.). An unusual epidote in the Fredericksburg granite gneiss (abstract): *Virginia Acad. Sci., Proc.*, 1932-33, pp. 52-53, [1933].
- 3193. Travertine deposits near Lexington, Va.: *Science*, new ser., vol. 80, no. 2068, pp. 162-163, August 17, 1934; abstract, *Virginia Acad. Sci., Proc.*, 1933-34, p. 56, 1934.

Steidtmann, Waldo Edward.

- 3194. Cordaitan wood from the Pennsylvanian of Kansas: *Am. Jour. Botany*, vol. 21, no. 7, pp. 396-401, 5 figs., July 1934.

Steinmayer, Reinhard August.

- 3195. Salt-dome possibilities: Louisiana, Dept. Conservation, *Bull.* no. 22 (General Bull., Handbook, Minerals Div.), pp. 17-30, 6 figs., 1933.

Stensiö, Erik A: son.

- 3196. Triassic fishes from east Greenland: *Meddelelser om Grönland*, Band 83, Nr. 3; Copenhagen, Univ., Mus. minéralogie et géologie, Comm. paléont., no. 43, 305 pp., 94 figs., 39 pls. (in atlas), 1932.
- 3197. On the placodermi of the Upper Devonian of east Greenland, 1, Phyllolepidia and Arthrodira: *Meddelelser om Grönland*, Band 97, Nr. 1, 58 pp., 26 figs., 25 pls., 1934.

Stenzel, Henryk Bronislaw.

- 3198. Genus *Buccitriton* as subsurface guide fossil (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, p. 239, April 1933.
- 3199. Structural study of a phacolith (abstract): *Pan-Am. Geologist*, vol. 60, no. 2, pp. 153-154, September 1933.
- 3200. Decapod crustaceans from the middle Eocene of Texas: *Jour. Paleontology*, vol. 8, no. 1, pp. 38-56, 2 pls., March 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 370, June 1934.
- 3201. *Aturians* from the Eocene of Texas (abstract): *Geol. Soc. America, Proc.* 1933, p. 378, June 1934.

Stephens, Maynard M.

- 3202. Photography for the mineralogist: *Am. Mineralogist*, vol. 18, no. 6, pp. 248-254, 4 figs., June 1933.

Stephenson, Lloyd William. See also Woodworth, 3779.

- 3203. (and Cooke, Charles Wythe, and Mansfield, Wendell Clay). Chesapeake Bay region: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 5, Excursion A-5, 49 pp., 11 figs. (incl. sketch map), 9 pls. (incl. geol. map), 1932.
- 3204. The zone of *Exogyra cancellata* traced 2,500 miles: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 11, pp. 1351-1361, 1 fig. (map), November 1933.
- 3205. The preservation of type specimens: Jour. Paleontology, vol. 7, no. 4, pp. 442-443, December 1933.
- 3206. The genus *Diploschiza* from the Upper Cretaceous of Alabama and Texas: Jour. Paleontology, vol. 8, no. 3, pp. 273-280, 1 pl., September 1934; abstract, Geol. Soc. America, Proc., 1933, pp. 373-374, June 1934.

Sternberg, Charles M.

- 3207. Relationships and habitat of *Troodon* and the nodosaurs: Annals and Mag. Nat. History, 10th ser., vol. 11, pp. 231-235, February 1933.
- 3208. Prehistoric footprints in Peace River: Canadian Geog. Jour., vol. 6, no. 2, pp. 92-102, 12 figs., February 1933.
- 3209. A new *Ornithomimus* with complete abdominal cuirass: Canadian Field Naturalist, vol. 47, no. 5, pp. 79-83, 3 figs., May 1933.
- 3210. Carboniferous tracks from Nova Scotia: Geol. Soc. America, Bull., vol. 44, no. 5, pp. 951-964, 1 fig., 3 pls., October 31, 1933; abstract, pt. 1, p. 198, February 28, 1933.

Stetson, Henry C. See also Barbour, 189.

- 3211. Report on vertebrate paleontology: Harvard Coll., Mus. Comp. Zoology, Ann. Rept., 1932-33, pp. 39-41, 1933.
- 3212. Sediments of the continental shelf off the northeastern United States (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 206-207, February 28, 1933.
- 3213. Report on vertebrate paleontology: Harvard Coll., Mus. Comp. Zoology, Ann. Rept., 1933-34, pp. 42-43, 1934.
- 3214. The origin and limits of a zone of rounded quartz sand off the southern New England coast: Jour. Sedimentary Petrology, vol. 4, no. 3, pp. 152-153, December 1934.

Stevens, George D. See Goldston, 1271.

Stevens, Rollin Elbert. See Chapman, 632.

- 3215. The alteration of pyrite to pyrrhotite by alkali sulphide solutions: Econ. Geology, vol. 28, no. 1, pp. 1-19, January-February 1933.
- 3216. Studies on the alkalinity of some silicate minerals: U. S. Geol. Survey, Prof. Paper 185, pp. 1-13, 1 fig., 1934.

Stevenson, John S.

- 3217. Veinlike masses of pyrrhotite in chalcopyrite from the Waite-Ackerman-Montgomery mine, Quebec: Am. Mineralogist, vol. 18, no. 10, pp. 445-449, 3 figs., October 1933.

Stewart, Grace Anne.

- 3218. A new pelecypod from the Silica shale, Devonian, of Ohio: Jour. Paleontology, vol. 7, no. 2, pp. 178-180, June 1933.
- 3219. A phyllocarid crustacean from the Devonian rocks of Ohio: Am. Midland Naturalist, vol. 14, no. 4, pp. 363-366, 2 figs., July 1933.

Stewart, James Smith.

3220. Report on the Scotsburn anticline, Nova Scotia: Nova Scotia, Dept. Public Works and Mines, Ann. Rept. on Mines, 1931, pt. 2, pp. 35-39, 1932.

Stewart, Katherine C. See Stewart, R. E., 3221.

Stewart, Roscoe Emerson.

3221. (and Stewart, Katherine C.). Notes on the Foraminifera of the type Merced at Sevenmile Beach, San Mateo County, Calif.: San Diego Soc. Nat. History, Trans., vol. 7, no. 21, pp. 259-272, 2 pls., March 31, 1933.

Stille, Hans.

3222. Tectonic relations between North America and Europe: Pan-Am. Geologist, vol. 61, no. 1, pp. 1-18, 2 figs. (maps), February 1934; abstract, Pan-Am. Geologist, vol. 60, no. 5, p. 380, December 1933.

Stipp, T. F.

3223. (and Tolman, F. B.). Eocene stratigraphy on north side of Simi Valley (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 79, August 1934.

Stirton, Ruben Arthur. See also Teilhard de Chardin, 3331.

3224. (and Vanderhoof, Vertress Lawrence). *Osteoborus*, a new genus of dogs, and its relations to *Borophagus* Cope: California, Univ., Dept. Geol. Sci., Bull., vol. 23, no. 4, pp. 175-182, 3 figs., 1933.

3225. Critical review of the Mint Canyon mammalian fauna and its relative significance: Am. Jour. Sci., 5th ser., vol. 26, no. 156, pp. 569-573, December 1933; abstract, Pan-Am. Geologist, vol. 59, no. 5, p. 377, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 392, June 1934.

3226. Phylogeny of North American Miocene and Pliocene Equidae (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 68, August 1934.

Stočes, Bohuslav.

3227. Paragenesis as an aid in valuing new discoveries: Econ. Geology, vol. 28, no. 8, pp. 778-779, December 1933.

3228. How to determine probable changes in primary mineralization with increasing depth: Econ. Geology, vol. 29, no. 1, pp. 93-95, January-February 1934.

Stock, Chester. See also Gale, 1199; Merriam, 2292, 2293.

3229. Fossil elephant skull unearthed on the Newlands project, Nevada: New Reclamation Era, vol. 22, no. 11, p. 252, 1 fig., November 1931.

3230. *Hyaenognathus* from the late Pleistocene of the Coso Mountains, Calif.: Jour. Mammalogy, vol. 13, no. 3, pp. 263-266, 1 pl., August 1932; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 218, February 28, 1933.

3231. (and Hall, Raymond E.). The Asiatic genus *Eomellivora* in the Pliocene of California: Jour. Mammalogy, vol. 14, no. 1, pp. 63-65, 1 pl., February 1933.

3232. Upper Eocene mammals from the Sespe, north of the Simi Valley, Calif. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 158, February 28, 1933.

3233. Upper Oligocene mammalian fauna from the Sespe of the Las Posas Hills, Calif. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 158, February 28, 1933.

Stock, Chester—Continued.

3234. *Hyaenodontidae* of the upper Eocene of California: Nat. Acad. Sci., Proc., vol. 19, no. 4, pp. 434-440, 2 figs., 1 pl., April 15, 1933.
 3235. A miacid from the Sespe upper Eocene, California: Nat. Acad. Sci., Proc., vol. 19, no. 5, pp. 481-486, 1 pl., May 15, 1933; abstract, Pan-Am. Geologist, vol. 59, no. 4, p. 304, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 302, June 1934.
 3236. An amynodont skull from the Sespe deposits, California: Nat. Acad. Sci., Proc., vol. 19, no. 8, pp. 762-767, 1 fig., August 15, 1933.
 3237. *Perissodactyla* from the Sespe of the Las Posas Hills, Calif.: Carnegie Inst. Washington, Pub. 440, Contr. Paleontology, pp. 15-28, 4 pls., November 1933.
 3238. Carnivora from the Sespe of the Las Posas Hills, California: Carnegie Inst. Washington, Pub. 440, Contr. Paleontology, pp. 29-42, 3 pls., November 1933; abstract, Geol. Soc. America, Bull., vol. 44, pt. 1, p. 199, February 28, 1933.
 3239. An Eocene primate from California: Nat. Acad. Sci., Proc., vol. 19, no. 11, pp. 954-959, 8 figs., November 1933.
 3240. Antiquity of man in Southwest in light of recent cave explorations in New Mexico and Nevada (abstract): Pan-Am. Geologist, vol. 60, no. 5, p. 377, December 1933.
 3241. Eocene primates from California (abstract): Science, new ser., vol. 78, no. 2032, p. 524, December 8, 1933.
 3242. A second Eocene primate from California: Nat. Acad. Sci., Proc., vol. 20, no. 3, pp. 150-154, 3 figs., March 1934.
 3243. Eocene vertebrate faunas from Sespe, north of Simi Valley (abstract): Pan-Am. Geologist, vol. 61, no. 5, p. 375, June 1934; vol. 62, no. 1, pp. 79-80, August 1934.
 3244. *Microsopsinae* and *Hyopsodontidae* in the Sespe upper Eocene, California: Nat. Acad. Sci., Proc., vol. 20, no. 6, pp. 349-354, 12 figs., June 1934.
 3245. New *Creodontia* from the Sespe upper Eocene, California: Nat. Acad. Sci., Proc., vol. 20, no. 7, pp. 423-427, 1 pl., July 1934.
 3246. On the occurrence of an oreodont skeleton in the Sespe of South Mountain, Calif.: Nat. Acad. Sci., Proc., vol. 20, no. 9, pp. 518-523, 5 figs. (incl. map), September 1934.
 3247. A hypertragulid from the Sespe uppermost Eocene, California: Nat. Acad. Sci., Proc., vol. 20, no. 12, pp. 625-629, 5 figs., December 1934.
 3248. Skull and dentition of the American Miocene cat, *Pseudaelurus*: Geol. Soc. America, Bull., vol. 45, no. 6, pp. 1051-1058, 2 pls., December 31, 1934; abstract, Proc., 1933, p. 391, June 1934; abstract, Pan-Am. Geologist, vol. 59, no. 5, p. 276, June 1933.
- Stockwell, Clifford Howard. See also Wright, 3797, 3799, 3800.
3249. Great Slave Lake-Coppermine River area, Northwest Territories: Canada, Geol. Survey, Summary Rept., 1932, pt. C, pp. 37-63, 1 fig. (map), 2 pls., 1933. (No. 2332.)
 3250. Genesis of a lithium pegmatite on the Bear mineral claim, southeast Manitoba: Royal Soc. Canada, Trans., 3d ser., vol. 27, sec. 4, pp. 27-36, May 1933.
 3251. The genesis of pegmatites of southeast Manitoba: Royal Soc. Canada, Trans., 3d ser., vol. 27, sec. 4, pp. 37-51, May 1933.

Störmer, Leif.

3252. Are the trilobites related to the arachnids?: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 152, pp. 147-157, 2 figs., August 1933.

Stolte, N. H. See Fabianic, 1038.

Stollman, A. See Hawkins, 1422.

Stone, John B.

3253. Limonite deposits at the Orient mine, Colorado: *Econ. Geology*, vol. 29, no. 4, pp. 317-329, 1 fig., June-July 1934.

Stone, Ralph Walter.

3254. Applied geology: *Pennsylvania Acad. Sci., Proc.*, vol. 7, pp. 88-92, 1933.

3255. No meteorite: *Science*, new ser., vol. 77, p. 87, January 20, 1933.

3256. Meteorites in Pennsylvania: *Pennsylvania Acad. Sci., Proc.*, vol. 8, pp. 124-126, 1934.

Stookey, Stephen Wharton.

3257. New data on the Upper Devonian of Iowa: *Iowa Acad. Sci., Proc.*, 1932, vol. 39, pp. 183-191, [1932].

3258. Status of the Devonian beds at Middle Amana (abstract): *Iowa Acad. Sci., Proc.*, 1933, vol. 40, pp. 133-134, [1933?]; abstract, *Pan-Am. Geologist*, vol. 60, no. 1, p. 78, August 1933.

Stose, George Willis. See also Ashley, 92; Bevan, 296; Butts, 513; Hall, 1370.

3259. (assisted by Ljungstedt, Olof Axel). Geologic map of the United States, scale 1:2,500,000, U. S. Geol. Survey, 1932.

3260. (and Jonas, Anna Isabel, and Ashley, George Hall). Southern Pennsylvania and Maryland: *Internat. Geol. Cong., XVI, United States, Guidebook 10, Excursions B-1, B-2*, pp. 1-26, 3 figs., 11 pls. (incl. geol. map), 1932.

3261. (and Jonas, Anna Isabel). Geology and mineral resources of the Middletown quadrangle, Pennsylvania: U. S. Geol. Survey, Bull. 840, 86 pp., 16 figs., 15 pls. (incl. maps), 1933.

3262. Geology of the Appalachian Trail between the Susquehanna River and the Virginia-Tennessee line: *Guide to paths in the Blue Ridge, the Appalachian Trail, and side trails*, pp. 337-369, 13 figs., Washington, D. C., Potomac Appalachian Trail Club, 1934.

Stout, Wilber Elihu. See also Carman, 581.

3263. (and Lamborn, Raymond Ellwood, and Schaaf, Downs). Brines of Ohio: *Ohio Geol. Survey, Bull.*, 4th ser., no. 37, 123 pp., 1 fig., map, 1932.

3264. Geology of the Lake Erie shore: *Shore and Beach*, vol. 1, no. 3, pp. 70-77, October 1933.

3265. (and Lamborn, Raymond Ellwood). Underground waters of Ohio: *Ohio State Univ., Eng. Exper. Sta. News*, vol. 6, no. 1, pt. 1, pp. 15-20, February 1934.

Stovall, John Willis. See also Jones, 1722.

3266. (and Johnston, C. Stuart). *Tapirus haysii* of Oklahoma: *Am. Midland Naturalist*, vol. 15, no. 1, pp. 92-93, 1 fig., January 1934.

3267. (and Johnston, C. Stuart). Hypertrophy in the jaw of an Oklahoma proboscidean: *Am. Midland Naturalist*, vol. 15, no. 5, pp. 622-624, 3 figs., September 1934.

Stow, Marcellus Henry.

3268. Contributions to the petrography of the Oriskany sandstone (abstract): Virginia Acad. Sci., Proc., 1932-33, p. 52, [1933].

3269. A preliminary study of the insoluble residues of some Canadian and Ordovician limestones near Lexington (abstract): Virginia Acad. Sci., Proc., 1933-34, p. 56, 1934.

Strahov, N. M.

3270. Schuchert's tectonic ideas: Soc. naturalistes Moscou, Bull., Sec. géol., t. 9 (1-2), pp. 9-20, 1 fig., 1931. (In Russian.)

Straley, Harrison Wilson, III.

3271. Some notes on the nomenclature of faults: Jour. Geology, vol. 42, no. 7, pp. 756-763, 4 figs., October-November 1934.

Straub, Lorenz George.

3272. On dynamics of streams: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 379-388, Nat. Research Council, June 1933.

3273. Report of the Committee on Dynamics of Streams, 1933-34; with appendix by Gerard H. Matthes, Report of the Subcommittee on Nomenclature: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 320-322, Nat. Research Council, June 1934.

3274. Effect of channel-contraction works upon regimen of movable-bed streams: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 454-463, 7 figs., Nat. Research Council, June 1934.

Stringfield, Victor Timothy.

3275. Ground-water resources of Sarasota County: Florida State Geol. Survey, 23d-24th Ann. Rept., pp. 121-194, 22 figs., 4 pls., 1 table, 1933.

3276. Exploration of artesian wells in Sarasota County: Florida State Geol. Survey, 23d-24th Ann. Rept., pp. 199-227, 2 tables, 1933.

3277. Ground-water investigations in Florida: Florida State Geol. Survey, Bull. no. 11, 33 pp., April 10, 1933.

Strock, Lester William.

3278. A study of the Pensauken formation: Wagner Free Inst. Sci., Bull., vol. 4, nos. 1, 2, 10 pp., 2 figs., February-April, 1929.

Strong, A. M. See Grant, 1300, 1301.

Strzygowski, Walter.

3279. Zur Morphologie der Rocky Mountains: Geog. Gesell. Wien. Mitt., Band 76, no. 7-9, pp. 205-223, 5 figs. (incl. geol. maps), 2 pls., 1933.

Stuckey, Jasper Leonidas.

3280. (and Davis, Harry Towles). Barite deposits in North Carolina: Am. Inst. Min. Met. Eng., Contr. no. 19, 9 pp., 4 figs., February 1933.

3281. (and Fontaine, James). Occurrence and physical properties of North Carolina marble: North Carolina Univ., Eng. Exper. Sta., Bull. no. 5 (State Coll. Record, vol. 33, no. 5), 24 pp., May 1933; reprinted in Stone, vol. 54, no. 9, pp. 414-417, September 1933; no. 10, pp. 465-467, October 1933.

Sundius, N.

3282. The grünerite from Mount Humboldt, Mich.: Geol. fören. Stockholm, Förh., Band 56, Heft 1, no. 396, pp. 98-100, January-February 1934.

Sutton, Arle Herbert.

3283. Stratigraphy of the Okaw in southwestern Illinois: Jour. Geology, vol. 42, no. 6, pp. 621-629, 2 figs., August-September 1934.

3284. Evolution of *Pterotocrinus* in the Eastern Interior basin during the Chester epoch: Jour. Paleontology, vol. 8, no. 4, pp. 393-416, 2 pls., December 1934; abstract, Illinois State Acad. Sci., Trans., vol. 25, no. 4, p. 152, June 1934; abstract, Geol. Soc. America, Proc., 1933, p. 370, June 1934.

Swanson, Clarence Otto. See also Hotchkiss, 1563.

3285. Use of magnetic data in Michigan iron ranges (with discussion): Am. Inst. Min. Met. Eng., Trans., vol. 110, Geophysical Prospecting, pp. 290-312, 10 figs., 1934.

Swartz, Frank McKim.

3286. Dimorphism and orientation in ostracodes of the family Kloedenellidae from the Silurian of Pennsylvania: Jour. Paleontology, vol. 7, no. 3, pp. 231-260, 3 pls., September 1933.

3287. Silurian sections near Mount Union, central Pennsylvania: Geol. Soc. America, Bull., vol. 45, no. 1, pp. 81-134, 5 figs., February 28, 1934; abstract, vol. 44, pt. 1, p. 101, February 28, 1933.

3288. Relations of Silurian McKenzie and Rochester formations at Cumberland, Md., and Lakemont, Pa. (abstract): Geol. Soc. America, Proc., 1933, p. 344, June 1934.

Swartzlow, Carl R.

3289. Note on the alteration of galena to anglesite, to cerussite: Am. Mineralogist, vol. 18, no. 4, pp. 174-175, April 1933.

3290. Dolomitization and origin of granularity in Chouteau limestone: Pan-Am. Geologist, vol. 59, no. 4, pp. 273-282; no. 5, pp. 328-340, 2 pls., May and June, 1933.

3291. Further evidence for secondary oolites: Jour. Sedimentary Petrology, vol. 4, no. 1, pp. 47-48, April 1934.

3292. Two-dimensional dendrites and their origin: Am. Mineralogist, vol. 19, no. 9, pp. 403-411, 5 figs., September 1934; abstract, Geol. Soc. America, Proc., 1933, p. 441, June 1934.

Swayze, L. Helene.

3293. Ordinal classification of the Bryozoa: Micropaleontology Bull., vol. 4, no. 1, pp. 23-43, (†), 4 figs., 1 pl., March 15, 1933.

Sweeny, Alma R. See Voskuil, 3522, 3523.

Swinnerton, A. A.

3294. Report on oil shales from New Glasgow area, Pictou County, Nova Scotia, and from Port Daniel, Bonaventure County, Quebec: Canada, Dept. Mines, Mines Branch, Investigation of Fuels . . . , pp. 136-148, 2 figs., 1933. (Pub. no. 725.)

Sykes, Godfrey.

3295. [Study of the delta of the Colorado River]: Carnegie Inst. Washington, Year Book no. 32, pp. 351-353, 1933.

Taber, Stephen.

3296. The location of earthquake epicenters: Science, new ser., vol. 78, no. 2022, p. 283, September 29, 1933.

Taber, Stephen—Continued.

3297. Sierra Maestra of Cuba, part of the northern rim of the Bartlett Trough: Geol. Soc. America, Bull., vol. 45, no. 4, pp. 567-620, 4 figs., 29 pls. (incl. maps), August 31, 1934; abstract, vol. 44, pt. 1, p. 101, February 28, 1933.

Taff, Joseph Alexander.

3298. Geology of McKittrick oil field and vicinity, Kern County, California (discussion by Condit, Daniel Dale): Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 1, pp. 1-15, 1 fig. (geol. map), January 1933.
3299. Physical properties of petroleum in California: Problems of petroleum geology (Sidney Powers memorial volume), pp. 177-234, 1 fig. (map), Am. Assoc. Petroleum Geologists, 1934.

Taliaferro, Nicholas Lloyd.

3300. (and Schenck, Hubert Gregory). *Lepidocyclina* in California: Am. Jour. Sci., 5th ser., vol. 25, no. 145, pp. 74-80, 4 figs., January 1933.
3301. An occurrence of Upper Cretaceous sediments in northern Sonora, Mexico: Jour. Geology, vol. 41, no. 1, pp. 12-37, 6 figs., 1 pl. (geol. map), January-February 1933.
3302. Bedrock complex of the Sierra Nevada, west of the southern end of the Mother Lode (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 149-150, February 28, 1933.
3303. Oligocene sediments of the Yakataga-Controller Bay region, Alaska (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 167-168, February 28, 1933.
3304. The relation of volcanism to diatomaceous and associated siliceous sediments: California, Univ., Dept. Geol. Sci., Bull., vol. 23, no. 1, pp. 1-56, March 25, 1933.
3305. Contraction phenomena in cherts: Geol. Soc. America, Bull., vol. 45, no. 2, pp. 189-232, 2 figs., 14 pls., April 30, 1934; abstract, Pan-Am. Geologist, vol. 59, no. 4, pp. 305-306, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 303, June 1934.

Talmage, Sterling B.

3306. Source and growth of the white sands of New Mexico (abstract): Pan-Am. Geologist, vol. 60, no. 4, p. 304, November 1933.
3307. Scarps in Tularosa Valley, N. Mex.: Science, new ser., vol. 79, no. 1043, pp. 181-183, February 23, 1934.

Tansley, Wilfred.

3308. (and Schafer, Paul A., and Hart, Lyman H.). A geological reconnaissance of the Tobacco Root Mountains, Madison County, Mont.: Montana, Bur. Mines and Geology, Mem. no. 9, 57 pp. (†), 22 figs., 5 pls., June 1933.

Tanton, Thomas Leslie. See also Canada G. S., 568, 573.

3309. Ontario, Kenora sheet. Map 266A, Scale 1:506,880 or 1 inch to 8 miles. Canada Geol. Survey, Pub. no. 2270, 1933.

Tarr, Russell S.

3310. An explanation for large amounts of gas in Anderson and Leon Counties, Tex.: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 2, pp. 263-265, February 1934.
3311. Origin of Bartlesville shoes ring sands, Greenwood and Butler Counties, Kans.: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 12, pp. 1710-1712, December 1934.

Tarr, William Arthur.

- 3312. The origin of the sand barites of the lower Permian of Oklahoma: *Am. Mineralogist*, vol. 18, no. 6, pp. 260-272, 6 figs., June 1933.
- 3313. The Miami-Picher zinc-lead district: *Econ. Geology*, vol. 28, no. 5, pp. 463-479, August 1933.
- 3314. (and Keller, W. D.). A post-Devonian igneous intrusion in southeastern Missouri: *Jour. Geology*, vol. 41, no. 8, pp. 815-823, November-December 1933.
- 3315. (and Bryan, Joseph J.). A hydrothermal deposit in Wayne County, Missouri: *Econ. Geology*, vol. 29, no. 1, pp. 84-92, 5 figs., January-February 1934.
- 3316. Origin of concretions in the Champlain formation of the Connecticut Valley (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 109-110, June 1934.
- 3317. Study of the linnaeite group of sulphides (abstract): *Geol. Soc. America, Proc.*, 1933, p. 440, June 1934.
- 3318. The Miami-Picher zinc-lead district: *Econ. Geology*, vol. 29, no. 8, pp. 779-780, December 1934.

Tatarinoff, M. V. See Soboleff, 3147.

Taylor, Edward. See Woodford, 3773.

Taylor, Frank Bursley. See also Newland, 2476.

- 3319. Moraines north of Toronto: Ontario Dept. Mines, 41st Ann. Rept. (vol. 41, pt. 7), 1932, pp. 56-60, 3 figs., 1933.
- 3320. Present status of astronomical forces in geology (abstract): *Geol. Soc. America, Proc.*, 1933, p. 110, June 1934.

Taylor, G. L.

- 3321. (and Georgesén, N. C.). Disaggregation of clastic rocks by use of a pressure chamber: *Jour. Sedimentary Petrology*, vol. 3, no. 1, pp. 40-43, 1 fig., April 1933.
- 3322. A centrifuge tube for heavy mineral separations: *Jour. Sedimentary Petrology*, vol. 3, no. 1, pp. 45-46, April 1933.

Taylor, Garvin. See Kansas Geol. Soc., 1747.

Taylor, George F.

- 3323. Scarp ramp in northern Owens Valley (abstract): *Pan-Am. Geologist*, vol. 59, no. 4, pp. 311-312, May 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 309, June 1934.

Taylor, George H. See also Leggette, 2032.

- 3324. Some meteorological fluctuations of ground-water levels (abstract): *Am. Meteorological Soc., Bull.*, vol. 14, no. 12, pp. 288-289, December 1933.

Teagle, John. See Ellisor, 1013.

Teas, Livingston Pierson. See also Wrather, 3787.

- 3325. (and Miller, Charis R.). Raccoon Bend oil field, Austin County, Tex.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 17, no. 12, pp. 1459-1491, 7 figs., December 1933.

Tegland, Nellie May, 1887-1930.

- 3326. The fauna of the type Blakeley upper Oligocene of Washington: *California, Univ., Dept. Geol. Sci., Bull.*, vol. 23, no. 3, 173 pp., 2 figs. (maps), 15 pls., October 11, 1933.

Teichert, Curt.

3327. Untersuchungen zum Bau des kaledonischen Gebirges in Ostgrönland: Meddelelser om Grönland, Band 95, Nr. 1, 121 pp., 41 figs. (incl. geol. maps), 2 pls. (incl. geol. map), 1933.
3328. Neue geologische Forschungen in Ostgrönland (abstract): Geol. Rundschau, Band 24, Heft 3-4, pp. 271-272, August 31, 1933.
3329. Untersuchungen an actinoceroiden Cephalopoden aus Nordgrönland: Meddelelser om Grönland, Band 92, Nr. 10, 48 pp., 22 figs., 1934.
3330. Inlandeis und Gletscher Ostgrönlands: Natur und Volk, Band 64, Heft 4, pp. 140-151, 13 figs. (incl. map), April 1934.

Teilhard de Chardin, Pierre.

3331. (and Stirton, Ruben Arthur). A correlation of some Miocene and Pliocene mammalian assemblages in North America and Asia, with a discussion of the Mio-Pliocene boundary: California, Univ., Dept. Geol. Sci., Bull., vol. 23, no. 8, pp. 277-290, 1934.

Telfer, L.

3332. Phosphate in the Canadian Rockies: Canadian Inst. Min. and Metallurgy, Trans., 1932, vol. 36, (also appeared in Bull. no. 260, December 1933), pp. 566-605, 15 figs., [1934].

Tenney, James Brand. See Ransome, 2697.

Termer, Franz. See also Sapper, 2947.

3333. Die Tätigkeit des vulkans Santa Maria in Guatemala in den Jahren 1931-33: Zeitschr. Vulkanologie, Band 16, Heft 1, pp. 43-50, 3 pls., December 1934.

Terzaghi, Ruth Doggett.

3334. The volatile transport of silica: Am. Jour. Sci., 5th ser., vol. 28, no. 167, p. 391, November 1934; abstract, Geol. Soc. America, Proc., 1933, pp. 110-111, June 1934.

Tester, Allen Crawford.

3335. The Chemung formation of Iowa and western New York (abstract): Iowa Acad. Sci., Proc., 1930, vol. 37, p. 273, [1931].
3336. A note on the stratigraphy of the Cretaceous in northwestern Iowa (abstract): Iowa Acad. Sci., Proc., 1930, vol. 37, p. 275, [1931].
3337. Contemporaneous deformation in the Cedar Valley limestone [Iowa] (abstract): Iowa Acad. Sci., Proc., 1931, vol. 38, p. 203, [n. d.].
3338. Nomenclature and classification of geologic formations; with special reference to the Cretaceous of Iowa (abstract): Iowa Acad. Sci., Proc., 1931, vol. 38, p. 203, [n. d.].
3339. Sedimentation of the Cedar Valley limestone (abstract): Iowa Acad. Sci., Proc., 1932, vol. 39, p. 196, [1932].
3340. (and Atwater, Gordon I.). The occurrence of authigenic feldspars in sediments: Jour. Sedimentary Petrology, vol. 4, no. 1, pp. 23-31, 3 pls., April 1934; abstract, Geol. Soc. America, Proc., 1933, pp. 110-111, June 1934.

Thackwell, F. E.

3341. Quantitative microscopic methods with an integrating stage applied to geological and metallurgical problems: Econ. Geology, vol. 28, no. 2, pp. 178-182, 1 fig., March-April 1933.

Thalman, Hans Ernst.

3342. Das Vorkommen der Gattung *Miogypsina* Sacco 1893 in Ost-Mexiko: Eclogae geol. Helvetiae, vol. 25, no. 2, pp. 282-286, December 1932.

Thalmann, Hans Ernst—Continued.

- 3343. Die Foraminiferen-Gattung *Hantkenina* Cushman 1924 und ihre regional-stratigraphische Verbreitung: *Eclogae geol. Helvetiae*, vol. 25, no. 2, pp. 287-292, December 1932.
- 3344. *Nonion jarvisi* nom. nov. and *Trochammina kellestae* nom. nov.: *Eclogae geol. Helvetiae*, vol. 25, no. 2, pp. 312-313, December 1932.
- 3345. Bibliography of the Foraminifera for the year 1931: *Jour. Paleontology*, vol. 7, no. 3, pp. 341-349, September 1933.
- 3346. Index to genera and species of Foraminifera erected during the year 1931: *Jour. Paleontology*, vol. 7, no. 3, pp. 350-355, September 1933.
- 3347. Zwei neue Vertreter der Foraminiferen-Gattung *Rotalia* Lamarck 1804; *R. cubana* nom. nov. und *R. trispinosa* nom. nov.: *Eclogae geol. Helvetiae*, vol. 26, no. 2, pp. 248-251, December 1933.
- 3348. *Lepidocyclina canellei* Lemoine und R. Douvillé im Oligocän von Tabasco (Mexiko): *Centralbl. Mineralogie*, 1934, Abt. B, no. 10, pp. 446-448.
- 3349. Supplement to bibliography and index to genera and species of Foraminifera for the year 1931: *Jour. Paleontology*, vol. 8, no. 2, pp. 238-244, June 1934.
- 3350. Regional distribution of the genus *Globotruncana* Cushman 1927 in Upper Cretaceous sediments (abstract): *Geol. Soc. America, Proc.*, 1933, p. 111, June 1934.
- 3351. Mitteloligozän in der Umgebung von Tampico (Mexiko): *Geol. Rundschau*, Band 25, Heft 5, pp. 325-329, October 11, 1934.

Tharp, William Edgar.

- 3352. Soil erosion: *Mississippi State Geol. Survey, Bull.* no. 24, pp. 1-6 (†), March 1933.

Thayer, Thomas P.

- 3353. Structural relation of central Willamette Valley to Cascade Mountains (abstract): *Pan-Am. Geologist*, vol. 59, no. 4, p. 317, May 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 315, June 1934.
- 3354. Structure of North Santiam section of Oregon Cascades (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, p. 319, May 1934.

Thiel, George Alfred. See also Stauffer, 3175, 3178.

- 3355. (and Stauffer, Clinton Raymond). Glaciolacustrine sediment in which the Pleistocene "Minnesota man" was discovered (abstract, with discussion): *Geol. Soc. America, Proc.*, 1933, pp. 111-113, June 1934.

Thiessen, Reinhart. See Fieldner, 1084; Sprunk, 3160.

Thom, William Taylor, Jr. See also Bucher, 464, 466; Field, 1077.

- 3356. (and Field, Richard Montgomery). Geologic research work near Red Lodge, Mont.: *Science*, new ser., vol. 78, no. 2014, pp. 103-105, August 4, 1933.
- 3357. The invisible frontier—or 5 miles underground: *Sci. Monthly*, vol. 38, no. 4, pp. 370-373, April 1934.
- 3358. Present status of the carbon-ratio theory: *Problems of petroleum geology* (Sidney Powers memorial volume), pp. 69-95, 2 figs. (maps), Am. Assoc. Petroleum Geologists, 1934.
- 3359. (and Wilson, Charles William, Mac Neil, D. J., and Blackstone, Donald L., Jr.). Results of recent studies of certain critical structural type, space, and time relationships in Yellowstone-Beartooth-Big Horn region (abstract, with discussion): *Geol. Soc. America, Proc.*, 1933, pp. 58-60, June 1934.

Thomas, Abram Owen.

3360. Notes on some Paleozoic echinoderms: Iowa Acad. Sci., Proc., 1931, vol. 38, pp. 195-200, 1 pl. (n. d.).

Thomas, H. E. See Piper, 2637.

Thomas, Harold S.

3361. Characteristics of the Sylvan shale in widely separated areas: Oklahoma Acad. Sci., Proc., 1930, vol. 10, pp. 85-87, 1930.

Thomas, Horace D.

3362. The stratigraphic relations of the Permian rocks of central and south-eastern Wyoming (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 4, p. 34, August 1932.
3363. Character of producing sandstones and limestones of Wyoming and Montana (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 3, pp. 268-269, March 1933.
3364. The Bull Mountain thrust fault (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 5, pp. 33-34, June 1933.
3365. Further contributions on the Embar and related formations of south-central Wyoming (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 5, pp. 36-37, June 1933.
3366. A Phosphoria faunule from the "Embar" red beds (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 6, p. 34, June 1934.
3367. Phosphoria and Dinwoody tongues in lower Chugwater of central and southeastern Wyoming: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 12, pp. 1655-1697, 7 figs., December 1934; abstract, Geol. Soc. America, Proc., 1933, pp. 365-366, June 1934.

Thomas, Norman Louis.

3368. East Texas chalks (abstract): Geol. Soc. America, Proc., 1933, p. 113, June 1934.
3369. Difficulties in commercial paleontology (abstract): Geol. Soc. America, Proc., 1933, p. 369, June 1934.

Thompson, David Grosh.

3370. (and Wells, Francis Gerritt). Statement concerning cooperative investigation of ground-water resources of Long Island, N. Y.: New York State Legislative Doc. no. 103, pp. 17-18, 1933.
3371. (and Wells, Francis Gerritt). Investigation of ground-water resources of Long Island, N. Y.: U. S. Dept. Interior, Press Mem. 70068, 13 pp. (†), March 20, 1933.
3372. Some relations between ground-water hydrology and oceanography: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 30-33, Nat. Research Council, June 1933.
3373. On underground water: Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933, pp. 366-374, Nat. Research Council, June 1933.
3374. Report of the Committee on Underground Water, 1933-34; with appendices by O. E. Meinzer, Permeability, and Lake and ground-water levels; A. N. Sayre, A selected list of papers relating to ground-water hydrology: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 312-320, Nat. Research Council, June 1934.

Thompson, M. L. See also Miller, 2322.

3375. The fusulinids of the Des Moines series of Iowa: Iowa, Univ., Studies in Nat. History, vol. 16, no. 4, pp. 277-332, 4 pls., October 1, 1934.

Thompson, Warren Osborne.

- 3376. Notes on the granite-Carboniferous contact near Boulder, Colo. (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 2, p. 49, April 1930.
- 3377. Notes on the contact of the Fountain with pre-Fountain rocks along the northern Front Range of Colorado (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 3, pp. 28-29, April 1931.
- 3378. A study of the Lyons sandstone (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 3, p. 29, April 1931.
- 3379. Observations on the stratification of beach deposits (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 171, February 28, 1933; abstract, Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 5, p. 32, June 1933.

Thomson, Ellis.

- 3380. A mineralographic study of the minerals from the Miller Lake O'Brien mine, Gowganda, Ontario: Toronto, Univ., Studies, Geol. ser., no. 35, pp. 61-64, 1933.

Thomson, James Ellis.

- 3381. Geology of the Heron Bay-White Lake area: Ontario, Dept. Mines, 41st Ann. Rept. (vol. 41, pt. 6), 1932, pp. 34-47, 7 figs., 1933.
- 3382. Geology of the Manitou-Stormy Lakes area: Ontario, Dept. Mines, 42d Ann. Rept. (vol. 42, pt. 4), 1933, pp. 1-40, 20 figs. (incl. geol. sketch maps), 2 pls. (incl. geol. map), 1934.
- 3383. Geology of the Straw-Manitou Lakes area: Ontario, Dept. Mines, 43d Ann. Rept. (vol. 43, pt. 4), 1934, iii, 32 pp., 14 figs. (incl. geol. sketch maps), 1 pl. (geol. map), 1934.

Thorp, E. M.

- 3384. Preliminary remarks on the calcareous shallow-water marine deposits of Florida and the Bahamas: Jour. Sedimentary Petrology, vol. 4, no. 3, pp. 111-112, December 1934.

Thorp, James.

- 3385. The asymmetry of the "Pepino Hills" of Puerto Rico in relation to the trade winds: Jour. Geology, vol. 42, no. 5, pp. 537-545, 5 figs., July-August 1934.

Thorpe, Malcolm Rutherford.

- 3386. *Meniscotherium robustum* sp. nov., and a discussion of *Hyracops socialis* Marsh: Am. Jour. Sci., 5th ser., vol. 27, no. 162, pp. 401-409, 6 figs., June 1934.
- 3387. A newly mounted specimen of *Portheus molossus* Cope: Am. Jour. Sci., 5th ser., vol. 28, no. 164, pp. 121-126, 2 figs., August 1934.

Thwaites, Fredrik Turville. See also Alden, 22; Kansas Geol. Soc., 1744; Twenhofel, 3433.

- 3388. Outline of glacial geology. 115 pp. (†), 10 pls. (incl. maps), Ann Arbor, Mich., Edwards Brothers, Inc., 1934.
- 3389. Well logs in the northern peninsula of Michigan, showing the Cambrian section: Michigan Acad. Sci., Papers, vol. 19, pp. 413-426, 1 fig., 1934.

Tibbetts, Fred H. See Etcheverry, 1031.

Tieje, Arthur Jerrold. See Cassell, 597.

Tilney, Frederick.

3390. Fossil brains of some early Tertiary mammals of North America: Neurol. Inst. New York, Bull., vol. 1, no. 3, pp. 430-505, 92 figs., November 1931.

Toepelman, Walter Carl.

3391. Some new facts on Colorado paleontology (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 3, pp. 30-31, April 1931.

Tokuda, S.

3392. Three types of mountain arcs (abstract): Pan-Am. Geologist, vol. 61, no. 2, pp. 145-146, March 1934.

Tolmachoff, Innokenti Pavlovich.

3393. Discovery of Upper Cretaceous fauna in the Asphalt Ridge, Utah (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 103, February 28, 1933.

Tolman, Carl.

3394. The geology of the Silver Mine area, Madison County, Mo.: Missouri, Bur. Geology and Mines, 57th Bienn. Rept., app. 1, 39 pp., 6 figs., 3 pls. (incl. geol. map), 1933.

3395. Silver-lead tungsten mineralization at Silver Mine, Mo. (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 103-104, February 28, 1933.

Tolman, Cyrus Fisher.

3396. The geology of ground water; with appendices by R. E. Wright, The chemical quality of natural waters, and E. Wayne Galliher, Mechanical analysis of granular sedimentary and alluvial materials, xiv, 498 pp. (†), 120 figs. (incl. maps), 22 pls., [n. d., c. 1933].

3397. (and Ambrose, J. W.). The rich ores of Goldfield, Nevada: Econ. Geology, vol. 29, no. 3, pp. 255-279, 19 figs., May 1934.

Tolman, F. B. See Stipp, 3223.

Tomlinson, Charles Weldon. See also Kansas Geol. Soc., 1744; Wrather, 3787.

3398. Relation of oil and gas accumulation to geologic structure in the Mid-continent region: Problems of petroleum geology (Sidney Powers memorial volume), pp. 571-579, 1 fig. (map), Am. Assoc. Petroleum Geologists, 1934.

3399. Geology of Lake Murray basin and dam site: Oklahoma Acad. Sci., Proc., 1933, pp. 69-71, 1934.

3400. Correction to stratigraphy of Hoxbar formation, Oklahoma: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 8, pp. 1083-1085, 1 fig. (geol. map), August 1934.

Torrey, Paul D.

3401. Origin, migration, and accumulation of petroleum and natural gas in Pennsylvania: Problems of petroleum geology (Sidney Powers memorial volume), pp. 447-484, 7 figs. (incl. map), Am. Assoc. Petroleum Geologists, 1934.

3402. Composition of old-field waters of the Appalachian region: Problems of petroleum geology (Sidney Powers memorial volume), pp. 841-853, 1 fig. (map), Am. Assoc. Petroleum Geologists, 1934.

Townsend, Charles Wendell.

3403. Recent changes in level along the Atlantic coast (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 176-177, February 28, 1933.

Trainer, David Woolsey, Jr.

3404. Unusual brine from the Potsdam of central New York (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 192, February 28, 1933.

Trask, Parker Davies.

3405. (and Hammar, Harald Edwin, and Keyte, W. Ross). Source beds in some oil-producing regions (abstract): *Pan-Am. Geologist*, vol. 59, no. 3, p. 228, April 1933.

3406. Results of the American Petroleum Institute research project on origin and environment of source sediments (with discussion): *Am. Petroleum Inst., Production Bull.*, no. 211, vol. 14M (4), pp. 19-31, 9 figs., May 1933; abstract, *Tulsa Geol. Soc., Digest*, pp. 24-30, 1933; abstract, *Pan-Am. Geologist*, vol. 62, no. 2, p. 149, September 1934.

3407. (and Hammar, Harald Edwin). Some relations of the organic constituents of sediments to the formation of petroleum (abstract): *Washington Acad. Sci., Jour.*, vol. 23, no. 12, p. 568, December 15, 1933.

3408. Deposition of organic matter in recent sediments: Problems of petroleum geology (Sidney Powers memorial volume), pp. 27-33, *Am. Assoc. Petroleum Geologists*, 1934.

3409. (and Hammar, Harald Edwin). Preliminary study of source beds in late Mesozoic rocks on west side of Sacramento Valley, California: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 10, pp. 1346-1373, 5 figs. (incl. index map), October 1934; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 229, April 1933; abstract, *Washington Acad. Sci., Jour.*, vol. 24, no. 11, pp. 491-492, November 15, 1934.

3410. (and Hammar, Harald Edwin). Summary of recent research work upon organic content of sediments: *Oil and Gas Jour.*, vol. 33, no. 27, pp. 43, 46, November 22, 1934; no. 28, pp. 40-41, 2 figs., November 29, 1934; no. 29, pp. 36, 39, 1 fig., December 6, 1934.

Trechmann, C. T.

3411. The uplift of Barbados: *Geol. Mag.*, vol. 70, no. 1, pp. 19-47, 3 figs., 2 pls., January 1933.

3412. Tertiary and Quaternary beds of Tobago, West Indies: *Geol. Mag.*, vol. 71, no. 845, pp. 481-493, 1 fig. (map), 2 pls., November 1934.

Trefethen, J. M. See Shepard, 3058.

Trowbridge, Arthur Carleton.

3413. (and Atwater, Gordon I.). Stratigraphic problems in the upper Mississippi Valley: *Geol. Soc. America, Bull.*, vol. 45, no. 1, pp. 21-80, February 28, 1934.

3414. Upper Mississippi Valley structure: *Geol. Soc. America*, vol. 45, no. 3, pp. 519-528, 1 pl. (map), June 30, 1934; abstract, *Geol. Soc. America, Proc.*, 1933, p. 114, June 1934.

Tuck, Ralph.

3415. The Moose Pass-Hope district, Kenai Peninsula, Alaska: *U. S. Geol. Survey, Bull.* 849, pp. x, 469-530, 6 figs. (incl. maps), 1 pl., map, 1933.

Tuck, Ralph—Continued.

3416. The Curry district, Alaska: U. S. Geol. Survey, Bull. 857, pp. 99-140, 2 figs. (maps), 4 pls. (incl. geol. map), 1934.

Tucker, Helen Ione.

3417. (and Wilson, Druid). A second contribution to the Neogene paleontology of south Florida: Bull. Am. Paleontology, vol. 18, no. 66, 20 pp., 4 pls., June 3, 1933.
3418. Some Atlantic coast Tertiary Pectinidae: Am. Midland Naturalist, vol. 15, no. 5, pp. 612-621, 3 pls., September 1934.

Tucker, R. C.

3419. Figure showing bituminous coal beds in West Virginia, compiled and revised to date, May 1, 1931. [Vertical section of West Virginia coal measures.] Vertical scale 1 inch=200 feet, West Virginia Geological Survey.

Tucker, William Burling.

3420. (and Sampson, Reid J.). Gold resources of Kern County: California Jour. Mines and Geology, vol. 29, nos. 3, 4, pp. 271-339, 13 figs., 4 pls., July and October 1933.

Tullis, Edward L.

3421. (and Laney, Francis Baker). The composition and origin of certain commercial clays of northern Idaho: Econ. Geology, vol. 28, no. 5, pp. 480-495, 7 figs., August 1933.

Tunell, George. See also Donnay, 914.

3422. (and Ksanda, Charles J.). Relation of X-ray goniometer data to reflection goniometer measurements on sylvanite (abstract): Geol. Soc. America, Proc., 1933, pp. 439-440, June 1934.

Turley, Jay.

3423. Earth patterns in eastern New Mexico (abstract): Pan-Am. Geologist, vol. 60, no. 4, pp. 305-306, November 1933.

Turner, F. Earl. See also Schenck, 2970.

3424. Stratigraphy of the marine Eocene of southwestern Oregon (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 205, February 28, 1933.

Turner, Samuel Foster. See also White, 3669.

3425. Mineral-water supply of the Mineral Wells area, Texas: U. S. Geol. Survey, Circ. 6, 9 pp. (†), 1 pl., 1934.
3426. (and Foster, Margaret Dorothy). A study of the salt-water encroachment in the Galveston area, Texas: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 432-435, 4 figs., Nat. Research Council, June 1934.

Tutin, T. G.

3427. A Cretaceous gleicheniaceus fern from western Greenland: Annals of Botany, vol. 46, no. 183, pp. 503-508, 2 figs., 1 pl., July 1932.

Twenhofel, William Henry. See also Ashley, 92; Wanenmacher, 3544.

3428. A history of the National Research Council, 1919-33; 5, Division of Geology and Geography: Science, new ser., vol. 77, pp. 618-620, June 30, 1933; Nat. Research Council, Reprint and Circ. ser., no. 106, pp. 29-33, 1933.

Twenhofel, William Henry—Continued.

- 3429. The physical and chemical characteristics of the sediments of Lake Mendota, a fresh-water lake of Wisconsin: *Jour. Sedimentary Petrology*, vol. 3, no. 2, pp. 68-76, 3 figs., August 1933; abstract, *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 104-105 February 28, 1933.
- 3430. (and others). National Research Council, Division of Geology and Geography, annual report for 1932-33, 106 pp. (†), 6 figs., [1934].
- 3431. [Annual report of the] Division of Geology and Geography, National Research Council: *Nat. Acad. Sci., Rept.*, 1932-33, pp. 48-53, 1934; *Nat. Research Council Rept.*, 1932-33, pp. 22-27, 1934.
- 3432. (and others). National Research Council, Division of Geology and Geography, annual report for 1933-34, 162 pp. (†), 3 pls., [1934].
- 3433. (and Raasch, Gilbert O., and Thwaites, Frederik Turville). Cambrian strata of Wisconsin (abstract): *Geol. Soc. America, Proc.*, 1933, p. 114, June 1934.
- 3434. Environment of a sand area of deposition (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 357-358, June 1934.
- 3435. Sedimentation and stratigraphy from modern points of view: *Jour. Paleontology*, vol. 8, no. 4, pp. 456-468, December 1934.
- 3436. The second annual Tri-States Geological Field Conference of the upper Mississippi Valley: *Science, new ser.*, vol. 80, no. 2086, pp. 591-592, December 21, 1934.

Twinem, Joseph C. See Knapp, 1906.

Tyler, Paul McIntosh.

- 3437. (and Petar, Alice Virginia). Arsenic: *U. S. Bur. Mines, Econ, Paper* 17, 35 pp., 1934.

Tyler, Stanley A.

- 3438. A study of sediments from the North Carolina and Florida coasts: *Jour. Sedimentary Petrology*, vol. 4, no. 1, pp. 3-11, April 1934.

Uglow, William Lawrence. See Johnston, 1706.

Uhrig, L. F.

- 3439. Tangential arcs applied to Appalachian folds (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 114-115, June 1934.

Ulke, Titus.

- 3440. Ankerite from Bethesda, Md.: *Am. Mineralogist*, vol. 18, no. 7, pp. 312-313, July 1933.

Ulrich, Edward Oscar.

- 3441. (and Resser, Charles Elmer). The Cambrian of the upper Mississippi Valley, part 2, Trilobita, Saukiinae: *Milwaukee, Public Mus., Bull.*, vol. 12, no. 2, pp. 123-306, 22 pls., February 6, 1933.
- 3442. Simpson group of Oklahoma (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 105-106, February 28, 1933.
- 3443. (and Foerste, August Frederick). The earliest known cephalopods: *Science, new ser.*, vol. 78, no. 2022, pp. 288-289, September 29, 1933.
- 3444. Principles for correlation and classification of strata and their application to lower Paleozoic (abstract): *Pan-Am. Geologist*, vol. 60, no. 3, pp. 228-229, October 1933.

Ulrich, Edward Oscar—Continued.

- 3445. (and Cooper, Gustav Arthur). [Description of] *Syntrophinella* Ulrich and Cooper, new genus, and *Syntrophinella typica* Ulrich and Cooper, new species: Japanese Jour. Geology and Geography, Trans. and Abstracts, vol. 11, no. 3-4, pp. 164-165, 1 pl., June 1934.
- 3446. Do late Silurian or early Devonian deposits lie on early Ozarkian near Milton, Vt.? (abstract): Geol. Soc. America, Proc., 1933, p. 115, June 1934.
- 3447. (and Bridge, Josiah). Some new genera of early Paleozoic Gastropoda (abstract): Geol. Soc. America, Proc., 1933, p. 338, June 1934.
- 3448. (and Foerste, August Frederick). Notes on the Schistochoanites (abstract): Geol. Soc. America, Proc., 1933, pp. 339-340, June 1934.

United States Geological Survey.

- 3449. Mineral resources of the Tennessee River Basin and adjoining areas [map]. Scale 1:500,000, 1933.
- 3450. Report on field study of the mineral resources in the region tributary to Boulder Dam: Mineral resources and possible industrial development in the region surrounding Boulder Dam, Boulder Canyon project, Arizona-Nevada-California, pp. vii-ix, 1-27, 3 pls. (min. res. maps), U. S. Bur. Reclamation, November 1934.

Upp, Jerry Eli. See Condra, 717, 718.

Urry, William D.

- 3451. The radium content of the Keweenaw basalt and some accessory minerals: Am. Acad. Arts and Sci., Proc., vol. 68, no. 4, pp. 125-136, 2 figs., March 1933.
- 3452. The occurrence of radium, uranium, and potassium in the earth: Am. Acad. Arts and Sci., Proc., vol. 68, no. 4, pp. 137-144, March 1933.
- 3453. Helium and the problems of geologic time: Chem. Rev., vol. 13, no. 2, pp. 305-343, October 1933.

Van Amringe, Edwin Verne.

- 3454. The gem minerals of San Diego County, Calif.: Mineralog. Soc. Southern California, Bull., vol. 2, no. 7, pp. 1-4, March 1933.
- 3455. [Tables for classification of rocks]. 6 pp. [private publication], 1934.
- 3456. The determination of igneous rocks: Mineralog. Soc. Southern California, Bull., vol. 3, no. 6, pp. 21-23, February 1934.
- 3457. The classification of sedimentary rocks: Mineralog. Soc. Southern California, Bull., vol. 3, no. 7, pp. 24-27, March 1934.
- 3458. The classification of metamorphic rocks: Mineralog. Soc. Southern California, Bull., vol. 4, no. 2, pp. 5-7, October 1934.
- 3459. Benitoite, neptunite, and joaquinite: Oregon Mineralogist, vol. 2, no. 11, pp. 9-10, November 1934.

Van der Gracht, Willem Anton Josef Maria van Waterschoot.

- 3460. Permo-Carboniferous orogeny in United States (discussion): Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 1, pp. 91-96, January 1933.
- 3461. De Laat-Palaeozoische plooiingsphase in Noord-Amerika: Nederlandsch Aardrijksk. Genootschap, Amsterdam, Tijdschr., 2d ser., vol. 50, no. 6, pp. 903-929, 2 pls., 2 tables, November 1923; abstract, Pan-Am. Geologist, vol. 61, no. 2, pp. 159-160, March 1934.

Vander Hoof, Vertress Lawrence. See also Camp, 546; Stirton, 3224.

- 3462. A skull of *Pliohippus tantalus* from the later Tertiary of the Sierran foothills of California: California, Univ., Dept. Geol. Sci., Bull., vol. 23, no. 5, pp. 183-194, 5 figs., 1 pl., 1933.
- 3463. Additions to the fauna of the Tehama upper Pliocene of northern California: Am. Jour. Sci., 5th ser., vol. 25, no. 149, pp. 382-384, May 1933.
- 3464. Pliocene vertebrate fauna from Sierra foothills of central California (abstract): Pan-Am. Geologist, vol. 59, no. 5, pp. 376-377, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 391, June 1934.
- 3465. The Chinle formation: Mus. Northern Arizona, Mus. Notes, vol. 6, no. 7, pp. 35-38, 1 fig., Flagstaff, January 1934.
- 3466. Seasonal bandings in asphalt deposit (abstract): Pan-Am. Geologist, vol. 61, no. 5, pp. 374-375, June 1934.
- 3467. Pleistocene vertebrates from northern California (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 69, August 1934.

Vanderpool, Harold C.

- 3468. Notes on the geology of the Gulf coast region (abstract): Tulsa Geol. Soc., Digest, pp. 21-23, 1933.
- 3469. Lower marine Miocene at Stratton Ridge, Brazoria County, Tex. (abstract): Pan-Am. Geologist, vol. 59, no. 3, p. 239, April 1933.
- 3470. Upper Trinity microfossils from southern Oklahoma: Jour. Paleontology, vol. 7, no. 4, pp. 406-411, 1 pl., December 1933.
- 3471. Oil southeast of Choctaw fault in Oklahoma: Oklahoma Acad. Sci., Proc., 1933, vol. 14, pp. 58-60, 1934.

Vanderwilt, John W. See also Butler, 507; Henderson, 1455.

- 3472. Molybdenite deposits: Ore deposits of the Western States (Lindgren volume), pp. 570-573, Am. Inst. Min. Met. Eng., 1933.
- 3473. A recent rockslide near Durango, in La Plata County, Colo.: Jour. Geology, vol. 42, no. 2, pp. 163-173, 2 figs., February-March 1934.
- 3474. A rock saw: Am. Mineralogist, vol. 19, no. 5, pp. 224-229, 2 figs., May 1934.

Van Gundy, C. E.

- 3475. Some observations of the Unkar group of the Grand Canyon Algonkian: Grand Canyon Nature Notes, vol. 9, no. 8, pp. 338-349, 2 figs., November 1934.

Van Horn, Frank Robertson, 1872-1933.

- 3476. Proceedings of the thirteenth annual meeting of the Mineralogical Society of America, held at Cambridge, Mass., December 28 and 29, 1932: Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 235-242, February 28, 1933; Am. Mineralogist, vol. 18, no. 3, pp. 106-120, March 1933.
- 3477. (and Van Horn, Kent Robertson). X-ray study of pyrite or marcasite concretions in the rocks of the Cleveland, Ohio, quadrangles: Am. Mineralogist, vol. 18, no. 7, pp. 288-294, 2 figs., July 1933.

Van Horn, Kent Robertson. See Van Horn, F. R., 3477.

Van Orstrand, Charles Edwin.

- 3478. Some comments on the measurement and interpretation of deep earth temperatures: Gerlands Beitr. angew. Geophysik, Band 3, pp. 261-281, 14 figs., 1933.

Van Orstrand, Charles Edwin—Continued.

3479. Temperature gradients: Problems in petroleum geology (Sidney Powers memorial volume), pp. 989-1021, 9 figs., Am. Assoc. Petroleum Geologists, 1934.

3480. Some possible applications of geothermics to geology: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 1, pp. 13-38, 14 figs., January 1934; abstract, Pan-Am. Geologist, vol. 59, no. 3, p. 233, April 1933.

Van Pelt, Herberta L.

3481. Some ostracodes from the Bell shale, Middle Devonian, of Michigan: Jour. Paleontology, vol. 7, no. 3, pp. 325-342, 1 pl., September 1933.

Van Straelen, Victor.

3482. Sur des crustacés décapodes jurassiques du Groenland oriental: Acad. roy. Belgique, Bull., 5^e sér., t. 5, no. 10, pp. 741-745, 3 figs., 1933.

Van Tuyl, Francis Maurice. See also Henderson, 1455.

3483. (and Parker, Ben H.). Oil possibilities in eastern Colorado: Colorado Min. Assoc., Mining Year Book, 1933, pp. 31-38, 3 figs., 1933; Mines Mag., vol. 23, no. 10, pp. 5-7, 10-11, October 1933; no. 11, pp. 7-10, 1 fig., November 1933.

3484. (and Parker, Ben H.). Careful study of geology of eastern Colorado indicates many oil and gas possibilities: Oil and Gas Jour., vol. 31, no. 42, pp. 12-13, 34-35, 4 figs., March 9, 1933.

3485. (and Parker, Ben H.). Suggested research on origin of petroleum: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 6, pp. 743-744, June 1933.

3486. (and Lovering, Thomas Seward). Physiographic development of the Front Range, Colo. (abstract): Geol. Soc. America, Proc., 1933, pp. 52-53, June 1934.

3487. (and Parker, Ben H.). Coalification theory of origin of oil and gas: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 11, pp. 1547-1548, November 1934.

Van Weelden, A.

3488. Magnetic anomalies in oil fields: World Petroleum Congress, London, 1933, Proc., vol. 1, pp. 86-90, 8 figs., 1934; abstract, Petroleum Times, vol. 30, no. 756, p. 34, July 8, 1933.

3489. The regional tectonical features of the Wichita-Arbuckle Mountain region: World Petroleum Congress, London, 1933, Proc., vol. 1, pp. 174-176, 2 pls. (maps), 1934; Oil Weekly, vol. 70, no. 13, pp. 27-30, 2 figs., September 11, 1933; abstract, Petroleum Times, vol. 30, no. 756, p. 34, July 8, 1933.

Vaughan, Henry.

3490. (and Wilson, T. Yates). The age of the Rensselaer graywacke: Am. Jour. Sci., 5th ser., vol. 27, no. 162, pp. 460-462, June 1934.

Vaughan, Thomas H.

3491. A native copper nugget found in Marshall County, Ind.: Am. Midland Naturalist, vol. 14, no. 1, pp. 50-57, 1 fig., January 1933.

Vaughan, Thomas Wayland.

3492. Report on species of fossils collected in Cuba by O. E. Meinzer in November and December, 1915: Washington Acad. Sci., Jour., vol. 23, no. 5, pp. 261-263, May 15, 1933.

Vaughan, Thomas Wayland—Continued.

- 3493. Report on species of corals and larger Foraminifera collected in Cuba by O. E. Meinzer: Washington Acad. Sci., Jour., vol. 23, no. 7, pp. 352-355, July 15, 1933.
- 3494. The biogeographic relations of the orbitoid Foraminifera: Nat. Acad. Sci., Proc., vol. 19, no. 10, pp. 922-938, October 1933.
- 3495. Studies of American species of Foraminifera of the genus *Lepidocyclina*: Smithsonian Misc. Coll., vol. 89, no. 10 (Pub. no. 3222), 53 pp., 32 pls., December 4, 1933.
- 3496. A note on *Orbitoides browni* (Ellis) Vaughan: Jour. Paleontology, vol. 8, no. 1, pp. 70-72, March 1934; abstract, Geol. Soc. America, Proc., 1933, June 1934.

Veatch, Arthur Clifford.

- 3497. Geography and geology of a portion of southwestern Wyoming, with special reference to coal and oil: U. S. Geol. Survey, Prof. Paper 56, 178 pp., 9 figs. (incl. maps), 26 pls. (incl. geol. map), 1907.

Ver Steeg, Karl.

- 3498. Wind gaps and erosion surfaces: Am. Jour. Sci., 5th ser., vol. 26, no. 155, pp. 507-511, November 1933.
- 3499. The thickness of the glacial deposits in Ohio: Science, new ser., vol. 78, no. 2029, p. 459, November 17, 1933.
- 3500. The buried topography of north-central Ohio and its origin: Jour. Geology, vol. 42, no. 6, pp. 602-620, 3 figs. (maps), August-September 1934.

Ver Wiebe, Walter August. See also Kansas Geol. Soc., 1743, 1745, 1747.

- 3501. Résumé of formations studied in Colorado: Kansas Geol. Soc., Guidebook, 4th Ann. Field Conf., pp. 67-73 (§), September 1930.
- 3502. (and Vickery, W. R.). Index to the stratigraphy of eastern Kansas and adjoining areas: Kansas Geol. Soc., Guidebook, 6th Ann. Field Conf., pp. 105-120, September 1932.
- 3503. Graptolites in Kansas: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 1, p. 80, January 1933.
- 3504. Present distribution and thickness of Mesozoic systems: Geol. Soc. America, Bull., vol. 44, no. 4, pp. 827-864, 4 figs., maps, August 31, 1933; abstract, pt. 1, p. 106, February 28, 1933.
- 3505. Historical geology. 1st ed., 162 pp. (§), 206 figs., Ann. Arbor, Mich., Edwards Brothers, Inc., 1934.

Vickery, W. R. See Ver Wiebe, 3502.

Villa, Miguel.

- 3506. Ponencia de la subcomisión de edificaciones sobre el terremoto del 3 de febrero de 1932 en Santiago de Cuba: Soc. cubana ing., Rev., vol. 25, no. 3, pp. 211-260, 12 figs., May-June, 1933.

Villafañá, Edmundo.

- 3507. El mineral de Providencia del Estado de Guanajuato: Bol. minero, vol. 35, no. 5-6, pp. 141-153, 9 figs. (incl. map), May and June 1933.

Villatoro, Jorge A.

- 3508. Consideraciones geológicas sobre el predio llamado Comales en el municipio de Ozuluama, Estado de Veracruz: Bol. petróleo, vol. 34, nos. 1, 2, 3, pp. 7-19, illus. (incl. geol. map), July, August, September 1932.

Villatoro, Jorge A.—Continued.

3509. La región petrolera de Poza Rica: Bol. petróleo, vol. 34, nos. 4, 5, 6, pp. 201–204, 3 figs. (incl. map), October, November, December, 1932.

Virginia Geological Survey.

3510. A geological map of the pyrite-gold belt in Louisa and Spotsylvania Counties, Va. Geology by Justus H. Cline, Thomas L. Watson, and Frank J. Wright. Scale 1 inch = 1 mile. 1921.

Vivar, Gonzalo.

3511. Estudio geológico de Valle de Tecocomulco, municipio de Cuauhtepéc, E. de Hidalgo: Irrigación en México, vol. 6, no. 6, p. 531, 9 figs., 1 pl. (geol. map), June 1933.

3512. Informe acerca de las aguas del subsuelo en la planicie costera de Baja California, al norte de Bahía Magdalena: Irrigación en México, vol. 8, no. 3, pp. 153–181, 14 figs. (incl. maps), March 1934.

Vivian, Harry. See Fisher, 1103.

Vogel, Herbert Davis.

3513. Sediment studies at the United States Waterways Experiment Station: Am. Geophys. Union, Trans., 15th Ann. Meeting, 1934, pt. 2, pp. 466–468, Nat. Research Council, June 1934.

Vogt, Thorolf.

3514. Late Quaternary oscillations of level in southeast Greenland: Skriffter om Svalbard og Ishavet, no. 60, 44 pp., 14 figs. (incl. maps), 1933.

Vokes, H. E.

3515. New species of *Haliotis* from the Pliocene of southern California (abstract): Geol. Soc. America, Proc., 1933, p. 373, June 1934.

3516. *Ostrea idriaensis* Gabb (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 71, August 1934.

3517. Stratigraphic position of *Turritella andersoni* zone, north of Coalinga (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 78, August 1934.

Von Bernewitz, Max Wilhelm. See Singewald, 3101.

Von Engeln, Oscar Diedrich. See also Newland, 2476.

3518. Role of proglacial waterfalls in the valley development of central New York (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 106, February 28, 1933.

3519. Palisade glacier of the High Sierra of California: Geol. Soc. America, Bull., vol. 44, no. 3, pp. 575–600, 11 figs., June 30, 1933.

3520. The motion of glaciers: Science, vol. 80, no. 2079, pp. 401–403, November 2, 1934.

Von Estorff, Fritz E. See Barbat, 160.

Von Osinski, William P.

3521. Some unusual geode forms: Indiana Acad. Sci., vol. 43, pp. 155–157, 1 fig., 1934.

Voskuil, Walter Henry. See also Piersol, 2625.

3522. (and Sweeny, Alma R.). Illinois mineral industry in 1932; a preliminary statistical summary and economic review: Illinois Geol. Survey, Rept. Inv., no. 28, 66 pp., 1 fig. (map), 1933.

Voskuil, Walter Henry—Continued.

3523. (and Sweeny, Alma R.). Illinois mineral industry in 1933; a preliminary statistical summary and economic review: Illinois State Geol. Survey, Rept. Inv., no. 36, 69 pp., 3 figs., 1934.

Voss, John.

3524. Pleistocene forests of Illinois: Bot. Gazette, vol. 94, no. 4, pp. 808-814, 1 fig., June 1933; abstract, Illinois State Acad. Sci., Trans., vol. 25, no. 4, p. 130, June 1933.

Wadell, Hakon A. See also Singewald, 3101.

3525. Sphericity and roundness of rock particles: Jour. Geology, vol. 41, no. 3, pp. 310-331, April-May 1933.
3526. Sedimentation and sedimentology: Science, new ser., vol. 77, pp. 536-537, June 2, 1933.
3527. Shape determinations of large sedimental rock fragments: Pan-Am. Geologist, vol. 61, no. 3, pp. 187-220, 9 figs., April 1934.

Wager, Laurence Rickard.

3528. The form and age of the Greenland ice cap: Geol. Mag., no. 826 (vol. 70, no. 4), pp. 145-156, 2 figs., 3 pls., April 1933.
3529. Geological investigations in east Greenland, part 1, General geology from Angmagsalik to Kap Dalton: Meddelelser om Grønland, Band 102, Nr. 2, 46 pp., 7 figs., 12 pls. (incl. geol. maps), 1934.

Wahl, Arthur M. See Nádai, 2449.

Wahlstrom, Ernest Eugene.

3530. The geology of the Lake Albion region, Boulder County, Colo.: Colorado, Univ., Studies, vol. 21, no. 1 (Colorado, Univ., Bull., vol. 33 no. 16), p. 86, November 1933.
3531. An unusual occurrence of asbestos: Am. Mineralogist, vol. 19, no. 4, pp. 178-180, April 1934.

Waibel, Leo.

3532. Di Sierra Madre de Chiapas: Geog. Gesell. Hamburg, Mitt., Band 43, pp. 12-154, 4 figs., map 1:400,000; Becksmann, Ernest, app., pp. 154-162, 1933.

Waitz, Paul.

3533. Dr. Emilio Boese [1868-1927]: Soc. cient. Antonio Alzate, Mem. y Rev., vol. 52, nos. 1-4, 1929-30, pp. 9-11, port., 1932.
3534. Métodos modernos geofísicos y algunas aplicaciones a las investigaciones del subsuelo: México, Com. nac. irrigación, Dept. ingeniería, 8 pp., 1 fig., 2 pls. (maps), 1933.
3535. Métodos modernos geofísicos y algunas aplicaciones a las investigaciones del subsuelo: Irrigación en México, vol. 7, no. 1, pp. 29-34, 1 fig., 2 pls. (incl. geol. map), July 1933.

Waldschmidt, William Albert.

3536. Physical and mineralogical characteristics of sediments useful in correlation of oil-well samples (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 3, p. 30, April 1931.
3537. Characteristics of older Cretaceous formations of northeastern Colorado: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 4, pp. 411-421, 2 figs., 1 pl., April 1933.

- Walker, John Fortune. See also Canada G. S., 566; Cockfield, 685, 686, 687, 689.
3538. Geology and mineral deposits of Salmo map area, British Columbia: Canada, Dept. Mines, Geol. Survey, Mem. 172, 102 pp., 3 pls., map (299A, Pub. no. 2337), 1934. (Pub. no. 2345.)
3539. Lillooet map area, British Columbia: Canada, Geol. Survey, Summary Rept., 1933, pt. A, pp. 69-75, 1 pl. (geol. map), 1934. (No. 2350.)
- Walker, M. V.
3540. Notes on North American fossil lagomorphs: Aerend (Fort Hays Kansas State Coll.), vol. 2, no. 4, pp. 227-240, 20 figs., 1931.
- Walker, Thomas Leonard.
3541. Notes on tungstite: Toronto, Univ., Studies, Geol. ser., no. 35, pp. 13, 14, 1 fig., 1933.
3542. Royal Ontario Museum of Mineralogy (abstract): Geol. Soc. America, Proc., 1933, p. 436, June 1934.
- Wallace, William E. See Howe, 1577, 1581.
- Walls, James Gray.
3543. The Holston marble at Asbury, Tenn.: Tennessee Acad. Sci., Jour., vol. 8, no. 2, pp. 124-133, 3 figs., 1933.
- Wanenmacher, J. M.
3544. (and Twenhofel, William Henry, and Raasch, Gilbert O.). The Paleozoic strata of the Baraboo area, Wisconsin: Am. Jour. Sci., 5th ser., vol. 28, no. 163, pp. 1-30, 2 figs., July 1934.
- Wanless, Harold Rollin.
3545. The depositional basin of the Springfield (no. 5) coal in northern Illinois (abstract): Illinois State Acad. Sci., Trans. vol. 25, no. 4, p. 153, June 1933.
3546. Pennsylvanian rocks of Madison and St. Clair Counties, Ill. (abstract): Illinois State Acad. Sci., Trans., vol. 26, no. 3, p. 105, March 1934.
3547. Relations between Pennsylvania coals and their underclays, as revealed by field studies (abstract): Geol. Soc. America, Proc., 1933, pp. 115-116, June 1934.
- Ward, Freeman.
3548. Distribution of the Wisconsin glacier in the Delaware Valley: Geol. Soc. America, Bull., vol. 45, no. 4 pp. 655-664, 2 figs. (maps), August 31, 1934; abstract, Proc., 1933, p. 116, June 1934.
- Ward, T. W.
3549. What keeps interior of the earth hot?: Oregon Mineralogist, vol. 2, no. 12, p. 14, December 1934.
- Waring, Gerald Ashley. See also Richards, 2760.
3550. Core drilling for coal in the Moose Creek area, Alaska: U. S. Geol. Survey, Bull. 857, pp. 155-166, 1 fig. (map), 4 pls. (incl. geol. map), 1934.
- Warne, William E.
3551. Earthquake waves (with editorial notes): Seismol. Soc. America, Bull., vol. 23, no. 4, pp. 169-171, October 1933.
- Warren, Bertram Eugene.
3552. (and Amberg, Charles Rhodimer). X-ray study of narsarsukite, $\text{Na}_2(\text{Ti,Fe})\text{Si}_2\text{O}_7$: Am. Mineralogist, vol. 19, no. 11, pp. 546-548, November 1934.

Warren, Charles Hyde. See also Cross, 808.

3553. Ernest Howe [1875-1932]: *Am. Jour. Sci.*, 5th ser., vol. 25, no. 146, pp. 97-100, February 1933.

3554. Louis Valentine Pirsson, 1860-1919: *Am. Acad. Arts and Sci., Proc.*, vol. 68, no. 13, pp. 658-662, December 1933.

Warren, Harry Verney.

3555. Relation between silver content and tetrahedrite in the ores of some western American mines (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 160, February 28, 1933.

3556. Silver-tetrahedrite relationship in the Coeur d'Alene district, Idaho: *Econ. Geology*, vol. 29, no. 7, pp. 691-696, November 1934.

Warren, Percival Sidney. See also Miller, 2323.

3557. New Coloradoan species from upper Peace River, British Columbia: *Royal Soc. Canada, Trans.*, 3d ser., vol. 27, sec. 4, pp. 109-120, 2 pls., May 1933.

3558. Geological section in Crowsnest Pass, Rocky Mountains, Canada: *Royal Canadian Inst., Trans.*, vol. 19, pt. 2, no. 42, pp. 145-160, 1 pl., September 1933.

3559. The age of the Devonian limestone at McMurray, Alberta: *Canadian Field Naturalist*, vol. 47, no. 8, pp. 148-149, November 1933.

3560. Present status of the Fernie shale, Alberta: *Am. Jour. Sci.*, 5th ser., vol. 27, no. 157, pp. 56-70, 1 fig., January 1934.

3561. Paleontology of the Bearpaw formation: *Royal Soc. Canada, Trans.*, 3d ser., vol. 28, sec. 4, pp. 81-100, 3 pls., May 1934.

Warthin, Aldred Scott, Jr.

3562. Traverse-Hamilton ostracode correlations (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 197, February 28, 1933.

3563. Criteria for ostracode orientation: *Jour. Paleontology*, vol. 7, no. 4, p. 442, December 1933.

3564. Common Ostracoda of the Traverse group: *Michigan Univ., Mus. Paleontology, Contr.*, vol. 4, no. 12, pp. 205-226, 1 pl., January 15, 1934.

Washburn, H. B., Jr.

3565. Advancing glaciers in Alaska: *Science*, new ser., vol. 79, no. 2046, pp. 249-250, March 16, 1934.

Washburne, Chester Wesley.

3566. Shear control of dikes and sills near Eugene, Oreg. (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 107, February 28, 1933.

3567. (and Lahee, F. H.). Oil-field waters, foreword: *Problems of petroleum geology* (Sidney Powers memorial volume), pp. 833-840, *Am. Assoc. Petroleum Geologists*, 1934.

Waters, A. E., Jr.

3568. Placer concentrates of the Rampart and Hot Springs districts: *U. S. Geol. Survey, Bull.* 844, pp. 227-246, 1934.

Waters, Aaron Clement. See also Bradford, 372; Wells, 3600, 3601.

3569. Summary of the sedimentary, tectonic, igneous, and metalliferous history of Washington and Oregon: *Ore deposits of the Western States* (Lindgren volume), pp. 253-265, 1 fig. (map), *Am. Inst. Min. Met. Eng.*, 1933.

Waters, Aaron Clement—Continued.

3570. (and Bradford, D. C.). Active fault along western base of Cascade Range in Washington (abstract): *Pan-Am. Geologist*, vol. 59, no. 4, p. 310, May 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 308, June 1934.
3571. Terraces and coulees along the Columbia River near Lake Chelan, Wash.: *Geol. Soc. America, Bull.*, vol. 44, no. 4, pp. 783-820, 22 figs. (incl. map), August 31, 1933; abstract, vol. 44, pt. 1, p. 150, February 28, 1933.
3572. (and Campbell, Charles D.). Mylonites from San Andreas fault zone near Crystal Springs Lakes (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, pp. 319-320, May 1934.

Watson, Edward Hahn.

3573. Note on the dust storm of November 13, 1933: *Science*, new ser., vol. 79, no. 2049, p. 320, April 6, 1934.
3574. Differentiation in teschenite sills at El Mulato, Mexico (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 116-117, 445-446, June 1934.

Watson, Thomas L. See Virginia Geol. Survey, 3510.

Weatherby, B. B.

3575. Symposium on geophysics, foreword: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 1, pp. 1, 2, January 1934.
3576. (and Born, W. T., and Harding, R. L.). Granite and limestone velocity determinations in Arbuckle Mountains, Okla.: *Am. Assoc. Petroleum Geologists, Bull.* vol. 18, no. 1, pp. 106-118, 5 figs. (incl. geol. maps), January 1934; abstract, *Pan-Am. Geologist*, vol. 59, no. 3, p. 236, April 1933; abstract, *Tulsa Geol. Soc., Digest*, pp. 18-19, 1933.

Weaver, Charles Edwin.

3577. Geologic cross sections through the Coast Ranges immediately north of San Francisco Bay (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 155, February 28, 1933.
3578. Early Pliocene diastrophism in the Coast Ranges of northern California (abstract): *Geol. Soc. America, Proc.*, 1933, p. 117, June 1934.
3579. Stratigraphy of northern border of Olympic Peninsula (abstract): *Pan-Am. Geologist*, vol. 61, no. 5, pp. 377-378, June 1934.

Weaver, Paul.

3580. Geophysical work in the oil fields: *Mining and Metallurgy*, vol. 14, no. 313, pp. 29-30, January 1933.
3581. Relations of geophysics to geology: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 1, pp. 3-12, January 1934.

Webb, J. B.

3582. (and Hertlein, Leo George). Zones in Alberta shale ("Benton group") in foothills of southwestern Alberta: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 11, pp. 1387-1416, 6 figs. (incl. map), November 1934; abstract, *Geol. Soc. America, Proc.*, 1933, pp. 377-378, June 1934.

Webb, Robert W. See Putnam, 2678.

Webber, Irma Eleanor.

3583. Woods from the Ricardo Pliocene of Last Chance Gulch, Calif.: *Carnegie Inst. Washington, Pub.* no. 412, pp. 113-134, 5 pls., September 1933.

Weed, Walter Harvey.

3584. Copper and other ores of mineral pipes and disseminations (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 151, September 1934.

Weeks, Albert W.

3585. Lissie, Reynosa, and Upland Terrace deposits of Coastal Plain of Texas between Brazos River and Rio Grande (with discussion by Deussen, Alexander): Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 5, pp. 453-487, 4 figs., May 1933.

Weeks, Ludlow J.

3586. Maguse River and part of Ferguson River Basin, Northwest Territories: Canada, Geol. Survey, Summary Rept., 1932, pt. C, pp. 64-72, 1 fig. (map), 1933. (No. 2332.)
3587. The geology of eastern Arctic Canada: Canada's eastern Arctic, its history, resources, population and administration, pp. 138-143, 1 fig., 1 pl. (geol. map), Canada, Dept. Interior, Lands, Northwest Territories and Yukon Branch, 1934.

Weidman, Samuel. See also Singewald, 3101.

3588. Igneous intrusives in Silver City area, Kansas: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 10, pp. 1268-1270, 1 fig., October 1933.
3589. Tourmaline in jasperoid of the Miami-Picher zinc-lead district (abstract): Geol. Soc. America, Proc., 1933, pp. 117-118, June 1934.

Weirich, T. E. See Wrather, 3787.

Weirick, Gene.

3590. The Burbank sand of Kansas and Oklahoma: Oil Weekly, vol. 66, no. 10, pp. 25-26, 28, 3 figs., August 22, 1932.

Weisbord, Norman Edward.

3591. Some Cretaceous and Tertiary echinoids from Cuba: Bull. Am. Paleontology, vol. 20, no. 70-C, 270 pp., 9 pls., July 7, 1934.

Weller, James Marvin. See also Hubbert, 1602.

3592. (and McGehee, Rex). Typical form and range of *Mesolobus mesolobus*: Jour. Paleontology, vol. 7, no. 1, pp. 109-110, March 1933.
3593. Tri-State geological field conference of the upper Mississippi Valley: Science, new ser., vol. 79, no. 2039, pp. 80-82, January 26, 1934.
3594. The Warsaw formation (abstract): Illinois State Acad. Sci., Trans., vol. 26, no. 3, p. 106, March 1934.
3595. Variations in Pennsylvanian sedimentary environment (abstract): Geol. Soc. America, Proc., 1933, p. 118, June 1934.
3596. Boundaries of Pennsylvanian cyclothems (abstract): Illinois State Acad. Sci., Trans., vol. 27, no. 2, p. 121, December 1934.

Wells, Dana. See Price, 2665.

Wells, Francis Gerritt. See also Thompson, 3370, 3371.

3597. Notes on the Chieftain and Continental mines, Douglas County, Oreg.: U. S. Geol. Survey, Bull. 830, pp. 57-62, 1 fig., 2 pls., 1933.
3598. Lode deposits of Eureka and vicinity, Kantishna district, Alaska: U. S. Geol. Survey, Bull. 849, pp. viii, 355-379, 2 figs., 5 pls., 1933.
3599. Ground-water resources of western Tennessee, with a discussion of the chemical character of the water by Francis G. Wells and Margaret D. Foster: U. S. Geol. Survey, Water-Supply Paper 656, 319 pp., 18 figs. (incl. maps), 16 pls. (incl. maps), 1933.

Wells, Francis Gerritt—Continued.

- 3600. (and Waters, Aaron Clement). Basic igneous rocks of the Roseburg quadrangle, Oreg. (abstract): *Geol. Soc. America*, vol. 44, pt. 1, pp. 107-108, February 28, 1933.
- 3601. (and Waters, Aaron Clement). Quicksilver deposits of southwestern Oregon: *U. S. Geol. Survey, Bull.* 850, 58 pp., 4 figs., (incl. maps), 23 pls. (incl. geol. map), 1934.

Wells, John West.

- 3602. Corals of the Cretaceous of the Atlantic and Gulf Coastal Plains and Western Interior of the United States: *Bull. Am. Paleontology*, vol. 18, no. 67, 204 pp., 4 figs., 16 pls., August 3, 1933.
- 3603. Some fossil corals from the West Indies: *U. S. Nat. Mus., Proc.*, vol. 83, no. 2975, pp. 71-110, 4 pls., 1934.
- 3604. A new species of calcsponge from the Buda limestone of central Texas: *Jour. Paleontology*, vol. 8, no. 2, pp. 167-170, 1 fig., 1 pl., June 1934.
- 3605. Eocene corals, part 1, from Cuba; part 2, A new species of *Madracis* from Texas: *Bull. Am. Paleontology*, vol. 20, no. 70B, 20 pp., 3 pls., June 9, 1934.

Wells, Roger Clark.

- 3606. (and Fairchild, John G., and Ross, Clarence Samuel). Thorianite from Easton, Pa.: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 151, pp. 45-54, July 1933.
- 3607. Thorium minerals as age indicators: *Washington Acad. Sci., Jour.*, vol. 23, no. 12, pp. 541-544, December 15, 1933.
- 3608. Allanite from Wyoming: *Am. Mineralogist*, vol. 19, no. 2, pp. 81-82, February 1934.

Wendler, Arno P. See Bowling, 364.

Wentworth, Chester Keeler.

- 3609. The shapes of rock particles; a discussion: *Jour. Geology*, vol. 41, no. 3, pp. 306-309, April-May 1933.
- 3610. American doctorates in geology: *Jour. Geology*, vol. 41, no. 4, pp. 432-438, 1 fig., May-June 1933.
- 3611. Natural bridges and glaciation: *Am. Jour. Sci.*, 5th ser., vol. 26, no. 156, pp. 577-584, 4 figs., December 1933.
- 3612. (and Boswell, P. G. H.). Terminology of the coarse sediments (abstract): *Geol. Soc. America, Proc.*, 1933, p. 118, June 1934.
- 3613. (and Ray, Louis L.). Alaskan glacier positions in 1931 (abstract): *Geol. Soc. America, Proc.*, 1933, pp. 118-119, June 1934.
- 3614. (and Wilgus, Wallace L., and Koch, H. L.). A rotary type of sample splitter: *Jour. Sedimentary Petrology*, vol. 4, no. 3, pp. 127-138, 2 figs., December 1934.

Wernicke, Friedrich.

- 3615. Primary distribution of ores in ore deposits and its geologic causes, with particular regard to primary enrichment of ores (abstract): *Pan-Am. Geologist*, vol. 62, no. 2, pp. 153-154, September 1934.

Western, Forrest.

- 3616. (and Ruark, Arthur Edward). Actinouranium and the geologic time scale: *Phys. Rev.*, 2d ser., vol. 43, no. 3, pp. 205-207, 1 fig., February 1, 1933.

Westgate, Lewis Gardner.

3617. (and Fischer, Richard P.). Bone beds and crinoidal sands of the Delaware limestone of central Ohio: Geol. Soc. America, Bull., vol. 44, no. 6, pp. 1161-1172, 3 figs., December 31, 1933; abstract, vol. 44, pt. 1, p. 108, February 28, 1933.

Wetmore, Alexander.

3618. Observations on fossil birds described from the Miocene of Maryland: Auk, vol. 43, no. 4, pp. 462-468, October 1926.
3619. Present status of the check list of fossil birds for North America: Auk, vol. 44, no. 2, pp. 179-183, April 1927.
3620. A record of the ruffed grouse from the Pleistocene of Maryland: Auk, vol. 44, no. 4, p. 561, 1927.
3621. Bones of birds from the Ciego Montero deposit of Cuba: Am. Mus. Novitates, no. 301, 5 pp., 2 figs. February 29, 1928.
3622. The tibio-tarsus of the fossil hawk *Buteo typhoius*: Condor, vol. 30, pp. 149-150, 4 figs., March 1928.
3623. The fossil birds of the A. O. U. check list: Condor, vol. 32, pp. 12-14, January 1930.
3624. (and Martin, Handel T.). A fossil crane from the Pliocene of Kansas: Condor, vol. 32, pp. 62-63, 3 figs., January 1930.
3625. The age of the supposed Cretaceous birds from New Jersey: Auk, vol. 47, no. 2, pp. 186-188, April 1930.
3626. Two fossil birds from the Miocene of Nebraska: Condor, vol. 32, pp. 152-154, 6 figs., May 1930.
3627. The supposed plumage of the Eocene *Diatryma*: Auk, vol. 47, pp. 579-580, October 1930.
3628. The Pleistocene avifauna of Florida: 7th Internat. Ornithol. Cong., Amsterdam, 1930, Proc., pp. 479-483, 1931.
3629. Two primitive rails from the Eocene of Colorado and Wyoming: Condor, vol. 33, no. 3, pp. 107-109, 9 figs., May-June 1931.
3630. Bones of the great horned owl from the Carlsbad Caverns: Condor, vol. 33, no. 6, pp. 248-249, November-December 1931.
3631. Record of an unknown woodpecker from the lower Pliocene: Condor, vol. 33, no. 6, pp. 255-256, November-December 1931.
3632. Additional records of birds from cavern deposits in New Mexico: Condor, vol. 34, no. 3, pp. 141-142, May-June 1932.
3633. Development of our knowledge of fossil birds: Fifty years' progress of American ornithology, 1883-1933, pp. 231-239. Lancaster, Pa., American Ornithologists Union, 1933.
3634. A fossil gallinaceous bird from the lower Miocene of Nebraska: Condor, vol. 35, no. 2, pp. 64-65, 5 figs., March-April 1933.
3635. A second specimen of the fossil bird *Bathornis veredus*: Auk, vol. 50, no. 2, pp. 213-214, April 1933.
3636. Fossil bird remains from the Eocene of Wyoming: Condor, vol. 35, no. 3, pp. 115-118, 5 figs., May-June 1933.
3637. Bird remains from the Oligocene deposits of Torrington, Wyo.: Harvard Coll., Mus. Comp. Zoology, Bull., vol. 75, no. 7, pp. 297-311, 19 figs., October 1933.
3638. The status of *Minerva antiqua*, *Aquila ferox*, and *Aquila lydekkeri* as fossil birds: Am. Mus. Novitates, no. 680, 4 pp., 1 fig., December 4, 1933.
3639. An Oligocene eagle from Wyoming: Smithsonian Misc. Coll., vol. 87, no. 19 (Pub. 3227), 9 pp., 17 figs., December 26, 1933.

Wetmore, Alexander—Continued.

3640. Pliocene bird remains from Idaho: Smithsonian Misc. Coll., vol. 87, no. 20 (Pub. 3228), 12 pp., 8 figs., December 27, 1933.
3641. A fossil quail from Nebraska: Condor, vol. 36, p. 30, 1 fig., January 1934.
3642. (and Case, Ermine Cowles). A new fossil hawk from the Oligocene beds of South Dakota: Michigan Univ., Mus. Paleontology, Contr., vol. 4, no. 8, pp. 129-132, 1 pl., January 15, 1934.
3643. A systematic classification for the birds of the world, revised and amended: Smithsonian Misc. Coll., vol. 89, no. 13 (Pub. 3242), 11 pp., April 23, 1934.
3644. The types of the fossil mammals described as *Aquila antiqua* and *Aquila ferox*: Jour. Mammalogy, vol. 15, no. 3, p. 251, August 1934.

Wheeler, E. P., II.

3645. A study of some diabase dikes on the Labrador coast: Jour. Geology, vol. 41, no. 4, pp. 418-431, 1 fig., May-June 1933.

Wheeler, Harry E.

3646. Fusulinids of the McCloud and Nosoni formations of north California (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 218, February 28, 1933.
3647. The Carboniferous-Permian dilemma: Jour. Geology, vol. 42, no. 1, pp. 62-70, 1 fig., January-February 1934; abstract, Pan-Am. Geologist, vol. 59, no. 4, p. 304, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 302, June 1934.
3648. Anthracolithic trilobites from northern California (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 71, August 1934.

Wherry, Edgar Theodore.

3649. A conifer from the Triassic of Bucks County, Pa.: Pennsylvania Acad. Sci., Proc., vol. 7, p. 164, 1933.

Whitcomb, Lawrence. See also Cooper, 750.

3650. (and Engel, J. A.). The probable Triassic age of the Spitzenberg conglomerate, Berks County, Pa.: Pennsylvania Acad. Sci., Proc., vol. 8, pp. 37-43, 1934.
3651. (and Rosenkrans, R. R.). Bentonites in the lower Chambersburg (abstract): Geol. Soc. America, Proc., 1933, p. 381, June 1934.
3652. Possible volcanic sources of the Ordovician bentonite (abstract): Geol. Soc. America, Proc., 1933, p. 382, June 1934.

White, Charles David, 1862-1935.

3653. *Megalopteris* and the giant winged cardiocarps (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, p. 213, February 28, 1933.
3654. Some features of flowers and fruit of a new *Cordaites* (abstract): Science, new ser., vol. 77, p. 460, May 12, 1933.
3655. Role of water conditions in the formation and differentiation of common (banded) coals: Econ. Geology, vol. 28, no. 6, pp. 556-570, 1 fig., September-October 1933.
3656. Some features of American Permian (abstract): Pan-Am. Geologist, vol. 60, no. 4, pp. 314-315, November 1933.
3657. Pre-Cambrian seas? (abstract): Washington Acad. Sci., Jour., vol. 23, no. 12, pp. 570-571, December 15, 1933.

White, Charles David—Continued.

3658. (and others). Geology and occurrences of petroleum in the United States: Petroleum investigation, pt. 2 (U. S., 73d Cong., H. R., Committee on Interstate and Foreign Commerce, Hearings before a subcommittee on H. Res. 441), pp. 869-1086, 75 figs. (incl. maps), 56 pls. (incl. geol. maps), 1934.
3659. Some erroneous age records of Paleozoic plant genera: Science, new ser., vol. 79, no. 2039, pp. 77-78, January 26, 1934.
3660. The age of the Pocono: Am. Jour. Sci., 5th ser., vol. 27, no. 160, pp. 265-272, April 1934.
3661. The seeds of *Supaia*, a Permian pteridosperm (abstract): Science, new ser., vol. 29, no. 2055, p. 462, May 18, 1934.
3662. Pocono orogeny, age, climate (abstract): Geol. Soc. America, Proc., 1933, p. 119, June 1934.
3663. Age of Jackfork and Stanley formations of Ouachita geosyncline, Arkansas and Oklahoma, as indicated by plants: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 8, pp. 1010-1017, August 1934.

White, Errol I.

3664. A fossil fish from Barbados: Geol. Mag., no. 829 (vol. 70, no. 7), p. 336, July 1933.

White, George Willard.

3665. The Pleistocene geology of the region of the reentrant angle in the glacial boundary in north-central Ohio (abstract): Ohio State Univ., Abstracts of doctors' dissertations, no. 13, pp. 282-293, 2 sketch maps, 1934.
3666. Peripheral zone of stagnation of the last ice sheet in northeast-central Ohio (abstract): Geol. Soc. America, Proc., 1933, pp. 455-456, June 1934.
3667. Soil minerals as a check on the location of the Wisconsin-Illinoian drift boundary in north-central Ohio: Science, new ser., vol. 79, no. 2059, pp. 549-550, 2 figs., June 15, 1934.
3668. Drainage history of north-central Ohio: Ohio Jour. Sci., vol. 34, no. 6, pp. 365-382, 6 figs. (incl. maps), November 1934.

White, Walter N.

3669. (and Turner, Samuel Foster, and Lynch, W. A.). Ground water in Dimmit and Zavala Counties, Tex.: U. S. Dept. Interior [U. S. Geol. Survey, Press Mem. 83105, 4 pp. (†), 1 pl. (map), April 11, 1934.

White, T. E. See Case, 592.

Whitehead, R. B.

3670. Notes on East Texas oil field, with estimates on total recovery (abstract): Tulsa Geol. Soc., Summaries and Abstracts, 1932, Tulsa Daily World, February 1, 1932.

Whitlatch, George Isaac.

3671. The clay resources of Indiana: Indiana, Dept. Conservation, Pub. no. 123, 298 pp., 40 figs., 1933.
3672. The commercial underclays of Indiana: Am. Ceramic Soc., Jour., vol. 16, no. 1, pp. 45-53, January 1933.
3673. (and Wilson, Charles William, Jr.). A fossil turtle from the Midway group of western Tennessee: Tennessee Acad. Sci., Jour., vol. 9, no. 4, pp. 260-261, October 1934.

Whitley, Gilbert P.

3674. New names for fossil fishes: *Copeia*, no. 3, p. 146, October 15, 1933.

Whitlock, Herbert Percy. See also Berkey, 263.

3675. The opals of the Morgan gem collection: *Rocks and Minerals*, vol. 8, no. 1, pp. 12-13, 3 figs., March 1933.

3676. Memorial of George Frederick Kunz [1856-1932]: *Geol. Soc. America, Bull.*, vol. 44, pt. 2, pp. 377-394, port., April 30, 1933.

3677. A century of progress in crystallography: *Am. Mineralogist*, vol. 19, no. 3, pp. 93-100, March 1934.

Whitman, A. R. See Graton, 1304.

Whitson, Andrew Robinson.

3678. (and others). Soil survey of Monroe County: *Wisconsin Geol. and Nat. Hist. Survey Bull.* no. 60B, 93 pp., 12 figs., map, 1931.

Wickenden, Robert Thomas Daubigny. See also Russell, 2889.

3679. Columnar sections of the Paleozoic as shown in well sections in Manitoba (abstract): *Roy. Soc. Canada, Trans.*, vol. 27, p. cxliii, 1933.

3680. The occurrence of Jurassic in Manitoba (abstract): *Roy. Soc. Canada, Trans.*, vol. 27, p. cxliii, 1933.

3681. Jurassic Foraminifera from wells in Alberta and Saskatchewan: *Royal Soc. Canada, Trans.*, 3d ser., vol. 27, p. cxliv (abstract); *sec.* 4, pp. 157-170, 2 pls., May 1933.

3682. Paleozoic and Jurassic formations in well sections in Manitoba: *Canada, Geol. Survey, Summary Rept.*, 1933, pt. B, pp. 158-168, 1934. (No. 2353.)

Wiedey, Lionel William.

3683. Some previously unpublished figures of type mollusks from California: *Nautilus*, vol. 43, no. 1, pp. 21-26, 3 pls., July 1929.

Wieland, George Reber.

3684. Wood opalization: *Science*, new ser., vol. 76, no. 1969, pp. 278-279, September 23, 1932.

3685. Origin of angiosperms: *Nature*, vol. 131, no. 3306, pp. 360-361, March 11, 1933.

3686. A silicified shelf fungus from the Lower Cretaceous of Montana: *Am. Mus. Novitates*, no. 725, 13 pp., 11 figs., May 11, 1934.

3687. Wood anatomy and angiosperm origin: *Tropical Woods* (Yale Univ., School Forestry), no. 39, 11 pp., September 1, 1934.

Wienert, F.

3688. Formation of martite and other iron oxides in sideritic ore of the Marquette district, Michigan: *Econ. Geology*, vol. 28, no. 1, pp. 68-74, 4 figs., January-February 1933.

Wigglesworth, Edward. See Woodworth, 3779.

Wilcox, Stanley W.

3689. (and Schwartz, George Melvin). Reconnaissance of buried river gorges by the earth-resistivity method: *Econ. Geology*, vol. 29, no. 5, pp. 435-453, 3 figs., August 1934.

Wilgus, Wallace L. See also Wentworth, 3614.

3690. Heavy minerals of the Dresbach sandstone of western Wisconsin: *Jour. Sedimentary Petrology*, vol. 3, no. 2, pp. 83-91, 2 figs., August 1933.

Wilkerson, Albert Samuel.

3691. Fairbanks, Alaska; a study of its people and their environment: Geog. Soc. Philadelphia, Bull., vol. 31, no. 4, pp. 131-174, 9 figs., October 1933.

Wilkinson, W. D.

3692. Spherulites in Clarno acid lavas (abstract); Pan-Am. Geologist, vol. 61, no. 5, p. 372, June 1934.
3693. The occurrence of spherulites in the acid lavas of the Clarno formation, Oregon: Northwest Sci., vol. 8, no. 4, pp. 3-6, December 1934.

Willard, Bradford. See also Hickok, 1501.

3694. Devonian faunas in Pennsylvania: Pennsylvania Geol. Survey, 4th ser., Bull. G 4, 43 pp., 1932.
3695. Chemung of southwestern Pennsylvania: Pennsylvania Acad. Sci., Proc., vol. 7, pp. 148-159, map, 1933.
3696. A new Chemung eurypterid from Pennsylvania: Am. Midland Naturalist, vol. 14, no. 1, pp. 52-57, 1 fig., January 1933.
3697. "Catskill" sedimentation in Pennsylvania: Geol. Soc. America, Bull., vol. 44, no. 3, pp. 495-516, 2 figs., June 30, 1933; abstract, pt. 1, p. 108, February 28, 1933.
3698. (and Cleaves, Arthur Bailey). Hamilton group of eastern Pennsylvania: Geol. Soc. America, Bull., vol. 44, no. 4, pp. 757-782, 2 figs. (incl. map), August 31, 1933; abstract, pt. 1, p. 197, February 28, 1933.
3699. A Tully limestone outcrop in Pennsylvania: Pennsylvania Acad. Sci., Proc., vol. 8, pp. 57-62, 1 fig., 1934.
3700. Chemung tracks and trails from Pennsylvania (abstract): Geol. Soc. America, Proc., 1933, pp. 346-347, June 1934.
3701. Additional Triassic dinosaur tracks from Pennsylvania: Science, new ser., vol. 80, no. 2064, pp. 73-74, July 20, 1934.
3702. Early Chemung shore line in Pennsylvania: Geol. Soc. America, Bull., vol. 45, no. 5, pp. 897-908, 1 fig. (map), October 31, 1934; abstract, Proc., 1933, p. 120, June 1934.

Williams, Charles R.

3703. Geology in the Franconia region: Appalachia, vol. 20, no. 4, pp. 69-73, 2 figs., 2 pls., June 1934.

Williams, E. F. See Emmons, 1023.

Williams, Fred T.

3704. (and McCoy, Elizabeth). On the role of microorganisms in the precipitation of calcium carbonate in the deposits of fresh-water lakes: Jour. Sedimentary Petrology, vol. 4, no. 3, pp. 113-126, 3 figs., December 1934.

Williams, Howel.

3705. Geology of the Lassen Volcanic National Park, Calif.: California, Univ., Dept. Geol. Sci., Bull., vol. 21, no. 8, pp. 195-385, 64 figs., 2 pls. (geol. maps), 1932.
3706. Mount Thielsen, a dissected Cascade volcano: California, Univ., Dept. Geol. Sci., Bull., vol. 23, no. 6, pp. 195-213, 13 figs. (incl. geol. map), 1933.
3707. Mount Shasta, Calif.: Zeitschr. Vulkanologie, Band 15, Heft 4, pp. 225-253, 1 fig. (map), 7 pls., September 1934.

Williams, Ira Abraham. See also Berkey, 261.

3708. Geology of Ariel dam site (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, pp. 157-158, February 28, 1933.

Williams, James Steele. See also Reeside, 2725; Rowley, 2857.

3709. A new Pennsylvania trilobite from Missouri: *Washington Acad. Sci., Jour.*, vol. 23, no. 9, pp. 429-435, 2 figs., September 15, 1933.
3710. Correlation of the Louisiana limestone with beds at Kinderhook, Ill., and Burlington, Iowa (abstract): *Washington Acad. Sci., Jour.*, vol. 24, no. 11, pp. 490-491, November 11, 1934.

Williams, James Stewart. See Cooper, 752.

Williams, Merton Yarwood.

3711. Land movements and sedimentation (abstract): *Geol. Soc. America, Bull.*, vol. 44, pt. 1, p. 169, February 28, 1933.
3712. Mineral resources of the Peace River area, British Columbia: *Canadian Min. Met. Bull.*, no. 267, pp. 351-357, July 1934.

Willis, Bailey.

3713. Studies in comparative seismology: *Carnegie Inst. Washington, Year Book* no. 32, p. 372, 1933.
3714. (and Willis, Robin). *Geologic structures*. 3d ed., revised. 544 pp., 214 figs., New York, McGraw-Hill Book Co., Inc., 1934.
3715. Isostasy and the eruptive crust (abstract): *Science, new ser.*, vol. 79, no. 2056, pp. 484-485, May 25, 1934.

Willis, Robin. See also Willis, B., 3714.

3716. Development of thrust faults (abstract): *Pan-Am. Geologist*, vol. 59, no. 4, p. 319, May 1933; abstract, *Geol. Soc. America, Proc.*, 1933, p. 310, June 1934.
3717. (and Hake, B. F., and Addison, C. C.). Folded sheet thrusts in the foothills of Alberta (abstract): *Pan-Am. Geologist*, vol. 61, no. 4, pp. 318-319, May 1934.

Willman, Harold Bowen. See Lamar, 1960, 1961.

Wilson, Alice Evelyn.

3718. Fossils from Baffin Island, collected by J. Dewey Soper: *Canada, Nat. Mus., Bull.* 53 (Biol. ser. no. 15), pp. 124-129, 1928.

Wilson, C. H. See Jakosky, 1645, 1647.

Wilson, Charles William. See Thom, 3359.

Wilson, Charles William, Jr. See also Whitlach, 3673.

3719. Fauna of the McAlester shale, Pennsylvanian, of Muskogee County, Okla.: *Jour. Paleontology*, vol. 7, no. 4, pp. 412-422, 1 fig., 1 pl., December 1933.
3720. Section of Paleozoic and Mesozoic rocks measured at Cinnabar Mountain, Park County, Mont., and at Mount Everts, Yellowstone National Park, Wyo.: *Am. Assoc. Petroleum Geologists, Bull.*, vol. 18, no. 3, pp. 368-379, March 1934.
3721. A study of the jointing in the Five Springs Creek area, east of Kane, Wyo.: *Jour. Geology*, vol. 42, no. 5, pp. 498-522, 12 figs. (incl. geol. map), July-August 1934.
3722. Geology of the thrust fault near Gardiner, Mont.; *Jour. Geology*, vol. 42, no. 6, pp. 649-663, 7 figs. (incl. map), 1 pl. (geol. map), August-September 1934.

Wilson, Druid. See Tucker, 3417.

Wilson, Eldred Dewey.

- 3723. Geology and mineral deposits of southern Yuma County, Ariz.: Arizona Bur. Mines, Bull. no. 134 (Geol. ser. no. 7) (Arizona, Univ., Bull., vol. 4, no. 2), 236 pp. 29 figs., 4 geol. maps, 1933: abstract, Min. Jour. (Arizona), vol. 17, no. 9, pp. 3-4, 3 figs., September 30, 1933.
- 3724. Arizona gold placers: Arizona Bur. Mines, Bull. no. 135 (Min. Tech. ser. no. 35) (Arizona, Univ., Bull., vol. 4, no. 6), pp. 9-89, 10 figs. (incl. index map), August 15, 1933.
- 3725. (and Cunningham, J. B., and Butler, Gurdon Montague). Arizona lode-gold mines and gold mining: Arizona Bur. Mines, Bull. no. 137 (Min. Tech. ser. no. 37), 261 pp., 27 figs. (incl. maps), 6 pls. (incl. geol. map), August 15, 1934.

Wilson, Hewitt.

- 3726. (and Goodspeed, George Edward). Kaolin and china clay in the Pacific Northwest: Washington, Univ., Eng. Exper. Sta. ser., Bull. no. 76, 188 pp., 59 figs. (incl. geol. map), September 1934.

Wilson, Morley Evans.

- 3727. The "blue limestone" of Hastings County, Ontario: Canadian Field Naturalist, vol. 47, no. 2, pp. 33-34, 2 figs., February 1933.
- 3728. The Claire River syncline: Royal Soc. Canada, Trans., 3d ser., vol. 27, p. cxli (abstract); sec. 4, pp. 7-11, 1 fig., 1 pl., May 1933.
- 3729. An ancient lava field in the Canadian Shield: Canadian Field Naturalist, vol. 47, no. 5, pp. 87-88, 2 figs., May 1933.
- 3730. The oldest mountains in Canada: Canadian Field Naturalist, vol. 46, no. 9, pp. 174-175, 2 figs., December 1933.
- 3731. Amulet mine, Noranda district, Quebec: Canada, Geol. Survey, Summary Rept., 1933, pt. D, pp. 83-120, 4 figs., 1 pl., 1934. (Pub. no. 2351.)
- 3732. Magnesite in Canada: Canadian Min. Jour., vol. 55, no. 5, pp. 239-241, 2 figs., May 1934.
- 3733. The multiple and complementary sills and dikes at Waite-Ackerman-Montgomery mine, Noranda district, Quebec: Royal Soc. Canada, Trans., 3d ser., vol. 28, sec. 4, pp. 65-74, 1 fig., 1 pl. (geol. map), May 1934.

Wilson, N. L. See Osborne, 2540.

Wilson, Robert W.

- 3734. *Cosomys*, a new genus of vole from the Pliocene of California: Jour. Mammalogy, vol. 13, no. 2, pp. 150-154, 1 pl., May 1932.
- 3735. Pleistocene rodent fauna from the Carpinteria asphalt deposits (abstract): Geol. Soc. America, Bull., vol. 44, pt. 1, pp. 219-220, February 28, 1933.
- 3736. Pleistocene mammalian fauna from the Carpinteria asphalt: Carnegie Inst. Washington, Pub. 440, Contr. Paleontology, pp. 59-76, May 1934.
- 3737. A rodent fauna from later Cenozoic beds of southwestern Idaho: Carnegie Inst. Washington, Pub. 440, Contr. Paleontology, pp. 117-136, 8 figs. (incl. map), 2 pls., May 1934; abstract, Pan-Am. Geologist, vol. 59, no. 5, p. 377, June 1933; abstract, Geol. Soc. America, Proc., 1933, p. 391, June 1934.

Wilson, Robert W.—Continued.

3738. New fauna from the Sespe of Las Posas Hills (abstract): Pan-Am. Geologist, vol. 62, no. 1, p. 69, August 1934.

Wilson, Roy Arthur.

3739. Thrust faulting in the Empire Mountains of southeastern Arizona: Jour. Geology, vol. 42, no. 4, pp. 422–429, 4 figs., May–June 1934.
3740. The gold deposits of Georgia: Forestry-Geol. Rev., vol. 4, no. 10, pp. 7–8, 2 figs., October 1934; no. 11, pp. 7–8, 1 fig., November 1934; no. 12, pp. 7–8, 2 figs., December 1934.

Wilson, T. Yates. See Vaughan, 3490.

Wilson, Walter Byron.

3741. Proposed classification of oil and gas reservoirs: Problems of petroleum geology (Sidney Powers memorial volume), pp. 433–445, 4 figs., Am. Assoc. Petroleum Geologists, 1934.
3742. Classification of oil and gas reservoirs: Pan-Am. Geologist, vol. 62, no. 5, pp. 347–358, 3 figs., December 1934.

Wiman, Carl.

3743. Ueber Schildkröten aus der oberen Kreide in New Mexico: R. soc. sci. upsaliensis, Nova acta, ser. 4, vol. 9, no. 5, 36 pp., 6 pls., 1933.

Wimber, Raymond.

3744. (and Crawford, Arthur Lorenzo). The occurrence and possible economic value of diatomaceous earth in Utah (abstract): Utah Acad. Sci., Proc., vol. 10, p. 61, July 1933.

Winchell, Alexander Newton.

3745. Elements of optical mineralogy, an introduction to microscopic petrography; pt. 2, Descriptions of minerals with special reference to their optic and microscopic characters. 3d ed., 459 pp., 361 figs. New York, John Wiley & Sons, Inc., 1933.
3746. The new mineralogy: Am. Mineralogist, vol. 18, no. 3, pp. 81–90, 5 figs., March 1933.

Winchester, Dean Eddy.

3747. The oil and gas resources of New Mexico: New Mexico School of Mines, Bull. no. 9, 223 pp., 11 figs., 33 pls. (incl. maps), 1933.

Wisconsin Geological and Natural History Survey.

3748. Geologic map of Wisconsin, revised by E. F. Bean. Scale 1:1,000,000. 1928.

Wisniewski, Stanley P.

3749. Choice millerite collection at Milwaukee, Wis.: Oregon Mineralogist, vol. 2, no. 12, p. 18, December 1934.

Wodehouse, Roger Philip.

3750. Tertiary pollen 2, The oil shales of the Eocene Green River formation: Torrey Bot. Club, Bull., vol. 60, no. 7, pp. 479–521, 48 figs., October 1933.
3751. A Tertiary *Ephedra*: Torrey, vol. 34, no. 1, pp. 1–4, 2 figs., January–February 1934.

Wolf, A. See Lane, 1985.

Wolf, Albert G. See Hanna, 1389; Wrather, 3787.

Wolf, Arthur. See Billings, 302.

Wood, Albert Elmer. See also Wood, H. E., 2d, 3765.

3752. Phylogeny of the heteromyid rodents: *Am. Mus. Novitates*, no. 501, 19 pp., 5 figs., 1 pl. (table), October 16, 1931.

3753. (and Wood, Horace Elmer, 2d). The genetic and phylogenetic significance of the presence of a third upper molar in a modern dog: *Am. Midland Naturalist*, vol. 14, no. 1, pp. 36-48, 3 figs., January 1933.

3754. A new heteromyid rodent from the Oligocene of Montana: *Jour. Mammalogy*, vol. 14, no. 2, pp. 134-141, 7 figs., May 1933.

3755. Pleistocene prairie dog from Frederick, Okla.: *Jour. Mammalogy*, vol. 14, no. 2, p. 160, May 1933.

Wood, Harry Oscar. See also Gutenberg, 1359.

3756. Preliminary report on the Long Beach earthquake: *Seismol. Soc. America, Bull.*, vol. 23, no. 2, pp. 43-56, 7 pls. (incl. map), April 1933.

3757. (and Buwalda, John Peter, and Martel, Romeo Raoul). The Long Beach earthquake (abstract): *Science*, new ser., vol. 78, no. 2016, pp. 147-148, August 18, 1933.

3758. Note on the Long Beach earthquake: *Science*, new ser., vol. 78, no. 2022, pp. 281-282, September 29, 1933.

3759. Volcanic earthquakes: *Nat. Research Council, Bull.*, no. 90, pp. 9-31, October 1933.

3760. Earthquake investigation in the field: *Nat. Research Council, Bull.*, no. 90, pp. 41-66, October 1933.

3761. "Apparent" intensity and surface geology: *Nat. Research Council, Bull.*, no. 90, pp. 67-82, October 1933.

3762. (and Allen, Maxwell Wilford, and Heck, Nicholas Hunter). Destructive and near-destructive earthquakes in California and western Nevada, 1769-1933: *U. S. Coast and Geodetic Survey, Special Pub. no. 191*, 24 pp., 1934.

Wood, Horace Elmer, 2d. See also Wood, A. E., 3753.

3763. Lower Oligocene rhinoceroses of the genus *Trigonias*: *Jour. Mammalogy*, vol. 12, no. 4, pp. 414-428, 4 figs., November 1931.

3764. A fossil rhinoceros (*Diceratherium armatum* Marsh) from Gallatin County, Mont.: *U. S. Nat. Mus., Proc.*, vol. 82, art. 7, 4 pp., 3 pls., March 14, 1933.

3765. (and Wood, Albert Elmer). *Daemohelix* in the Pleistocene of Texas: *Jour. Geology*, vol. 41, no. 8, pp. 824-833, 5 figs., November-December 1933.

3766. Revision of the Hyrachyidae: *Am. Mus. Nat. History Bull.*, vol. 67, art. 5, pp. 181-295, 51 figs., 5 pls., May 26, 1934.

Wood, L. W.

3767. Road materials from the Des Moines series of the Pennsylvanian system of south-central Iowa: *Iowa Acad. Sci., Proc.*, 1930, vol. 37, pp. 267-272, 1 pl. [1931].

3768. The Cedar Valley limestone at Glory and at Waterloo, Iowa: *Iowa Acad. Sci., Proc.*, 1932, vol. 39, pp. 179-182 [1932].

3769. A general section for the Missouri series in Madison County, Iowa: *Iowa Acad. Sci., Proc.*, 1933, vol. 40, pp. 117-122, map [1933?].

3770. Section at the Fort Dodge Limestone Company mine at Fort Dodge: *Iowa Acad. Sci., Proc.*, 1933, vol. 40, pp. 123-126 [1933?]; abstract, *Pan-Am. Geologist*, vol. 60, no. 1, p. 76, August 1933.

Wood, L. W.—Continued.

3771. Stratigraphy of Hopkinton formation (abstract): Pan-Am. Geologist, vol. 60, no. 1, pp. 75–76, August 1933.

3772. Pre-Wisconsin glacial valley in southwestern Hancock County [Iowa] (abstract): Pan-Am. Geologist, vol. 62, no. 2, pp. 134–135, September 1934.

Woodford, Alfred Oswald. See also Lauder milk, 2007; Gross, 1333.

3773. (and Taylor, Edward). Longitudinal profiles of streams (abstract): Pan-Am. Geologist, vol. 59, no. 4, pp. 309–310, May 1933; abstract, Geol. Soc. America, Proc., 1933, p. 307, June 1934.

3774. (and Kelley, Walter Pearson, and Brown, S. M.). Clay minerals of California soils (abstract): Pan-Am. Geologist, vol. 59, no. 4, pp. 315–316, May 1933; abstract, Geol. Soc. America, Proc., 1933, pp. 313–314, June 1934.

3775. Proceedings of the thirty-second annual meeting of the Cordilleran section of the Geological Society of America, held at the University of California at Los Angeles, April 7 and 8, 1933: Geol. Soc. America, Proc., 1933, pp. 299–318, June 1934.

Woodhouse, C. D.

3776. A new occurrence of montroydite in California: Am. Mineralogist, vol. 19, no. 12, pp. 603–604, December 1934.

Woodring, Wendell Phillips. See also Gale, 1199; Reeside, 2725.

3777. *Epitonium fallaciosum*: Nautilus, vol. 45, no. 1, p. 31, July 1931.

Woodward, Arthur Smith. See also Zittel, 3819.

3778. Notes on some recently discovered Paleozoic fishes: Annals and Mag. Nat. History, 10th ser., vol. 13, no. 77, pp. 526–528, May 1934.

Woodworth, Jay Backus.

3779. (and Wigglesworth, Edward, and others). Geography and geology of the region including Cape Cod, the Elizabeth Islands, Nantucket, Martha's Vineyard, No Mans Land, and Block Island: Harvard Coll., Mus. Comp. Zoology, Mem., vol. 52, 338 pp., 38 pls. (incl. geol. maps), July 1934; reviewed by Kirk Bryan, Boston Soc. Nat. History, Bull., no. 74, pp. 9–13, January 1935.

Woolley, Ralf Rumel. See Carlston, 580.

Wooster, Lyman Child.

3780. The chert gravels of Lyon County, Kans.: Kansas Acad. Sci., Trans., vol. 37, pp. 157–159, 1934.

Wootton, Thomas Peltier. See Lasky, 2004.

Worcester, Philip Gregory.

3781. Peneplanation and baseleveling in the Rocky Mountains (abstract): Colorado-Wyoming Acad. Sci., Jour., vol. 1, no. 3, pp. 27–28, April 1931.

Work, P. Murray.

3782. Thermal springs of southeastern Black Hills of South Dakota (abstract): Pan-Am. Geologist, vol. 62, no. 2, p. 141, September 1934.

3783. Cycles of erosion in central Black Hills (abstract): Pan-Am. Geologist, vol. 62, no. 2, pp. 141–142, September 1934.

Workman, Lewis Edwin. See also Collingwood, 704; Ekblaw, 998.

3784. The stratigraphic position of the Hoing sand (abstract): Illinois State Acad. Sci., Trans., vol. 26, no. 3, p. 107, March 1934.

3785. The subsurface stratigraphy of the Decatur region (abstract): Illinois Acad. Sci., Trans., vol. 27, no. 2, pp. 122-123, December 1934.

3786. (and Huner, J., Jr.). The subsurface stratigraphy of the Devonian in western Illinois (abstract): Illinois Acad. Sci., Trans., vol. 27, no. 2, pp. 123-124, December 1934.

Wrather, William Embry.

3787. (and others). Oklahoma and Texas: Internat. Geol. Cong., XVI, United States, 1933, Guidebook 6, Excursion A-6, 91 pp., 28 figs. (incl. maps), 13 pls. (incl. geol. maps), 1933. Contains the following papers:

Wrather, William Embry. Introduction, pp. 1-16, 3 pls. (incl. geol. map); The Van oil field, Texas, pp. 61-66, 2 figs.

Weirich, T. E. The Cushing oil and gas field, Oklahoma, pp. 16-25, 6 figs.

Charles, Homer H. The Oklahoma City oil field, Oklahoma, pp. 26-31, 4 figs., 1 pl.

Scott, Gayle. The Cretaceous of Texas, pp. 46-61, 2 pls.

Tomlinson, Charles Weldon. The Arbuckle Mountains and Ardmore Basin, pp. 33-46, 3 figs., 2 pls. (geol. maps).

Lahee, Frederick Henry. The East Texas oil field, pp. 67-77, 5 figs., 1 pl.; The Keechi and Palestine salt domes, Texas, pp. 77-82, 3 figs., 3 pls.

Teas, Livingston Pierson. The Sugarland oil field, Texas, pp. 82-86, 1 fig., 1 pl.

Wolf, Albert G. The Boling dome, Texas, pp. 86-91, 3 figs.

3788. (and Lahee, Frederic Henry, and others). Problems of petroleum geology (Sidney Powers memorial volume), a sequel to Structure of typical American oil fields, 1073 pp., 88 figs. (incl. maps), 7 pls. (incl. port. and relief map), Am. Assoc. Petroleum Geologists, 1934.

3789. Dedication of the Sidney Powers memorial volume: Problems of petroleum geology, pp. v-vii, 1 pl. (port.) Am. Assoc. Petroleum Geologists, 1934.

3790. (and Lahee, Frederic Henry). Preface to Sidney Powers memorial volume: Problems of petroleum geology, pp. ix-x, Am. Assoc. Petroleum Geologists, 1934.

3791. Relations of petroleum accumulation to structure, foreword: Problems of petroleum geology (Sidney Powers memorial volume), pp. 429-431, Am. Assoc. Petroleum Geologists, 1934.

Wright, C. A. See Jackson, 1639.

Wright, Frank James. See also Virginia Geol. Survey, 3510.

3792. Post-Harrisburg drainage changes in the upper Roanoke and James River Basins in Virginia (abstract): Assoc. Am. Geographers, Annals, vol. 24, no. 1, p. 75, March 1934.

3793. The newer Appalachians of the South, part 1, Between the Potomac and the New Rivers: Denison Univ., Bull., vol. 34, no. 13 (Sci. Lab., Jour., vol. 29, art. 1), pp. 1-105, 17 pls., April 1934.

3794. Later geomorphic history of the Natural Bridge region in Virginia (abstract): Geol. Soc. America, Proc., 1933, pp. 120-121, June 1934.

Wright, Harold M.

3795. (and Crawford, Arthur Lorenzo.). Canada's new source of radium (abstract): Utah Acad. Sci., Proc., vol. 9, p. 49, June 1932.

Wright, Harry F.

3796. Bottom-hole pressure (abstract): Tulsa Geol. Soc., Digest, pp 39-46, 1933.

Wright, John Frank. See also Canada G. S., 570; Grout, 1337.

3797. (and Stockwell, Clifford Howard). Gold occurrences of Flinflon district, Manitoba and Saskatchewan: Canada, Geol. Survey, Summary Rept., 1933, pt. C, pp. 1-11, 1934. (No. 2347.)
3798. Amisk Lake area, Saskatchewan: Canada, Geol. Survey, Summary Rept., 1932, pt. C, pp. 73-110, 5 figs., 1933. (No. 2332.)
3799. (and Stockwell, Clifford Howard). West half of Amisk Lake area, Saskatchewan: Canada, Geol. Survey, Summary Rept., 1933, pt. C, pp. 12-22, 1934. (No. 2347.)
3800. (and Stockwell, Clifford Howard). Hydrous silica deposit north of Minaki, Ontario: Canada, Geol. Survey, Summary Rept., 1933, pt. D, pp. 1-6, 1934. (Pub. no. 2351.)

Wright, R. E. See also Tolman, 3396.

Wright, Randall.

3801. Jamin effect in oil production: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 12, pp. 1521-1526, December 1933.

Wright, William Quinby. See Jenkins, 1659.

Wulff, Willard W.

3802. Topaz in the Tarryall Mountains of Colorado: Rocks and Minerals, vol. 9, no. 4, pp. 45-47, April 1934.

Wyckoff, Ralph D.

3803. (and Botset, Holbrook Gorham, Muskat, Morris, and Reed, D. W.). Measurement of permeability of porous media: Am. Assoc. Petroleum Geologists, Bull., vol. 18, no. 2, pp. 161-190, 7 figs., February 1934.

Wylie, Charles Clayton.

3804. On the formation of meteoric craters: Popular Astronomy, vol. 41, no. 4, pp. 211-214, April 1933.
3805. The Harding County meteor: Popular Astronomy, vol. 41, no. 5, pp. 281-282, May 1933.
3806. The temperature of the Mazapil [Mexico] meteorite: Popular Astronomy, vol. 41, no. 7, pp. 408-410, August-September 1933.
3807. Iron meteorites and Carolina "bays": Popular Astronomy, vol. 41, no. 7, pp. 410-412, August-September 1933.
3808. (and Perry, Stuart H.). The Athens meteor and meteorite: Popular Astronomy, vol. 41, no. 8, pp. 468-470, 2 figs., October 1933.
3809. Meteor craters, meteors, and bullets: Popular Astronomy, vol. 42, no. 8, pp. 469-471, October 1934.

Yaeckel, M. P.

3810. Benitoite, California's exclusive gem: Oregon Mineralogist, vol. 2, no. 10, pp. 26-27, October 1934.

Young, Addison.

3811. Structure and accumulation closely related in Ector County, Tex.: Oil Weekly, vol. 71, no. 4, pp. 18-22, 2 figs., October 9, 1933.

Young, Clinton Mason.

3812. Natural gas. Vol. 1, pp. 1-240; vol. 2, pp. 241-532 (§), 547 figs., Lawrence, Kansas, University of Kansas, 1934.

Young, George Albert.

3813. The geological investigation of the Canadian Shield (Canadian portion), 1882 to 1933: Royal Soc. Canada, Trans., 3d ser., vol. 27, sec. 4, pp. 67-108, May 1933.

Young, W. F. See Steidtmann, 3192.

Zapffe, Carl. See also Hotchkiss, 1563.

3814. Catalysis and its bearing on origin of Lake Superior iron-bearing formations: Econ. Geology, vol. 28, no. 8, pp. 751-772, 1 fig., December 1933.

Zavoico, Basil B.

3815. Geology and economic significance of the Lucien field [Oklahoma]: World Petroleum, vol. 5, no. 11, pp. 416-422, 6 figs. (incl. map), November 1934.

Zeller, P. J. A. See Burt, 500.

Zernitz, Emilie R.

3816. Drainage changes in the vicinity of Kicking Horse Pass: Jour. Geology, vol. 41, no. 1, pp. 67-76, 3 figs., January-February 1933.

Zies, Emanuel George.

3817. Activity at Santa Maria volcano in Guatemala (abstract): Am. Geophys. Union, Trans., 14th Ann. Meeting, 1933; pp. 249-250, Nat. Research Council, June 1933.

Zinn, Justin.

3818. Correlation of the Upper Huronian of the Marquette and Crystal Falls districts: Michigan Acad. Sci., Papers, vol. 18, pp. 437-456, 1 fig., correl. table, 1933.

Zittel, Karl Alfred von.

3819. Text-book of paleontology. Translated and edited by Charles R. Eastman. Vol. 2, second English edition, revised, with additions by Sir Arthur Smith Woodward. 454 pp., 533 figs., New York, Macmillan & Co., 1932.

Zodac, Peter:

3820. Lake Street quarry near White Plains, N. Y.: Rocks and Minerals, vol. 9, no. 9, pp. 136-137, September 1934.

Zuschlag, Theodor. See Kelly, 1771.

Anonymous.

3821. Thin sections of weathered rock: Eng. and Min. Jour., vol. 134, no. 3, p. 99, March 1933.
3822. Structure map of eastern Colorado and parts of adjacent States: Am. Assoc. Petroleum Geologists, Bull., vol. 17, no. 4, pp. 436-437, map, April 1933.
3823. The forms of calcite: Mineralog. Soc. Southern California, Bull., vol. 2, no. 8, pp. 1-2. April 1933.
3824. Livingstonite in Oregon: Oregon Mineralogist, vol. 1, no. 2, p. 2, July 1933.

Anonymous—Continuous.

3825. Iridescent Oregon obsidian: *Oregon Mineralogist*, vol. 1, no. 3, p. 5, August 1933.
3826. The Ninninger collection of meteorites: *Mines Mag.* (Colorado School of Mines), vol. 23, no. 8, pp. 6-9, August 1933.
3827. Ulysses Sherman Grant [1867-1932]: *Illinois State Acad. Sci., Trans.*, vol. 26, no. 2, pp. 34-35, port., December 1933.
3828. Arthur Hollick, 1857-1933: *Staten Island Inst. Arts and Sci., Proc.*, vol. 7, pts. 1-2, pp. 11-23, 1 pl., port., October 1932-May 1933, December 11, 1933.
3829. Forestry-Geological Review (Georgia, Dept. Forestry and Geological Development), vol. 2, 1932-vol. 4, 1934. Includes numerous short articles by the Division of Geology, relating to mineral resources of Georgia, with some geologic notes.
3830. James Mackintosh Bell [1877-1934]: *Royal Soc. Canada, Proc.*, 1934, vol. 28, pp. xiv-xvi, port., 1934.
3831. Alfred Granville Burrows [1878-1933]: *Royal Soc. Canada, Proc.* 1934, vol. 28, pp. xvi-xix, port., 1934.
3832. A Tertiary *Ephedra*, a correction: *Torreya*, vol. 34, no. 2, p. 46, March-April 1934.
3833. Olof August Peterson, January 2, 1865-November 12, 1933: *Carnegie Mus., Annals.*, vol. 22, 1933-34, no. 1, pp. i-vii, port., May 1934.
3834. Dinosaur remains in Wyoming: *Science*, new ser., vol. 80, no. 2065, Suppl. pp. 6-7, July 27, 1934.
3835. Oregon sunstone: *Oregon Mineralogist*, vol. 1, no. 3, p. 4, August 1934.
3836. The rock slide of Niagara: *Science*, new ser., vol. 80, no. 2069, *Science Suppl.*, p. 6, August 24, 1934.

INDEX

[The numbers refer to entries in the bibliography]

Ablation of snow fields by solar heat, high altitudes: Matthes, 2250.

Addresses. See also Miscellaneous.

Crystallography, century of progress: Whitlock, 3677.

Deep-focus earthquakes and allied problems: Stechschulte, 3189.

Depths of the earth: Daly, 837.

Dutch geological investigations in Cuba: Rutten, 2913.

Facies in stratigraphic paleontology: Kindle, 1881.

Geological Survey of Canada: Gray, 1307.

Glaciers, mountain and continent: Hobbs, 1532.

Indiana's mammals, origin: Lyon, 2133.

Invertebrate paleontology, development in America: Bassler, 219.

New mineralogy: Winchell, 3746.

Petroleum geology: Lahee, 1954.

Plant life and philosophy of geology: Gordon, 1282.

Plant records of the rocks: Seward, 3035.

Pre-Cambrian: Leith, 2043.

Research, progress and scope: Sederholm, 3024.

Recent development of geology as applied science: Berkey, 264.

Role of analysis in scientific investigation: Johnson, 1683.

Sir Charles Lyell: Adams, 2.

Ultrameta-morphism and anatexis: Sederholm, 3025.

Agate.

Oregon, rainbow or iris: Dake, 830.

Age correlations, by radioactive minerals, metamorphic rocks, southern New England: Foye, 1147.

Age of the earth. See Earth, age.

Airways of America: Lobeck, 2071.

Alabama.

Magnetic vector study: Jenny, 1667.

Economic geology.

Barite deposits, Sinks district, Bibb County: Jones, 1734.

Bauxite: Jones, 1735.

Iron, Red Mountain formation: Burchard, 487.

Tin: Ellsworth, 1018.

Alabama—Continued.

Historical geology.

Ackerman formation: Cooke, 730.

Cocon sand member of Jackson formation: Cooke, 733.

Crystallines: Adams, 6.

General: Shreveport Geol. Soc., 3074.

Ground water, Paleozoic rocks, northern Alabama: Johnston, 1714.

Mineralogy.

Athens meteorite: Wylie, 3808.

Paleontology.

Cytherelloidea, Tertiary ostracode genus: Howe, 1580.

Diploschiza, Cretaceous: Stephenson, 3206.

Foraminifera: Cushman, 819.

Graptolites: Poor, 2647.

Hantkenina, apertural characteristics: Howe, 1581.

Eocene: Thalmann, 3343.

Nautiloids, Midway group: Miller, 2322.

Pectinidae, Tertiary: Tucker, 3418.

Reptiles, marine, Cretaceous: Renger, 2737.

Syntrophinella, Ellitsville Church: Ulrich, 3445.

Trilobites, Middle Cambrian: Lalicker, 1959.

Physical geology.

Tectonic metamorphism, southern Appalachians: Becker, 235.

Physiographic geology.

Northern Alabama: Johnston, 1714.

Underground water.

Ground water, Paleozoic rocks, northern Alabama: Johnston, 1714.

Alaska.

Alaska, United States Geological Survey work: Smith, 3128.

Fairbanks area: Wilkerson 3691.

Middleton Island, Alaska, air reconnaissance: Capps, 577.

Areas described.

Anthracite Ridge district: Richards, 2760.

Eureka and vicinity, Kantishna district, Alaska, lode deposits: Wells, 3598.

Fairbanks District, lode deposits: Hill, 1570.

Girdwood district: Park, 2573.

Moose Pass-Hope district, Kenai Peninsula: Tuck, 3415.

Alaska—Continued.

Areas described—Continued.

- Mount Eielson district: Reed, 2711.
 Rampart and Hot Springs districts: Mertie, 2300.
 Suslota Pass district, upper Copper River: Moffit, 2371.
 Valdez Creek mining district: Ross, 2826.
 Willow Creek gold lode district: Ray, 2703.

Economic geology.

- Alaska Railroad belt: Capps, 576.
 Anthracite Ridge district: Richards 2760.
 Chulitna River area: Ross, 2825.
 Coal, Moose Creek area: Waring, 3550.
 Girdwood district: Park, 2573.
 Gold, Eureka, Kantishna district: Wells, 3598.
 Fairbanks District: Hill, 1510.
 Moose Pass-Hope district, Kenai Peninsula: Tuck, 3415.
 Valdez Creek mining district: Ross, 2826.
 Willow Creek district: Ray, 2703.
 Mineral industry: Smith, 3126, 3129; 1933, Smith, 3130.
 Placer-gold production: Smith, 3127.
 Rampart and Hot Springs districts: Mertie, 2300.
 Placer concentrates: Waters, 3568.
 Suslota Pass district, upper Copper River: Moffit, 2371.

Historical geology.

- Alaska Peninsula and Aleutian Islands: Capps, 578.
 Curry districts: Tuck, 3416.
 Yakataga-Controller Bay region, Oligocene sediments: Taliaferro, 3303.
 Yukon-Tanana region: Mertie, 2299.

Physical geology.

- Aniakchak and Veniaminof volcanoes: Knappen, 1907.
 Craters, Alaskan Peninsula: McGavock, 2160.
 Glaciers, advancing: Washburn, 3565.
 Shishaldin volcano: Finch, 1096.

Physiographic geology.

- Curry district: Tuck, 3416.
 Glacier positions in 1931: Wentworth, 3613.
 Koyukuk valley region: Marshall, 2219.

Alberta.

Areas described.

- Waterton Lakes-Flathead Valley: Hume, 1616.

Economic geology.

- Aldersyde area, oil and gas potentialities: Owen, 2547.
 Birch Ridge area: Hume, 1617.
 Bituminous sands: Ells, 1014, 1015.
 Central Alberta: Allan, 36.
 Coleman South coal area: McKay, 2179.
 Crownest Pass area: MacKay, 2178.

Alberta—Continued.

Economic geology—Continued.

- Gypsum in Rocky Mountains: Allan, 37.
 Oil and Gas: Hume, 1615.
 Oil City district: Craig, 768.
 Petroleum source rocks, distribution: Hume, 1618.
 Phosphate in Canadian Rockies: Telfer, 3332.
 Turner Valley gas and oil field: Link, 2065.

Historical geology.

- Birch Ridge area: Hume, 1617.
 Central Alberta: Allan, 36.
 Crownsnest Pass: Warren, 3558.
 Crownsnest Pass area: MacKay, 2178.
 Devonian limestone, McMurray, age: Warren, 3559.
 Fernie shale: Warren, 3560.
 Pierre sedimentation: Williams, 3711.
 Sweetgrass arch, northward extension: Michener, 2312.
 Turner Valley gas and oil field: Link, 2065.
 Zones in Benton group shales: Webb, 3582.

Paleontology.

- Champsosaurus, Belly River formation: Parks, 2583.
 Chasmosaurus kaiseni (Ceratopsian), Red Deer River: Brown, 420.
 Dinosaurs and turtles, Upper Cretaceous: Parks, 2580.
 Foraminifera, Jurassic: Wickenden, 3681.
 Gastrolites and Neogastrolites: McLearn, 2196.
 Mammals, Paleocene: Russell, 2886.
 Ornithomimus, Edmonton formation: Sternberg, 3209.
 Pelecypods, Clearwater formation: McLearn, 2197.
 Troodon and nodosaurs, habitat and characters: Sternberg, 3207.
 Troodon, occurrence and relationships: Russell, 2887.

Physical geology.

- Schistosity in Rocky Mountains: Fourmarier, 1138.
 Sheet thrusts, Jasper Park: Willis, 3717.

Physiographic geology.

- Toby glacier, Purcell Range: McCoubrey, 2144.

Algae.

- Barbados, Peridinites: Lefèvre, 2030, 2031.
 California, Carmelo series, Point Lobos, fossil markings: Herold, 1473.
 Micropaleontology, Johns Valley shale, Ouachita Mountains, Oklahoma: Harlton, 1405.
 Paleozoic plankton: Ruedemann, 2878.
 Travertine, deposition from thermal waters: Allen, 41.

- Algal reefs: Howe, 1584.
- Alma district, Colorado: Singewald, 3105.
- Alunite. See Potash.
- Amber.
California, Eocene: Murdoch, 2443.
- Amisk Lake area, Saskatchewan: Wright, 3798.
- Amisk Lake area, western half, Saskatchewan: Wright, 3799.
- Ammonites. See Cephalopoda.
- Amphibia. See also Vertebrata: Gilmore, 1252.
Nova Scotia, South Joggins, Carboniferous: Steen, 3191.
Ohio, Linton, Carboniferous: Steen, 3190.
Stegocephalians, Devonian, Greenland: Säve-Söderbergh, 2919.
Tetrapods, Ohio Pennsylvanian: Romer, 2799.
- Andalusite.
California: Dunn, 950.
- Anhydrite.
Canada: Cole, 695.
- Annelida.
Devonian, annelid jaws, New York: Eller, 1007.
Devonian, articulated annelid jaw, New York: Eller, 1006.
Illinois, Niagaran scolecodonts: Cronels, 794.
Upper Richmond: Potter, 2654.
Minnesota, middle Ordovician: Stauffer, 3176.
Missouri, Decorah formation: Cronels, 795.
Ohio, scolecodonts, Upper Ordovician, Cincinnati area: Gries, 1326.
Scolecodonts: Cronels, 793.
Scolecodonts, Chemung formation, New York: Eller, 1008.
- Anthozoa. See also Coelenterata.
Anthracolithic corals: Smith, 3134.
Bainbridgia, Silurian, Missouri: Ball, 152.
Chaetetes milleporaceus: Heritsch, 1472.
Cretaceous and Eocene, Jamaica and Barbadoes: Wells, 3603.
Cretaceous, United States: Wells, 3602.
Eocene, Cuba and Texas: Wells, 3605.
Madreporarian coral, Eocene, California: Faustino, 1050.
Mississippian cup corals: Grove, 1341.
Paleozoic: Grove, 1342.
Quebec, Baie des Chaleurs, Silurian: Parks, 2579.
Tertiary, Porto Rico: Coryell, 757.
Xylodes rugosus, Niagaran coral: Smith, 3133.
Zaphrentis calceola, Mississippian: Grove, 1343.
- Applied geology: Berkey, 264.
- Antimony.
Epithermal deposits: Schaller, 2988.
- Archean. See Pre-Cambrian.
- Arctic regions.
Historical geology.
Baffin Land and Melville Peninsula: Mathiassen, 2242.
Paleontology.
Baffin Island: Wilson, 3718.
Physiographic geology.
Baffin Land and Melville Peninsula: Mathiassen, 2242.
- Arizona.
Guidebook, Southern Pacific Lines, New Orleans to Los Angeles: Darton, 848.
Areas described.
Yuma County, southern: Wilson, 3723.
Economic geology.
Bisbee mining district: Ransome, 2697.
Gold placers: Wilson, 3724.
Lode gold mines: Wilson, 3725.
Mining geology, Old Dominion mine, Globe, Gila County: Bjorge, 311.
Historical geology.
Algonkian formations, Grand Canyon National Park: Hinds, 1515.
Apache group: Keyes, 1841.
Archean metamorphics, Grand Canyon: Campbell, 551.
Archean ripple mark in Grand Canyon: Maxson, 2261.
Archean rocks, Grand Canyon: Campbell, 549, 552.
Canyon de Chelly, light-colored, cross-bedded sandstones: McKee, 2184.
Chinle formation: Vander Hoof, 3465.
Cocconino sandstone: McKee, 2182.
Colorado Plateau region: Gregory, 1316.
Devonian, Elden Mountain, northern Arizona: Brady, 375.
Diastrophism, Paleozoic, Colorado dome: Keyes, 1829.
El Paso limestone, Ordovician, correlations: Kirk, 1897.
Fundamental crystalline complex: Keyes, 1828.
Grand Canyon, south rim, Moencopie formation: McKee, 2183.
Modoc limestone: Keyes, 1804.
Silurian: Keyes, 1832.
Unkar Group, Grand Canyon: Van Gundy, 3475.
- Mineralogy.*
Anauxite as secondary mineral in volcanic rocks: Rogers, 2789.
Phosphates, Hillside: Hurlburt, 1623.
San Francisco Mountains meteorite: Perry, 2615.
- Paleontology.*
Antilocaprine, Pleistocene: Roosevelt, 2806.

Arizona—Continued.

Paleontology—Continued.

- Crocodyle, ancestral, Cameron, Upper Triassic: Brown, 417.
 Dinosaur, bipedal, Jurassic: Camp, 546.
 Fucoides, Grand Canyon: McKee, 2181.
 Mollusca, Triassic: Henderson, 1464.
 Mylodon harlani, Pleistocene, Apache County: Brady, 374.
 Petrified forests: Geithmann, 1223.
 Protosuchus richardsoni, ancestral crocodile: Brown, 422.
 Reptile fauna, Chinle, Triassic: Camp, 545.
 Schilderia adamanica, Triassic: Daugherty, 853.
 Stegocephalia, Triassic, Winslow: Brown, 418.
 Supaia seeds, Permian pteridosperm in Grand Canyon: White, 3661.

Petrology.

- Concretions, Chuar: Bryan, 457.

Physical geology.

- Basalt stream, Sunset Crater: Colton, 712.
 Bright Angel faulting: Maxson, 2259.
 Earthquake risks: Branner, 386.
 Elden Mountain, Flagstaff: Brady, 376.
 San Francisco Mountains, peripheral lava flows: Colton, 713.
 Thrust faulting, Empire Mountains: Wilson, 3739.

Physiographic geology.

- Alamogordo desert, white sand dunes, source and growth: Talmage, 3306.
 Colorado River, origin: Blackwelder, 325.
 Terraces on lower course: Blackwelder, 324.
 Meteor Crater: Fisher, 1100; Russell, 2885; Spencer, 3156.
 Meteor Crater, age: Blackwelder, 317; Brown, 424.
 Meteor Crater, formation: Wylie, 3809.

Arkansas.

Economic geology.

- Mid-Continent oil and gas fields: Miser 2364.
 Quicksilver ore, Pike County: Sohlberg, 3149; Stearn, 3180.
 Smackover field, Union County, rock salt deposit: Bell, 249.

Historical geology.

- Boone chert: Giles, 1245.
 Coal fields, Pennsylvanian correlations: Hendricks, 1468.
 General: Kansas Geol. Soc., 1746.
 Jackfork and Stanley formations of Ouachita geosyncline, age: White, 3663.
 Johns Valley shale, Pennsylvanian, Ouachita Mountains: Moore, 2413.

Arkansas—Continued.

Historical geology—Continued.

- Osage formations, Ozark region: Cline, 664.
 Ouachita Mountains: Miser, 2360.
 Carboniferous: Miser, 2363.
 Structural history: Miser, 2362.
 Ouachita Paleozoics, relation to oil and gas fields, Mid-Continent region: Miser, 2364.
 Ouachitas, carboniferous stratigraphy, Bendian: Harlton, 1406.
 Ozark region, Paleozoics: Kansas G. S., 1741.
 Parnell Hill quicksilver mine, structure: Stearn, 3181.
 Wichita, Arbuckle and Ouachita Mountains, Oklahoma, and Ouachita Mountains, Arkansas: Kansas Geol. Soc., 1744.

Mineralogy.

- Cinnabar, Pike County: Sohlberg, 3148.
 Quicksilver minerals, Pike County: Sohlberg, 3148.

Paleontology.

- Conodonts, Caddo Gap: Cooper, 744.
 Foraminifera: Cushman, 819.
 Gastropods: Girty, 1258.

Physical geology.

- Parnell Hill quicksilver mine, structure: Stearn, 3181.

- Arntfield-Aldermac mines area, Beauchastel Township, Quebec: Bruce, 439.

- Arsenic: Tyler, 3437.

- Arthraria-like markings: Fenton, 1060.

Arthropoda.

- Arachnid, Carboniferous, Virginia: Ewing, 1036.
 Eurypterus remipes, Silurian, Canada: Kindle, 1880.
 Paleozoic plankton: Ruedemann, 2878.
 Styronurus shaffneri, Chemung eurypterid, Pennsylvania: Willard, 3936.
 Trilobita, relation to arachnids: Störmer, 3252.
 Wisconsin, Cambrian Merostomata: Raasch, 2685.

Asbestos.

- Chrysotile asbestos: Dufresne, 941.
 Chrysotile, brittleness: Soboleff, 3147.
 Colorado, Camp Albion, Boulder County: Wahlstrom, 3531.
 Quebec, Thetford district: Cooke, 736.
 Serpentinization: Bain, 129.
 Vermont, serpentinization: Bain, 128.

Asphalt.

- California, seasonal bandings: Vander Hoof, 3466.
 Cuba, occurrences in igneous rocks: Lewis, 2057.
 Kentucky, western: Russell, 2900.
 Mexico, Tampico oil field, Chapopote, Cretaceous: Müllerried, 2429.
 Origin: Berl, 266; Van Tuyl, 3487.

Associations, meetings.

Am. Assoc. Adv. Science, Section E, meeting at Atlantic City: Mather, 2228.

Section E, meeting at Chicago: Mather, 2230.

Section E, meeting at Boston: Mather, 2232.

Section E, and others, meeting at Atlantic City, December, 1932: Mather, 2229.

Section E, and others, meeting at Boston, December, 1933; Mather, 2233.

Geological Society America, proceedings, forty-fifth annual meeting, Boston: Berkeley, 265.

Cordilleran Section, Stanford University, thirty-first meeting: Chaney, 627.

Cordilleran Section, University of California, thirty-second meeting: Woodford, 3775.

International Geological Congress: 16th Meeting, Washington 1933: Armand, 2738; Cloos, 671; Hörner, 1545.

Mineralogical Society of America, thirteenth annual meeting, Cambridge, 1932: Van Horn, 3476.

Fourteenth annual meeting, Chicago, 1933: Peck, 2595.

Paleontological Society, Cambridge meeting: Howell, 1588.

Chicago meeting: Howell, 1592.

Pacific Coast Branch, Stanford meeting: Hanna, 1384.

Pacific Coast Branch, Los Angeles meeting: Muller, 2440.

Asteroidea. See also Echinodermata.

Illinois, starfish, Mississippian: Cronels, 796.

Astronomical forces in geology, present status: Taylor, 3320.

Atlantic rift: Baker, 144.

Atlas of American geology: Lobeck, 2070.

Aves.

Antiquity of migratory instinct: Miller, 2341.

Auk, Pliocene, San Diego, California: Miller, 2347.

Bathornis veredus Wetmore, Oligocene, Crawford, Nebraska: Wetmore, 3635.

Bird, gallinaceous, lower Miocene, Nebraska: Wetmore, 3634.

Bird remains from cave deposits, New Mexico: Howard, 1574.

Birds, Eocene, Bighorn Basin, Wyoming: Wetmore, 3636.

Birds from cavern deposits, New Mexico: Wetmore, 3632.

Birds, Miocene, Sioux County, Nebraska: Wetmore, 3626.

Aves—Continued.

Bonasa umbellus, ruffed grouse, Maryland: Wetmore, 3620.

Branta dickeyi, Pleistocene, California: Miller, 2338.

Buteo grangeri (hawk), South Dakota: Wetmore, 3642.

Buteo typhoius, hawk, Nebraska: Wetmore, 3622.

California, Pleistocene: Miller, 2343. Pleistocene, McKittrick: Miller, 2339.

Rancho La Brea: Miller, 2315.

Check list, fossil birds of North America: Wetmore, 3619.

Chendytes, Pleistocene, California: Miller, 2349.

Classification, systematic, revised: Wetmore, 3643.

Cormorant, Miocene, California: Miller, 2342.

Pliocene, Santa Barbara, California: Howard, 1573.

Cryptoglaux funeral, Shelter Cave, New Mexico: Howard, 1572.

Cuba, Pleistocene birds from Ciego Montero: Wetmore, 3621.

Cyrtonyx cooki, quail, Nebraska: Wetmore, 3641.

Development of knowledge of fossil birds: Wetmore, 3633.

Diatryma, supposed plumage, Eocene, Colorado: Wetmore, 3627.

Falcons, Pleistocene, California: Miller, 2340.

Florida, Pleistocene: Wetmore, 3628.

Fossil birds of the A. O. U. check list: Wetmore, 3623.

Goose footprints, Pliocene, Calif: Miller, 2317.

Pliocene, California: Miller, 2344.

Great horned owl bones, Carlsbad Caverns, New Mexico: Wetmore, 3630.

Grus nannodes, Pliocene, Kansas: Wetmore, 3624.

Gulls, Pleistocene, distribution: Miller, 2337.

Idaho, Pliocene, aquatic: Wetmore, 3640.

Miocene birds, Maryland: Wetmore, 3618.

New Jersey, Eocene birds: Wetmore, 3625.

Otus flammeolus, Pleistocene, California: Miller, 2348.

Phalacrocorax, upper Pliocene, California: Howard, 1570.

Pyelorchampus molothroides, ictetid, Shelter Cave, New Mexico: Miller, 2316.

Rails, Eocene, Colorado and Wyoming: Wetmore, 3629.

Road-runner, Dona Ana County, California: Howard, 1571.

Pleistocene, California: Larson, 2003.

Aves—Continued.

Storks, Pleistocene, Rancho La Brea and McKittrick, California: Miller, 2346.

Strix brea, Pleistocene, California: Howard, 1575.

Torrington, Wyoming, Oligocene: Wetmore, 3637.

Vulture and hawk, Pliocene, Pozo Creek, Kern County, California: Miller, 2345.

Woodpecker, unknown, lower Pliocene, Devil's Gulch beds, Nebraska: Wetmore, 3631.

Wyoming, Oligocene eagle: Wetmore, 3639.

Bacteria in ancient rocks (?): Farrell, 1049.

Bacteria in meteorites (?): Farrell, 1049; Lipman, 2066.

None, in meteorites: Nininger, 2489.

Bahamas.

Boring, New Providence Island: Field, 1081.

Historical geology.

Calcareous shallow-water deposits: Thorp, 3384.

Paleontology.

Land and freshwater mollusks, Money and Great Stirrup Cays: Pilsbry, 2629.

Physiographic geology.

Submerged river valleys: Hess, 1488, 1489.

Barbados.

Historical geology.

General: Saint, 2924.

Paleontology.

Chelonechinus, Neogene urchinid: Bather, 225.

Corals, Eocene: Wells, 3603.

Diatoms: Fuge, 1182.

Tertiary: Robinson, 2784.

Fish, Scotland Beds: White, 3664.

Peridinites: Lefèvre, 2030, 2031.

Barbados uplift: Trechmann, 3411.

Barite.

Alabama, Sinks district, Bibb County: Jones, 1734.

North Carolina: Stuckey, 3280.

Oklahoma, sand barites, Permian: Tarr, 3312.

Bartlett Trough region: Hess, 1488.

Barytes. See Barite.

Batholiths. See also intrusions; Grout, 1337.

British Columbia, Coast Range and Cassiar-Omineca: Lay, 2020.

Colorado, Longs Peak-St. Vrain batholith: Boos, 348.

Granitic batholiths, basal regions: Emmons, 1027.

Batholiths—Continued.

Idaho batholith: Clapp, 641; Ross, 2830.

Idaho, Boise County: Anderson, 55.

Idaho, Cassia batholith, contact phenomena: Anderson, 56.

Magma waves, theory: Lay, 2020.

Montana, Boulder batholith, internal structure: Grout, 1340.

Oregon batholiths: Hodge, 1540.

Relation of ore deposits and batholiths: Emmons, 1025.

Saganaga granite, Minnesota and Ontario: Grout, 1338.

Bauxite.

Alabama: Jones, 1735.

Origin: Just, 1738; Harder, 1397.

Beach cusps. See Shore lines.

Beaches. See also Changes of level; Glacial lakes; Shore lines; Terraces.

Calcium carbonate in beach sands: McCarthy, 2140.

Erosion: Barden, 190; Schmitt, 2927. New Jersey, Barnegat Inlet: Lucke, 2119.

Rounding of beach sands: MacCarthy, 2139.

Bentonite: Rosenkrans, 2812.

California, Mt. Diablo Range: Hill, 1509.

Canada: Spence, 3155.

Western: Allan, 38.

Chambersburg formation, Pennsylvania and West Virginia: Whitcomb, 3657.

Mechanical analysis: Dorrell, 924.

Minnesota, Ordovician: Sardeson, 2948.

Ordovician, possible sources: Whitcomb, 3652.

Pennsylvania, central and south-central: Rosenkrans, 2811.

Virginia, northern: Rosenkrans, 2810.

Bermuda.

Historical geology.

Pleistocene climate: Bryan, 456.

Paleontology.

Land shells, Government Quarry, Hamilton Parish, Pliocene: Kutchka, 1953.

Beryl.

Colorado, Chaffee County: Landes, 1979.

South Dakota, Black Hills: Lincoln, 2059.

Beryllium.

Mexico: Santillán, 2946.

Bibliography.

Adams, G. I., writings: Burchard, 489. Aldrich, T. H., writings: Gardner, 1208.

Bentonite: Spence, 3155.

Bonaire, Danish West Indies: Pijpers, 2628.

Bibliography—Continued.

- Brigham, A. P., writings: Keith, 1759.
 Caliche, Texas: Price, 2670.
 California, geology and mineral resources: Shedd, 3042.
 Canadian Shield: Young, 3813.
 Ceratopsia: Lull, 2124.
 Chamberlin, T. C., writings: Chamberlin, 619.
 Cooke, W. C. writings: Hobbs, 1533; Hunt, 1621.
 Copper: Gregg, 1315.
 Copper, chalcocite types: Bastin, 224.
 Corals, Paleozoic: Grove, 1342.
 Davis, W. M., writings: Bondarenko, 344.
 Day, D. T., writings: Darton, 852.
 Earthquakes, impact or rock fall: Macelwane, 2154.
 Records, intermediate and great distances: Byerly, 524.
 Emerson, B. K., writings: Loomis, 2093.
 Eublastoidea, bibliographic index: Greger, 1313.
 Farrington, O. C., writings: Roy, 2859.
 Foraminifera: Cushman, 819.
 1931: Thalmann, 3345, 3349.
 Classification and economic use: Cushman, 820.
 Index of genera and species erected in 1931: Thalmann, 3346.
 Fusulinidae: Silvestri, 3085.
 Geophysical prospecting: Heiland, 1447.
 Gill, A. C., writings: Harris, 1410.
 Glacial epoch: Antevs, 74.
 Grant, U. S., writings: Bain, 130.
 Greenland: Hobbs, 1530.
 Triassic fishes: Stensjö, 3196.
 Ground-water hydrology: Sayre, 2957.
 Haworth, E., writings: Moore, 2412.
 Holland, W. J., writings: Leighton, 2035.
 Hollick, Arthur, writings: Howe, 1585; Anonymous, 3828.
 Howe, Ernest, writings: Cross, 808.
 Hudson Bay and St. Lawrence basin, post-Pleistocene connection: Potter, 2653.
 Hunt, T. S., writings: Adams, 3.
 Iddings, J. P., writings: Mathews, 2239.
 Illinois, publications on geology, mineral resources and mineral industries of Illinois: Ill. G. S., 1628.
 Jilson, W. R., writings: Norris, 2509.
 Jones, J. C., writings: Louderback, 2098.
 Kemp, J. F., writings: Adams, 4.
 Kiaer, J., writings: Raymond, 2705.
 Kunz, G. F., writings: Whitlock, 3676.
 Leonard, A. G., writings: Quirke, 2682, 2683.
 Lindgren Waldemar, writings: Graton, 1302.

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Bibliography—Continued.

- Louisiana, geology and mineral resources: Dunbar, 947.
 Lafayette and St. Martin Parishes: Howe, 1579.
 McCallie, S. W., writings: Bayley, 230.
 Massachusetts, Cape Cod region: Woodworth, 3779.
 Micro-organisms, relation to generation: Hammar, 1378.
 Mining and geological literature: Fleming, 1114.
 North American geology, 1931 and 1932: Nickles, 2485.
 North Carolina University, scientific publications, 1795–1934: Holland, 1552.
 Oil and gas accumulation theory: Howell, 1598.
 Ore deposits, origin and nature: Adams, 5.
 Paleontology, vertebrate: Romer, 2801.
 Paleozoic Ostracoda: Bassler, 220.
 Pennsylvania, "Catskill" sedimentation: Willard, 3697.
 Perkins, G. H., writings: Fairchild, 1044.
 Peterson, O. A., writings: Anonymous, 3833.
 Petroleum, carbon-ratio theory of origin: Thom, 3358.
 Physical properties, petroleum: Taft, 3299.
 Powers, Sidney, writings: DeGolyer, 883.
 Rhode Island, Block Island: Woodworth, 3779.
 Rocky Mountain region: Heaton, 1437.
 Seismic geography: Byerly, 527.
 Slates, metamorphism: Grout, 1339.
 Talmage, J. E., writings: Miller, 2332.
 Tertiary, mammal-bearing formations: Simpson, 3094.
 Texas geology, bibliography and subject index: Sellards, 3030.
 Udden, J. A., writings: Baker, 137.
 U. S. Geological Survey and its work: Rubey, 2861.
 Van Horn, F. R., writings: Hyde, 1625.
 Vertebrata of North America, catalogue: Hay, 1429.
 Vogt, J. H. L., writings: Ransome, 2699.
 Washington, H. S., writings: Keyes, 1875.
 Williams, E. H., Jr., writings: Miller, 2333.
 Wyoming, southwestern, Uinta County: Veatch, 3497.
 Yellowstone Park: Russell, 2884.
- Biography.
 Adams, G. I.: Burchard, 489; Semmes, 3031.
 Aldrich, T. H.: Gardner, 1208.

Biography—Continued.

- Bather, F. A.: Schuchert, 2998.
 Bell, J. M.: Anonymous, 3830.
 Boese, Emilio: Waitz, 3533.
 Brigham, A. P.: Baker, 146; Keith, 1759.
 Burrows, A. G.: Anonymous, 3831.
 Chamberlin, T. C.: Chamberlin, 619.
 Cook, W. C.: Hobbs, 1533; Hunt, 1621.
 Davis, W. M.: Auer, 112; Bondarenko, 344; Bowman, 366, 367; Buwalda, 518; Dodge, 909; Johnson, 1686; Keyes, 1848; Mill, 2314; Sestini, 3032.
 Day, D. T.: Darton, 852.
 Emerson, B. K.: Lane, 1988; Loomis, 2093.
 Farrington, O. C.: Fisher, 1102; Roy, 2859.
 Gill, A. C.: Harris, 1410.
 Goldschmidt, V.: Palache, 2557.
 Grant, U. S.: Bain, 130, Anonymous, 3827.
 Gregory, J. W.: Longwell, 2088.
 Haworth, E.: Moore, 2412.
 Holland, W. J.: Gazin, 1215; Leighton, 2035.
 Hollick, Arthur: Howe, 1585; Jeffrey, 1650; Anonymous, 3828.
 Hoover, J. E.: Kirk, 1893.
 Howe, Ernest: Cross, 808; Warren, 3553.
 Hubbard, L. L.: Church, 1992.
 Hunt, T. S.: Adams, 3.
 Iddings, J. P.: Mathews, 2239.
 Jilson, W. R.: Norris, 2509.
 Jones, J. C.: Louderback, 2098.
 Kamp, J. F.: Adams, 4.
 Kiaer, J.: Raymond, 2705.
 Kunz, G. F.: Kerr, 1784; Spencer, 3157; Whitlock, 3676.
 Leonard, A. G.: Hult, 1613; Keyes, 1793; Quirke, 2682, 2683; Simpson, 3099.
 Lesquereux, Leo: Darrah, 846.
 Lindgren, Waldemar: Graton, 1302.
 Lowe, E. N.: Brown, 423; Morse, 2422.
 Macbride, T. H.: Keyes, 1871.
 McCallie, S. W.: Bayley, 230.
 Matthew, W. D.: Granger, 1296.
 Osborn, H. F.: Gregory, 1319; Richter, 2766.
 Penrose, R. A. F., jr.: Lindgren, 2062.
 Perkins, G. H.: Fairchild, 1044.
 Peterson, O. A.: Anonymous, 3833.
 Pirsson, L. V.: Warren, 3554.
 Powell, J. W.: Hobbs, 1534.
 Powers, Sidney: DeGolyer, 883; Wrather, 3789.
 Rice, W. N.: Lane, 1989.
 Rinne, F.: Gruner, 1345.
 Seymour, D. B.: Barnes, 193.
 Shepard, E. M.: Standley, 3168.
 Shufeldt, R. W.: Lambrecht, 1966; Palmer, 2567.

Biography—Continued.

- Smith, G. L.: Lees, 2025.
 Talmage, J. E.: Miller, 2332.
 Udden, J. A.: Baker, 137.
 Upham, Warren: Keyes, 1844.
 Van Horn, F. R.: Hyde, 1625, 1626; Kraus, 1943.
 Vogts, J. H. L.: Ransome, 2699.
 Washington, H. S.: Fenner, 1053; Keyes, 1875.
 Williams, E. H., Jr.: Miller, 2333.

Birds. See Aves.

Birch Ridge area, Alberta: Hume, 1617.

Bitumens. See Asphalt.

Bituminous rocks and sands. See also Asphalt; Oil shales; Petroleum.
 Alberta, bituminous sands: Ellis, 1014.
 Northern, bituminous sands: Ellis, 1015.

Blastoidea.

Eublastoidea, bibliographic index: Greger, 1313.

Boise Basin, Idaho: Ross, 2834.

Bonaire, Danish West Indies: Pijpers, 2628.

Borax.

California, boron: Calvert, 542.
 Kern County: Calvert, 543.
 Kramer deposits, Kern County: Mead, 2270.

Borings.

Bahamas, New-Providence Island: Field, 1081.
 British Columbia: Johnston, 1707, 1711.
 Canada, eastern: Johnston, 1709, 1713.
 Prairie Provinces: Johnston, 1708, 1712.
 Colorado, northeastern: Rankin, 2696.
 Kentucky, deep well records: Meacham, 2269.
 Michigan, Upper Peninsula: Thwaites, 3389.
 New York, southern: Fettke, 1070.
 Nova Scotia, Cumberland and Pictou Counties: Imperial Oil Limited, 1630.
 Pennsylvania, northern: Fettke, 1070.
 South Dakota, Upper Cretaceous: Applein, 78.
 Temperature gradients, subsurface: Heald, 1436.

Botany, fossil. See Paleobotany.

Boulders.

Glacial boulders, migrating, Teton glacier: Fryxell, 1180.

Brachiopoda.

Classification: Cooper, 747.
 Greenbrier limestone, Uniontown, Pennsylvania: Benson, 257.
 Greenland, east, Kap Stosch formation: Frebold, 1154.

Brachiopoda—Continued.

- Indiana, New Albany shale, top layers: Huddle, 1605.
 Jurassic: Crickmay, 786.
 Kansas and Oklahoma, Pennsylvanian: Newell, 2471.
 Leiorhynchus jasperense, new name for *L. athabascense*: Burgess, 493.
 Mesolobus mesolobus, typical form and range: Weller, 3592.
 Mississippian, coloration: Riley, 2857.
 Missouri, Mississippian Strophalosia: Hinchey, 1514.
 Southeastern, Silurian: Ball, 155.
 Montana, oboloid brachiopods: Fenton, 1057.
 Neospirifer dunbari: King, 1889.
 Revision, brachiopods, Grand Traverse region, Michigan: Ehlers, 991.
 Salonia magnaplicata, Ordovician, Pennsylvania: Cooper, 750.
 Texas, western, Carboniferous: Girty, 1258.
 Yukon, Laberge area: Lees, 2024.

Breccias.

- California, northern, Tuscan formation: Anderson, 62.

Brisco-Dogtooth area, British Columbia:
Evans, 1032.**British Columbia.**

- Borings: Johnston, 1707, 1711.

Areas described.

- Barkerville, Cariboo District: Johnston, 1706.
 Brisco-Dogtooth area: Evans, 1032.
 Quesnel Forks area, Cariboo District: Cockfield, 685.
 Salmo area: Walker, 3538.
 Waterton Lakes-Flathead Valley: Hume, 1616.
 Whitewater gold belt, Taku River District: Kerr, 1780.
 Zeballos River area, Vancouver Island: Gunning, 1353.

Economic geology.

- Cadwallader Creek mining area, Bridge River District: Cockfield, 686.
 Cariboo and Bridge River gold fields: Dolmage, 912.
 Cariboo gold area: Nichols, 2480.
 Copper Mountain area: Dolmage, 911.
 Cranbrook area: Cairnes, 536.
 General: Galloway, 1207; Richmond, 2765.
 Gold: Nichols, 2481.
 Northern British Columbia: Kerr, 1781.
 Lillooet map area: Walker, 3539.
 Lode-gold developments during 1932: Galloway, 1206.
 McConnell Creek placer area: Lay, 2019.
 Magnesite, Clinton, Cariboo District: Cockfield, 687.

British Columbia—Continued.**Economic geology—Continued.**

- Manson River and Slate Creek placers: Kerr, 1782.
 Michel coal area: McKay, 2179.
 Mining industry, 1932: Galloway, 1207; 1933: Richmond, 2765.
 Nickel, Choate, Yale district: Cockfield, 689.
 Oil and gas: Hume, 1615.
 Peace River area: Williams, 3712.
 Phosphate in Canadian Rockies: Telfer, 3332.
 Placer and vein gold deposits, Barkerville, Cariboo District: Johnston, 1706.
 Quesnel Forks area, Cariboo District: Cockfield, 685.
 Salmo area: Walker, 3538.
 Slocan mining camp: Cairnes, 537.
 Vanadium deposits, Quadra Island: Ellsworth, 1019.
 Whitewater gold belt, Taku River District: Kerr, 1780.
 Willow River map area, Cariboo district: Cockfield, 688.
 Ymir-Sheep Creek goldfield: Nichols, 2482.
 Zeballos River area, Vancouver Island: Gunning, 1353.

Historical geology.

- Copper Mountain area: Dolmage, 911.
 Crownsnest Pass: Warren, 3558.
 Manson River and Slate Creek placers: Kerr, 1782.
 Prince Rupert sheet: Can. G. S., 565.
 Quesnel Forks sheet, Cariboo District: Can. G. S., 566.
 Shuswap terrane: Brock, 408.
 Slocan mining camp: Cairnes, 537.

Mineralogy.

- Shuswap terrane, mineral orientation: Gilluly, 1251.
 Tungstite, Kootenay Belle mine, Salmo: Walker, 3541.

Paleontology.

- Anthracolithic corals: Smith, 3134.
 Coloradoan fauna, upper Peace River: Warren, 3557.
 Mammalia, middle Eocene: Russell, 2894.
 Propinoceras americanum, Kamloops: Miller, 2323.

Petrology.

- Shuswap terrane, mineral orientation: Gilluly, 1251.

Physical geology.

- Magma waves, Coast Range and Cassiar-Omineca batholiths: Lay, 2020.

- Shuswap terrane, metamorphism: Brock, 408.

Physiographic geology.

- Bear River delta, significance regarding glaciation: Hanson, 1392.
 Glaciation, northern British Columbia: Kerr, 1783.

Brucite.

Nevada, Paradise Range, Nye County,
Brucite area: Callaghan, 539.

Bryozoa: Bassler, 222.

Classification, ordinal: Swayze, 3293.
Fenestellae, Carboniferous, European
and American affinities: Nekhoroshev, 2461.

Hedereloidea: Bassler, 221.

Micropaleontology, Johns Valley shale,
Ouachita Mountains, Oklahoma:
Harlton, 1405.

New Jersey, Vincentown: Canu, 575.

Building stone. See also Granite; Sandstone; Stone.

Montana, ornamental stone: Mansfield, 2209.

Burrows.

Daemonhelix, Pleistocene, Texas:
Wood, 3765.

Cadwallader Creek mining area, Bridge
River District, British Columbia:
Cockfield, 686.

Calcite, classification: Anonymous, 3823.

California.

Death Valley: Lee, 2022.

Fairview dam site, Trinity River: Louderback, 2097.

Geology [compendium]: Reed, 2714.

Guidebook, Southern Pacific Lines,
New Orleans to Los Angeles: Darton, 848.

Sacramento Valley: Forbes, 1132.

Southern California: Gale, 1199.

Areas described.

Lompoc oil field, Santa Barbara
County: Dolman, 913.

Madera County: Erwin, 1030.

San Miguel Island, Santa Barbara
County: Bremner, 401.

Economic geology.

Andalusite: Dunn, 950.

Borax, Kramer deposits, Kern County;
Mead, 2270.

Boron: Calvert, 542.

Buried-river channels, tracing: Ellsworth, 1016.

Casmalia oil field, Santa Barbara
County: Porter, 2650.

Chromite deposits, Klamath Mountains: Maxson, 2258.

Ore, Klamath River district, microscopic characteristics: O'Farrell, 2520.

Copper, Squaw Creek district: Shenon, 3047.

Del Norte and Siskiyou Counties: Maxson, 2256.

Gas, Marysville Buttes, Sutter County:
Stalder, 3166.

Gem minerals, San Diego County: Van Amringe, 3454.

Gold deposits, Redding-Weaverville
quadrangles: Averill, 115.

California—Continued.**Economic geology—Continued.**

Gold resources, Kern County: Tucker, 3420.

Graphite, Los Angeles County: Beverly, 298.

Huntington Beach oil field: Gale, 1200.

Kettleman Hills oil field: Goudkoff, 1288, Gester, 1227.

Kettleman Hills, petrographic studies:
Bramlette, 383.

Kettleman North and Middle Dome oil
fields: Dodd, 908.

Laurel and Convict Basins, Mono
County: Mayo, 2265.

Limestones, San Francisco region:
Eckel, 980.

Lompoc oil field, Santa Barbara
County: Dolman, 913.

Long Beach oil field: Crown, 809.

Los Angeles Basin: Gale, 1199.

McKittrick oil field, Kern County:
Taff, 3298.

Middle California: Jenkins, 1654.

North Belridge oil field: Preston, 2664.
Oil-field waters: Jensen, 1671.

Ore deposits, geological relation:
Hullin, 1611.

Panamint Range: Sampson, 2929.

Petroleum and gas, San Joaquin Valley:
Beebe, 240.

Pliocene, southern California: Reed, 2715.

San Joaquin Valley: Cunningham, 814.

Structural influence on accumulation:
McCollough, 2142.

Physical properties, petroleum: Taff, 3299.

Sierra Nevada, placers: Jenkins, 1658.

Source beds, Mesozoic, west side of
Sacramento Valley: Trask, 3409.

Southern California: Livingston, 2067.

Tertiary gold-bearing channels: Jenkins, 1659.

Historical geology.

Auriferous gravels, age: Chaney, 626.

Berkeley Hills, Pliocene sequence:
Clark, 645.

Buena Vista Hills oil field, Kern
County: Koch, 1932.

Cambrian, Mohave Desert: Hazzard, 1435.

Capay Valley Eocene formations:
Crook, 800.

Carpinteria district, Pleistocene: Reed, 2716.

Coast Ranges, geologic cross-section:
Weaver, 3577.

Columbia, geologic section: Louderback, 2099.

Conglomerates, Pliocene, Los Angeles
Basin: Edwards, 985.

Death Valley, formations: Noble, 2497.

California—Continued.

Historical geology—Continued.

Del Norte and Siskiyou Counties: Maxson, 2256.

"Domengine", middle Eocene, Ventura County: McMasters, 2201.

Glacial deposits, Sierra Nevada: Blackwelder, 316.

Grass Valley: Johnston, 1715.

Huntington Beach oil field: Gale, 1200.

Intrusives, granitoid Jurassic, Klamath Mountains and Sierra Nevada: Hinds, 1517.

Inyo Mountains, Ordovician: Phleger, 2623.

Inyo Range, Wyman Canyon, White Mountains, pre-Cambrian: Maxson, 2260.

Iron Canyon, Table Mountain and Kennett dam sites: Etcheverry, 1031.

Julian region: Donnelly, 917.

Kennett, Iron Canyon and Table Mountain dam sites: Louderback, 2096.

Kettleman Hills oil field: Gester, 1227; Goudkoff, 1288.

Kettleman Hills, petrographic studies: Bramlette, 383.

Klamath Mountains, southern: Hinds, 1519.

Knoxville-Shasta succession: Anderson, 66, 67.

Coast Ranges: Anderson, 63.

Lassen Volcanic National Park: Williams, 3705.

Laurel and Convict Basins, Mono County: Mayo, 2265.

Lepidocyclina, San Luis Obispo County, significance: Schenck, 2967.

"Lillis formation": Hanna, 1383.

Llajas formation, Ventura County: McMasters, 2200.

Lompoc oil field, Santa Barbara County: Dolman, 913.

Los Angeles: Soper, 3151.

Lucia quadrangle, Monterey County: Reiche, 2727.

McCloud and Nosoni formations, fusulinids: Wheeler, 3046.

McKittrick oil field, Kern County: Taff, 3298.

Merced formation, Santa Rosa Valley to Pacific: Johnson, 1691.

Middle California: Jenkins, 1654.

Milton formation, Sierra Nevada: Clark, 654.

Miocene foraminifera, Reliz Canyon, Monterey County: Kleinpell, 1903.

Monterey formation, clastic facies and faunas: Eaton, 976.

Mount Jura, Jurassic: Crickmay, 782.

Northern Sierra Nevada: Jenkins, 1653.

Northwestern Calif.: Jones, 1721.

Pacific coast: Reed, 2718.

Panamint Range: Murphy, 2444.

California—Continued.

Historical geology—Continued.

Pine Canyon dam, Los Angeles County: Berkeley, 261.

Redding-Weaverville districts: Hinds, 1516.

Reef Ridge shale: Barbat, 161.

Riverside area, geologic history: Bacon, 119.

Sacramento River basin dam sites: Forbes, 1131.

Salinas Valley district, Eocene: Edwards, 988.

San Gabriel Mountains, Eocene: Clements, 662.

Western: Miller, 2354.

San Joaquin clay, San Joaquin Valley: Barbat, 162.

San Joaquin hills: Findlay, 1097.

San Lorenzo formation: Hobson, 1535.

Santa Margarita conglomerate, Temblor Range: Reed, 2717.

Santa Monica Bay: Shepard, 3059.

Santa Monica Mountains, westernmost: Kelly, 1773.

Western: Soper, 3152.

Santa Susana and Lower Lajas Fauna, Ventura County: Clark, 648.

Sierra Nevada batholiths and Mother Lode: Cloos, 666.

West of Mother Lode zone: Taliaferro, 3302.

Simi Valley, north side, Eocene: Stipp, 3223.

Southern California: Livingston, 2067.

Southern Peninsular Mountains, geologic section: Miller, 2353.

Tehachapi region, Tertiary tectonic activity: Buwalda, 519.

Timms Point, cool-water Pleistocene, San Pedro: Clark, 643.

Turritella andersoni zone, correlation: Applin, 79.

Stratigraphic position: Vokes, 3517.

Tuscan formation: Anderson, 62.

Vaqueros, age: Schenck, 2967.

Volcanism and diatomaceous sediments, relation: Taliaferro, 3304.

Weaverville district: Hinds, 1518.

Mineralogy.

Anauxite as secondary mineral in volcanic rocks: Rogers, 2789.

Benitoite: Yaeckel, 3810.

Neptunite and joaquinite: Van Amringe, 3459.

Mt. Diablo Range: Hill, 1509.

Clay minerals: Woodford, 3774.

Clinoptilolite: Bramlette, 382.

Crestmore, paragenesis: Daly, 835.

General: Melhase, 2279.

Kernite, Kern County: Calvert, 543.

Monazite in granodiorite, Riverside County: Dykes, 963.

Monticellite, Crestmore: Moehlan, 2370.

Montmorillonite after feldspar in pegmatite: Laudermilk, 2007.

California—Continued.

Mineralogy—Continued.

- Montroydite: Woodhouse, 3776.
Opal: Lewis, 2058.
Piedmontite, Shadow Lake, Madera County: Short, 3072.
Sierra Nevada: Mayo, 2264.
Rubidium, gallium, and thallium in lepidolite, Pala: Kennard, 1778.
San Diego County, gem minerals: Grieger, 1325.
Spodumene, San Diego County: McIntosh, 2174.
Tilleyite, Crestmore: Larsen, 1999.
Vein-quartz, Mariposa County: Rogers, 2793.

Paleontology.

- Amber Eocene: Murdoch, 2443.
Amyndont skull, Sespe beds, Simi Valley: Stock, 3236.
Anchitheriine, horses, north Coalinga district: Bode, 338.
Anthracolithic trilobites, northern: Wheeler, 3648.
Auk, Pliocene, San Diego: Miller, 2347.
Avifauna, Pleistocene, McKittrick: Miller, 2339.
Bird, Phalacrocorax, upper Pliocene, Santa Barbara: Howard, 1570.
Birds, Pleistocene: Miller, 2343.
Branta dickeyi, Pleistocene, McKittrick: Miller, 2338.
Cambrian, Mohave Desert: Crickmay, 780.
Cardita, statistical studies: Quayle, 2680.
Carnivora, Sespe Oligocene, Las Posas Hills: Stock, 3238.
Cats of Rancho La Brea: Merriam 2292.
Cetothere, Modelo formation, Los Angeles: Kellogg, 1767.
Chendytes, extinct goose, Ventura County: Miller, 2349.
Coral, Eocene, Simi Peak, Ventura County: Faustino, 1050.
Cormorant, Miocene, Calabasas: Miller, 2342.
Pliocene, Santa Barbara: Howard, 1573.
Cosomys, Pleistocene, vole: Hinton, 1522; Wilson, 3734.
Creodontia, Sespe, upper Eocene: Stock, 3245.
Dentalium neohexagonum, Fernando formation: Greger, 1314.
Diatoms, Cretaceous: Hanna, 1385.
Tertiary: Hendy, 1470.
Discocyclus, Meganos formation: Schenck, 2969.
Eomellivora, Kern River Pliocene: Stock, 3231.
Epitonium fallaciosum, type, Pleistocene: Woodring, 3777.
Eporeodon thurstoni, oreodont, Sespe, South Mountain: Stock, 3246.

California—Continued.

Paleontology—Continued.

- Falcons, Pleistocene, McKittrick: Miller, 2340.
Flora, Eden beds, Pliocene: Axelrod, 117.
Pleistocene, asphalt deposits, Carpinteria: Chaney, 631.
Tertiary, Trinity County: MacGinitie, 2172.
Foraminifera: Cushman, 819.
Distribution, living and fossil: Natland, 2456.
Merced series, San Mateo County: Stewart, 3221.
Miocene, in diatomite: Deflandre, 879.
Miocene, San Joaquin Valley: Barbat, 160.
Fossil markings, Carmelo series, Point Lobos: Herold, 1473.
Goose footprints, Pliocene, Contra Costa County: Miller, 2317.
Pliocene, Mohave Desert: Miller, 2344.
Gryphaeoid oyster, Eocene: Hertlein, 1479.
Haliotis, Pliocene: Vokes, 3515.
Horse skull from Rancho La Brea: Antonius, 76.
Horses, merychippine, north Coalinga district: Bode, 337.
Hyaenodontidae, Sespe beds, Simi Valley: Stock, 3234.
Hyaenognathus, Coso Mountains, Pleistocene: Stock, 3230.
Hyatt's unfigured types, Jurassic: Crickmay, 779.
Imperial formation, San Geronia Pass: Bramkamp, 381.
Inyo Mountains, Ordovician faunas: Phleger, 2623.
Jurassic Brachiopoda: Crickmay, 786.
Lamellibranchiata, middle Eocene: Clark, 649.
Land shells, Sespe, north of Simi Valley: Hanna, 1386.
Lepidocyclus: Taliaferro, 3300.
Lithothamninae, Eocene, Sierra Blanca limestone: Howe, 1586.
Mammalian fauna, Carpinteria asphalt deposits: Wilson, 3736.
Mammals, Tertiary, in auriferous gravels near Columbia: Merriam, 2293.
Merychippine horses, Miocene, tooth characters: Bode, 336.
Miacid, Sespe Eocene, Simi Valley: Stock, 3235.
Microsyopsinae and Hyopsodontidae, Sespe, upper Eocene: Stock, 3244.
Mimomys primus, Pliocene vole: Hesse, 1492.
Mint Canyon Pliocene fauna, Los Angeles County: Stirton, 3225.

California—Continued.

Paleontology—Continued.

Mollusks, Cretaceous and Tertiary,
Mount Hamilton Range: Wiedey,
3683.

Pleistocene, Carpinteria: Grant,
1300.

Neptunea, Miocene, Caliente Range:
Grant, 1299.

Nothrotherium, Pleistocene, Rancho
la Brea: Moodie, 2382.

Otus flammeolus, Pleistocene, Samwel
Cave: Miller, 2348.

Oysters and pecten, Miocene, Kern
County: Hertlein, 1482.

Perissodactyla, Sespe, Las Posas Hills:
Stock, 3237.

Pines, closed-cone, Pliocene, Pleisto-
cene: Mason, 2226.

Plants in auriferous gravels, Sierra
Nevada, age: Chaney, 624.

Pliocene floras: Dorf, 919.

Fresh-water fossils, Kettleman Hills:
Pilsbry, 2632.

Plihippus tantalus, skull, Oakdale:
Vander Hoof, 3462.

Primate, upper Eocene, Ventura Coun-
ty: Stock, 3239, 3242.

Primates, Eocene: Stock, 3241.

Rancho La Brea: Gale, 1199.

Avifauna: Miller, 2315.

Reef Ridge Shale, Foraminifera:
Barbat, 161.

Road-runner, Pleistocene: Larson,
2003.

Rodent fauna, Carpinteria asphalt de-
posits: Wilson, 3735.

Sabre-tooth tiger, Pleistocene, sacral-
ization: Moodie, 2391.

San Bruno, San Mateo County, Pleis-
tocene flora: Potbury, 2652.

Santa Barbara, Pliocene and Pleisto-
cene: Grant, 1301.

Santa Cruz Island, Pleistocene flora:
Chaney, 630.

Searlesia: Grant, 1297.

Serbelodon burnhami, Ricardo, Plio-
cene: Osborn, 2533.

Simimeryx hudsoni, Sespe, Simi Val-
ley: Stock, 3247.

Smilodon californicus, Pleistocene,
Rancho la Brea: Moodie, 2380.

Storks, Pleistocene, Rancho La Brea
and McKittrick: Miller, 2346.

Strix brea, Pleistocene, Rancho La
brea: Howard, 1575.

Tehama fauna, upper Pliocene: Van-
der Hoof, 3463.

Timms Point, cool-water Pleistocene,
San Pedro: Clark, 643.

Tomales formation, Pleistocene flora:
Mason, 2227.

Turritellas, distribution and relation-
ship: Merriam, 2289.

California—Continued.

Paleontology—Continued.

Vertebrates from Sespe beds north of
Simi Valley: Stock, 3243.

Pleistocene, northern California:
Vander Hoof, 3467.

Vulture and Hawk, Pliocene, Pozo
Creek, Kern County: Miller, 2345.

Woods, Last Chance Gulch, Pliocene:
Webber, 3583.

Miocene, in auriferous gravels: Mit-
chell, 2365.

Petrology.

Burnt Lava flow, northern California:
Finch, 1095.

Cherts, Monterey: Taliaferro, 3305.

San Pedro hills, Los Angeles County,
origin: Smith, 3116.

Crestmore contact rocks: Dunham, 949.

Glass Mountain, volcanic history: An-
derson, 63.

Granites, San Gabriel Mountains: Mil-
ler, 2351.

Lassen Volcanic National Park: Wil-
liams, 3705.

Mount Thielsen, a dissected Cascade
volcano: Williams, 3706.

Mylonites from San Andreas fault zone,
Crystal Springs Lakes: Waters,
3572.

Panamint Range: Murphy, 2444.

Psuedo-cataclastic texture of replace-
ment origin, Inyo-White Mountain
Range: Anderson, 70.

Salton volcanic domes, Imperial
County: Rogers, 2794.

San Gabriel Mountains, western: Mil-
ler, 2354.

Tuscan formation: Anderson, 62.

Physical geology.

Alteration of lavas, Lassen Volcanic
National Park: Anderson, 64.

Asphalt deposits, seasonal bandings:
Vander Hoof, 3466.

Beach deposits, stratification: Thomp-
son, 3379.

Buena Vista Hills, oil field, faulting:
Koch, 1932.

Burnt Lava flow, northern California:
Finch, 1095.

Coast Ranges, Pliocene diastrophism:
Weaver, 3578.

Earthquake, Humboldt Bay: Byerly,
522.

Earthquake, Long Beach: Chick, 638;
Davis, 864; Eaton, 975; Hillis,
1513.

Earthquake, Long Beach, March 10,
1933: Wood, 3756; Neumann,
2469; Reeds, 2721.

Earthquakes, registration: Byerly, 520,
521, 528; Spitaler, 3159.

Earthquakes, 1769-1933: Wood, 3762.

Faults: Raguin, 2686.

Folding, Mount Diablo and Coalinga
areas, Coast Ranges: Clark, 647.

California—Continued.

Physical geology—Continued.

Fracture systems, Grass Valley: Johnston, 1715.

Glass Mountain, volcanic history: Anderson, 63.

Intra-septum intrusion, Sierra Nevada: Mayo, 2266.

Kettleman hills, faulting: Hill, 1511.

Origin: Hill, 1512.

Lassen Volcanic National Park: Williams, 3705.

Long Beach earthquake: Clements, 661; Wood, 3757, 3758.

Long Beach earthquake, March 11, 1933, longitudinal waves: Gutenberg, 1361.

Mojave desert: Davis, 858.

Mount Shasta: Williams, 3707.

Reflection seismograph records: Salvatore, 2928.

Santa Lucia Range structure: Stanton, 3171.

Schistosity, development in mountains: Fourmarier, 1137.

Sierra Nevada: Cloos, 670.

Physiographic geology.

Afton basin, Mojave Desert: Elsworth, 1017.

Coast, northern, and continental margin structural relations: Maxson, 2257.

Colorado River, origin: Blackwelder, 325.

Dunes, Pacific coast: Cooper, 754.

Glaciation, Pleistocene, in Sierra Nevada and Basin ranges: Blackwelder, 315.

Granitic domes, Mojave Desert: Davis, 860.

Inyo Range, northern: Anderson, 69.

Lake Manly, extinct lake, Death Valley: Blackwelder, 319.

Lakes: Davis, 857.

Long Valley Pleistocene lake: Mayo, 2268.

Mount Thielsen, a dissected Cascade volcano: Williams, 3706.

Pacific coast: Reed, 2718.

Palisade glacier, Sierra Nevada Mountains: Von Engel, 3519.

Peninsular Mountains, geomorphology: Miller, 2355.

Pleistocene glaciation: Blackwelder, 323.

Sacramento River Canyon between Cottonwood Creek and Iron Canyon: Marliave, 2216.

Sand concretions: Edwards, 989.

San Gabriel Mountains, Cenozoic history: Miller, 2352.

Santa Catalina Island, marine terraces: Smith, 3138.

Santa Monica Mountains, glaciations: Davis, 862.

Scarp-ramp, northern Owens valley: Taylor, 3323.

California—Continued.

Physiographic geology—Continued.

Sierra Nevada, geomorphic structure: Panzer, 2568.

Soil hillocks: Melton, 2282.

Southern California: Livingston, 2067.

Submarine canyons: Shepard, 3060.

Submarine mock valleys, Santa Monica: Davis, 866.

Valley on Shepherd's Crest, Sierra Nevada: Matthes, 2244.

Yardangs, Mojave desert: Blackwelder, 321.

Yosemite Valley: Jenkins, 1654.

Underground water.

Depletion of underground-water supplies: Conkling, 720.

Investigations: Piper, 2634.

Oil-field waters: Jensen, 1671.

Sacramento Valley: Forbes, 1132.

Water fluctuations during earthquake of December 20, 1932: Piper, 2635.

- Cambrian. See also Paleontology, Cambrian: Keyes, 1837; Resser, 2742.
- Alabama, northern: Johnston, 1714.
- Alberta, central: Allan, 36.
- Arctic America, Baffin Land and Melville Peninsula: Mathiasen, 2242.
- Arizona, Colorado dome: Keyes, 1829.
- British Columbia, Brisco-Dogtooth area: Evans, 1032.
- California, Death Valley: Noble, 2497.
- Mojave Desert: Hazzard, 1435.
- Providence, Marble and Ship Mountains: Hazzard, 1435.
- Canada, eastern Arctic: Weeks, 3587.
- Colorado, central: Lovering, 2110.
- Front Range: Brainerd, 379.
- Greenland, east, Caledonian Mountains: Teichert, 3327.
- Northwest, Washington Land, south coast: Koch, 1928.
- Idaho, south-central: Ross, 2837.
- Iowa, Richmond sandstone: Keyes, 1847.
- Upper Mississippi Valley: Trowbridge, 3414.
- Minnesota, Cambrian-Ordovician contact: Graham, 1295.
- Jordan sandstone: Keyes, 1845.
- Type paleozoic sections: Staufer, 3177.
- Upper Mississippi Valley: Trowbridge, 3413, 3414.
- Miquelon and Saint Pierre Islands: Aubert de la Rue, 104.
- Missouri: Kansas Geol. Soc., 1746.
- Montana, Medicine Bow Mountains: Neely, 2459.
- Northwestern: Deiss, 884.
- Nebraska, pre-Pennsylvanian stratigraphy: Lugn, 2123.
- Nevada, Tybo District: Ferguson, 1064.

Cambrian—Continued.

- Newfoundland, western: Schuchert, 2996.
 New Mexico: Winchester, 3747.
 Sierra County: Harley, 1404.
 New York, New York City and vicinity: Berkeley, 263.
 Rensselaer graywacke: Vaughan, 3490.
 New York State: Newland, 2476.
 North Carolina, Coleman dam site, Cherokee County: Moneymaker, 2372.
 Northwestern United States: Resser, 2745.
 Oklahoma: Sheerar, 3043.
 Arbuckle and Wichita Mountains, early Paleozoic: Decker, 874.
 Oil and gas fields: Wrather, 3787.
 "Olenellus zone": Resser, 2741.
 Paleozoic, lower, classification: Ulrich, 3444.
 Pennsylvania, Atlantic Coastal Plain and Piedmont province: Jonas, 1717.
 Eastern: Berkeley, 262.
 Limestones: Miller, 2331.
 Middletown quadrangle: Stose, 3261.
 Southern: Stose, 3260.
 Southwestern: Piper, 2633.
 Quebec, southern: Clark, 655.
 Thetford and Disraeli quadrangles: Cooke, 738.
 South Dakota, Crepicephalus horizon in Deadwood formation: Meyerhoff, 2311.
 Southern Appalachian region: Butts, 513.
 Tennessee, Forked Deer Creek section, Clinch Mountain: Hall, 1372.
 Knox dolomite: Oder, 2517.
 Texas: Sellards, 3029.
 Utah, Wasatch Mountains, southern: Eardley, 966.
 Western Uinta and central Wasatch Mountains: Hintze, 1524.
 Vermont, Athens, Brookline and Westminster: Richardson, 2761.
 Northwestern, Cambrian and Ordovician: Schuchert, 2995.
 Northwestern, Upper Cambrian base: Howell, 1596.
 Putney area: Richardson, 2762.
 Rugg Brook formation: Howell, 1594.
 Winooski and Mallett formations, contact: Howell, 1593.
 Virginia, Appalachian Valley: Butts, 514.
 Blue Ridge: Stose, 3262.
 Northern: Bevan, 288.
 Shenandoah National Park area: Furcron, 1193.

Cambrian—Continued.

- Wisconsin: Twenhofel, 3433.
 Baraboo area: Vanenmacher, 3544.
 Upper Mississippi Valley: Trowbridge, 3413, 3414.
 Willow dolomite, upper Mississippi Valley: Keyes, 1836.
 Wyoming, Owl Creek Mountains: Love, 2107.
 Shoshone Canyon area, Park County: Johnson, 1692.

Canada (general). See also names of Provinces.

- Borings, eastern Canada: Johnston, 1709, 1713.
 Prairie Provinces: Johnston, 1708, 1712.
 Geological Survey of Canada: Gray, 1307.
 Report 1933: Collins, 708.
 Land movements and sedimentation: Williams, 3711.
 Report of Department of Mines, 1933: Camsell, 557; 1934: Camsell, 558.

Economic geology.

- Anhydrite: Cole, 695.
 Bentonite: Spence, 3155.
 Canadian Shield: Bruce, 442.
 Chrysotile asbestos: Dufresne, 941.
 Gold belts: Knight, 1908.
 Gold, 1933: Robinson, 2782.
 Great Bear Lake, silver mineralization: Furnival, 1195.
 Limestones: Goudge, 1286, 1287.
 Magnesite: Wilson, 3732.
 Mineral deposits, Canadian Shield: Bruce, 438.
 Oil and gas, western Canada: Hume, 1615.
 Oil prospects, western Canada: Hunter, 1622.
 Peat bogs, southeastern Canada: Auer, 111.
 Placer deposits: Cockfield, 684.
 Platinum and allied metals: O'Neill, 2527.
 Portraying structure of coal fields: MacKay, 2177.
 Roofing-tile clays and shales, eastern Canada: McMahon, 2199.
 Sydney coal field: Gray, 1308.

Historical geology.

- Canadian Shield: Bain, 125; Bruce, 442; Young, 3813.
 Keewatin and Laurentian igneous rocks, genetic relations: Moore, 2401.
 Pre-Cambrian time: Cooke, 737.
 Eastern Arctic: Weeks, 3587.
 Eparchean peneplain: Lawson, 2018.
 Hudson Bay and St. Lawrence basin, post-Pleistocene connection: Potter, 2653.

Canada (general)—Continued.

Historical geology—Continued.

- Map of sedimentary formations of Canadian shield: Can. G. S., 559.
Platinum and allied metals: O'Neill, 2527.

Mineralogy.

- Apatites: Dadson, 824.

Paleontology.

- Climacograptus inuiti, Ungava Bay: Cox, 765.
Dinosaur tracks, Peace River, Cretaceous: Sternberg, 3208.
Mollusca, postglacial: Mozley, 2426.
Unionidae, reclassification: Russell, 2890.

Physical geology.

- Akpatok Island, rejuvenation: Cox, 766.
Eparchean peneplain: Lawson, 2018.

Physiographic geology.

- Akpatok Island, rejuvenation: Cox, 766.
Arctic America, north of Hudson Bay: Freuchen, 1163.
Drainage changes near Kicking Horse Pass: Zernitz, 3816.
Jasper conglomerate; dispersion: Slawson, 3108.

Canal Zone. See Panama.

Carboniferous. See also Paleontology, Carboniferous: Keyes, 1810.

- Alabama, northern: Johnston, 1714.
Alaska, Curry district: Tuck, 3416.
Alberta, Canadian Rockies: Telfer, 3332.

Central: Allan, 36.

- Crowsnest Pass area: Warren, 3558.
American Permian: White, 3656.
Appalachian region: Bevan, 289.
Arizona, Canyon de Chelly sandstones: McKee, 2184.

Coconino sandstone: McKee, 2182.

- Arkansas: Kansas Geol. Soc., 1746.
Boone chert: Giles, 1245.
Coal fields, Pennsylvanian correlations: Hendricks, 1468.
Jackfork and Stanley formations, age: White, 3663.
Johns Valley shale, Ouachita Mountains: Moore, 2413.
Ouachita Mountains, Bendian: Harton, 1406.
Ouachita Mountains: Miser, 2363.
British Columbia, Barkerville, Cariboo District: Johnston, 1706.
Canadian Rockies: Telfer, 3332.
Slocan mining camp area: Cairnes, 537.

- Burlington limestone: Keyes, 1874.
California, Death Valley: Noble, 2497.
Northern Sierra Nevada: Jenkins, 1653.
Redding-Weaverville districts: Hinds, 1516.

Carboniferous—Continued.

Carboniferous-Permian boundary: Wheeler, 3647.

Chouteau limestone: Keyes, 1865.

Colorado: Kansas Geol. Soc., 1747.

Algal reef, South Park: Johnson, 1699.

Breckenridge mining district: Lovering, 2111.

Central: Lovering, 2110.

Front Range: Brainerd, 379.

Hermosa formation, type section: Roth, 2842.

McCallum anticlines, Jackson County: Miller, 2336.

Mississippian: Brainerd, 380; Johnson, 1697.

Orient mine: Stone, 3253.

Sangre de Cristo Range: Johnson, 1693.

Two Buttes dome, southeastern Colorado: Sanders, 2938.

Cyclothems, Pennsylvanian, boundaries: Weller, 3596.

Flora, eastern States: Jongmans, 1736.

Grassy shale: Keyes, 1866.

Greenland, Fleming Inlet area: Noe-Nygaard, 2506.

Idaho, south-central: Ross, 2837.

Illinois, Madison and St. Clair Counties, Pennsylvanian rocks: Wanless, 3546.

Pennsylvanian cycle and its significance: McGehee, 2161.

Pennsylvanian limestone, Carlinville quadrangle: Ball, 153.

Shoal Creek and Carlinville limestones, correlation: Ekblaw, 999.

Southwestern, Okaw formation: Sutton, 3283.

Warsaw formation: Weller, 3594.

Indiana, Union oil and gas field, Pike and Gibson Counties: Logan, 2080.

Unionville gas field, Monroe County: Freed, 1156.

Iowa, channel sandstone, Redfield: Gwynne, 1363.

Chouteau limestone: Keyes, 1856.

Des Moines series, Redfield: Gwynne, 1362.

Fort Dodge: Wood, 3770.

Gilmore City formation: Laudon, 2010.

Kansas City formation, Madison County: Goshorn, 1284.

Middle River traverse: Condra, 718.

Mississippian: Laudon, 2009.

Missouri River traverse: Condra, 716.

Missouri series, Madison County: Wood, 3769.

Red Oak-Stennett-Lewis traverse, Nishnabotna Valley: Condra, 717.

Kansas: Kansas Geol. Soc., 1745, 1747.
Bronson group: Jewett, 1673, 1674.

Carboniferous—Continued.

- Cross section, geologic: Kellett, 1763.
 Ottawa, angular coal fragments: Rich, 2749.
 Sedimentation cycles in Big Blue series: Moore, 2415.
 Kentucky, Mill Springs area: Knapp, 1906.
 Western: Russell, 2900.
 Kinderhookian stratigraphy and paleontology: Branson, 397.
 Maryland, Appalachian region: Stose, 3260.
 Merkel dolomite, Texas: Kramer, 1940.
 Mexico, central Sonora: King, 1891.
 Southwestern Coahuila, Permian: King, 1890.
 Michigan, Grand Ledge: Kelly, 1774.
 Oil and gas fields: Nemcombe, 2469.
 Midcontinent plants, Permian: Elias, 1005.
 Midcontinent region, northern, Pennsylvanian: Moore, 2405, 2406.
 Pennsylvanian and Permian stratigraphy: Moore, 2409.
 Mississippi, Jackson gas field, Hines and Rankin Counties: Monroe, 2373.
 Missouri: Kansas Geol. Soc., 1745, 1746.
 Blue Springs gas field, Jackson County: Bartle, 203.
 Chouteau limestone: Swartzlow, 3290.
 Cross section, geologic: Kellett, 1763.
 Mississippian: Laudon, 2009.
 Osage beds, Ozarkian region: Moore, 2410.
 Osage group, Mississippian, type locality: Keyes, 1824.
 Pennsylvanian outlier, St. Louis: Knight, 1910.
 Western: Greene, 1310.
 Montana, Cinnabar Mountain, Park County: Wilson, 3720.
 Medicine Bow Mountains: Neely, 2459.
 Northwestern: Deiss, 884.
 Nebraska: Kansas Geol. Soc., 1745.
 And Kansas, Grenola formation: Condra, 715.
 Pre-Pennsylvanian stratigraphy: Lugin, 2123.
 Newfoundland, western: Schuchert, 2996.
 New Hampshire, Franconia region, White Mountains: Williams, 3703.
 New Jersey, mineral resources: Berkeley, 262.
 New Mexico: Kansas Geol. Soc., 1747; Winchester, 3747.
 Roswell artesian basin: Fiedler, 1074.
 Sierra County: Harley, 1404.

Carboniferous—Continued.

- New York State: Newland, 2476.
 Nomenclature, Iowa: Keyes, 1851.
 North America, tectonic: Van der Gracht, 3461.
 Ohio, sedimentary series: Lamborn, 1965.
 Oklahoma: Kansas Geol. Soc., 1746, 1747; Sheerar, 3043.
 Arbuckle Mountains: Dott, 929.
 Arbuckle Mountains, Pennsylvanian: Dott, 927.
 Boone chert: Giles, 1245.
 Boulders, Bengalian, Ouachita Mountains: Kramer, 1938.
 Cherokee structural history: Lowman, 2118.
 Coal fields, Pennsylvanian correlations: Hendricks, 1468.
 Hoxbar formation: Tomlinson, 3400.
 Johns Valley shale, Ouachita Mountains: Moore, 2413.
 Lower and middle Pennsylvanian: Lowman, 2117.
 Lucien field: Zavolco, 3815.
 Oil and gas fields: Wrather, 3787.
 Ouachita Mountains: Miser, 2363.
 Ouachita Mountains, Bendian: Harlton, 1406.
 Pennsylvanian - Permian boundary: Dott, 926.
 Permian, Logan and Lincoln Counties: Patterson, 2591.
 Western, Mississippian: Dille, 905.
 Western, Pennsylvanian: Ryniker, 2917.
 Western, Permian: Greene, 1309.
 Western, Permian-Triassic problem: Anderson, 71.
 Orogeny, time of, in central Appalachians: Holden, 1551.
 Osage formations, Ozark regions: Cline, 664.
 Ozarks, Pennsylvanian transgression: Dake, 827.
 Paradox formation, Utah and Colorado: Baker, 132.
 Pennsylvania, anthracite: Austin, 114.
 Cameron County: Cathcart, 606.
 Eastern: Berkeley, 262.
 Freeport quadrangle: Hughes, 1608.
 Limestones: Miller, 2331.
 Lower Kittanning coal bed: Stadnichenko, 3163.
 Northwestern: Caster, 601.
 Pocono, age: White, 3660.
 Pocono (Oswayo) sandstone, plants: Arnold, 82.
 Potter County: Cathcart, 603.
 Somerset-Windber quadrangles: Richardson, 2763.
 Southern: Stose, 3260.
 Southwestern: Piper, 2633.
 Tioga County: Cathcart, 604.
 Western: Sisler, 3107.

Carboniferous—Continued.

Pennsylvanian and Permian facies faunas: Moore, 2411.

Reclassification, Midcontinent region, northern: Moore, 2408.

Series, eastern interior province, interpretation: Cady, 532.

Permian: Keyes, 1807.

Continental interior: Keyes, 1800.

Permian-Pennsylvanian boundary, Midcontinent region: Moore, 2414.

Pocono orogeny, age and climate: White, 3662.

Rocky Mountain region: Heaton, 1437.
Ste. Genevieve limestone: Keyes, 1862.
Southern Appalachian region: Butts, 513.

Stephanian in America: Darrah, 845.
Texas: Kansas Geol. Soc., 1747; Sellards, 3029.

Colorado River valley: Bullard, 478.
Concho County, Permian: Kramer, 1941.

Ector County: Young, 3811.

Graham formation: Coryell, 759.

Hemphill County: Reed, 2713.

Trans-Pecos: King, 1886.

Trans-Pecos, upper Mississippian rocks: King, 1887.

Utah, Moab District: Baker, 131.

Wasatch Mountains, southern: Eardley, 966.

Virginia: McGill, 2167.

Appalachian Valley: Butts, 514.

Blue Ridge: Stose, 3262.

West Franklin formation, southwestern Indiana: Shrock, 3077a.

West Virginia, coal measures, vertical section: Tucker, 3419.

Liverpool oil and gas pool: Heck, 1438.

Wyoming, central and southeastern, Permian: Thomas, 3362.

Owl Creek Mountains: Love, 2107.
Phosphoria and Dinwoody tongues in lower Chugwater: Thomas, 3367.

Shoshone Canyon area, Park County: Johnson, 1692.

Southwestern, Uinta County: Veatch, 3497.

Yukon, Laberge area: Lees, 2024.

Carbon dioxide.

Colorado, McCallum anticlines, Jackson County: Miller, 2336.

Cartography.

Auto radio, an aid in geologic mapping: Cloos, 667.

Colorado, mapping method: Margerie, 2215.

Tectonic map of United States, proposed: Longwell, 2090.

Topographic mapping, United States: Nat. Res. Board, 2455.

Caves.

Ice caves: Smith, 3119.

Solution caverns: Henderson, 1463.

Kansas, Mitchell County: Knight, 1975.

Texas, Longhorn cavern: Law, 2016.

Virginia, Appalachian Valley: McGill, 2163.

Cenozoic.

Geologic formations: Alcock, 21.

North America, geologic formations: Shimer, 3071.

Central America. See also Costa Rica, Guatemala, etc.

Cephalopoda. See also Mollusca.

Ammonites, Madison County, Montana: Schindewolf, 2973.

Belemnites, genotype: Crickmay, 781.

Carboniferous ammonoids, triangular nepionic coiling: Crons, 792.

Dryochoceras, Carboniferous, synonym for Sagittoceras: Miller, 2327.

Earliest known: Ulrich, 3443.

Gastrolites and Neogastrolites, Alberta: McLearn, 2196.

Gonioceras, Ordovician, Minnesota: Sardeson, 2953.

Greenland, east, Cretaceous: Bøggvad, 342.

Lower Permian: Frobald, 1151.

Manticoceras versus Gephyroceras: Chadwick, 615.

Missouri, Pennsylvanian goniatites: Bisat, 309.

Nautiloids, Cherokee, Midcontinent region: Miller, 2328.

Midway group: Miller, 2322.

Nellie Bly formation, Oklahoma: Miller, 2325.

Ohio, Ontario, and Iowa, cyrtoconic, Silurian: Foerste, 1123.

Pennsylvanian, Mid-Continent region, nautiloids: Miller, 2320.

Phosphoria formation: Miller, 2326.

Pierre formation, Wallace County, Kansas: Elias, 1001.

Propinococeras americanum, ammonoid, Permian, British Columbia: Miller, 2323.

Schistochoanites: Ulrich, 3448.

Schuchertoceras thomasi: Miller, 2321.

Washington Land, north Greenland, Ordovician: Teichert, 3329.

Cetacea. See Mammalia.

Changes of level. See also Beaches; Shore lines; Terraces.

Atlantic coast: Townsend, 3403.

Subsidence: Cheney, 637.

Greenland, southeast, Quaternary: Vogt, 3514.

Lagoon deposits on shorelines of emergence: Lucke, 2121.

Changes of level—Continued.

- Massachusetts: Brown, 432.
- New Jersey, Barnegat Inlet: Lucke, 2119.
- New Jersey Coast: Kümmel, 1950.
- Pleistocene: Cooke, 731.
- Regressive sandstones: Sears, 3019.
- Sea level, determination: Marmer, 2217.
- Tidal inlets, evolution: Hitchcock, 1526.
- Tilting due to glacial melting: Gutenberg, 1360.

Chelonla. See Reptilia.

Chert.

- California, Monterey: Taliaferro, 3305.
- Formation: Taliaferro, 3305.
- Illinois, Niagara series, Chicago area: Schultz, 3003.
- Missouri, Carthage, cherts and styeolites, relation: Bastin, 223.
- Tri-State mining district, chertification: Fowler, 1144.

Chromite.

- California, Del Norte and Siskiyou Counties: Maxson, 2256.
- Klamath Mountains: Maxson, 2258.
- Klamath River district: O'Farrell, 2520.
- Newfoundland: Snelgrove, 3142.
- Ontario, Obonga-Kashishibog area, Thunder Bay: Kidd, 1877.
- Quebec, eastern: Denis, 893.
- Thetford and Disraeli quadrangles: Cooke, 738.
- Thetford district: Cooke, 736.

Cirripedia. See also Crustacea.

- Scalpellum gabbi Wade, Cretaceous: Pilsbry, 2630.

Classification.

- Glacial drift sheets: Kay, 1752.
- Ore deposits: Howe, 1577; Loughlin, 2102.
- Rock units: Ashley, 92.

Clay.

- Canada: Spence, 3155.
- Eastern: McMahon, 2199.
- Clay minerals: Grim, 1329.
- Florida, bleaching clays: Nutting, 2513.
- Georgia, bleaching clays: Nutting, 2513.
- Northwestern, shales and brick clays: Smith, 3131.
- Idaho: Tullis, 3421.
- Inland Empire: Wilson, 3726.
- Illinois, Anna, kaolin deposits: Grim, 1330.
- Indiana: Whitlatch, 3671.
- Underclays: Whitlatch, 3672.
- Minerals: Ross, 2818.
- Minerals with composition $Al_2O_3SiO_2$: Insley, 1633.

Clay—Continued.

- North Carolina minerals: Fabianic, 1038.
- Oklahoma: Sheerar, 3043.
- Ontario, lignite and refractory clay, Onkawana region: Dyer, 958.
- Northern, refractory clays: Dyer, 962.
- Refractory clay, Missinaibi River: Crozier, 810.
- Pennsylvania: Leighton, 2036.
- Saskatchewan, buff- and white-burning clays: McLearn, 2198.
- Tennessee: Collins, 705; Roberts, 2775.
- Washington, Inland Empire: Wilson, 3726.

Cleating in coal: Dapples, 842.

Climate, geologic. See Paleoclimatology.

Coal. See also Lignite.

- Alaska, Anthracite Ridge district: Richards, 2760.
- Moose Creek area: Waring, 3550.
- Alberta, central: Allan, 36.
- Coleman South coal area: McKay, 2179.
- Crowsnest Pass area: McKay, 2178.
- British Columbia, Michel coal area: McKay, 2179.
- Canada, Sydney coalfield: Gray, 1308.
- Cleating in coal: Dapples, 842.
- Composition: Fisher, 1101.
- Genesis: Lewis, 2056.
- Illinois coal no. 6: McCabe, 2135, 2136.
- Kaolinite in coal: Ball, 151.
- Pennsylvanian cycle and its significance: McGhee, 2161.
- Springfield (No. 5), depositional basin: Wanless, 3545.
- Northwest Territories, Great Bear Lake area: Kidd, 1876.
- Origin: Berl, 266; Van Tuyl, 3487.
- Pennsylvania, anthracite: Austin, 114.
- Freeport quadrangle: Hughes, 1608.
- Somerset-Windber quadrangles: Richardson, 2763.
- Portraying structure of coal fields: MacKay, 2177.
- Role of water in formation and differentiation: White, 3655.
- South Dakota, central Perkins County: Searight, 3017.
- Stoneville area: Searight, 3016.
- Spores: Sprunk, 3160.
- Virginia: McGill, 2167.
- West Virginia, coal measures, vertical section: Tucker, 3419.
- Cone-in-cone structure: Price, 2668.
- Point Lick, Kanawha County: Fieldner, 1084.
- Wyoming, southwestern, Uinta County, Veatch, 3497.

Coal Measures. See Carboniferous.

Coastal erosion, Virginia: Bevan, 292.

Coelenterata. See Anthozoa; Hydrozoa; Invertebrates (general).

California, Mount Jura: Crickmay, 782.

Paleozoic plankton: Ruedemann, 2878.

Collections.

Fossil exhibits, New York State Museum: Ruedemann, 2867.

Report on fossil echinoderms: Jackson, 1640, 1641.

Report on invertebrate paleontology, Museum Comparative Zoology: Raymond, 2704, 2706.

Report, vertebrate paleontology: Stetson, 3211, 3213.

U. S. National Museum report 1933: Bassler, 218.

Color markings on fossils.

Brachiopods, Mississippian: Riley, 2857.

Colorado: Parker, 2576.

Carter Lake area: Stagner, 3164.

Cooperative geological survey, report for 1932: Butler, 509.

Jamestown district, Boulder County: Hill, 1506.

Lake Albion region, Boulder County: Wahlstrom, 3530.

Areas described.

Alma district: Singewald, 3105.

Economic geology.

Alma district: Singewald, 3105.

Arrastre Basin, Silverton and Telluride Quadrangles, vein systems: Burbank, 483.

Beryl-molybdenite deposit, Chaffee County: Landes, 1979.

Breckenridge mining district: Lovering, 2111.

Calumet district: Rainwater, 2687.

Climax molybdenum deposit: Butler, 507.

Galena bearing silver and bismuth, Leadville: Chapman, 632.

General: Henderson, 1455.

Gold, southwestern Colorado, in Juratrias: Burdick, 492.

Greasewood area, Weld and Morgan Counties: Aurand, 113.

Jamestown ore deposits: Goddard, 1265.

Kerogen, oil shales: George, 1224.

Lepidolite deposit: Eckel, 978.

Limonite, Orient mine: Stone, 3253.

McCallum anticlines, Jackson County: Miller, 2336.

Manganese minerals, Sunnyside veins, Eureka Gulch: Burbank, 486.

Molybdenum, Climax: Kisseck, 1899.

Mosquito gold mining district: Dyrenforth, 964.

Oil and gas fields: Krampert, 1942.

Oil and gas possibilities, eastern Colorado: Van Tuyl, 3484.

Oil and gas prospects: Dane, 839.

Oil possibilities, eastern Colorado: Van Tuyl, 3483.

Colorado—Continued.

Economic geology—Continued.

Ore deposits, Leadville district, zoning: Loughlin, 2106.

Relation to stratigraphy, structure and igneous activity: Burbank, 484.

Quartzite gold deposits, Alma: Landon, 1983.

Red Arrow mine: Root, 2807.

San Juan region, minerals: Seaman, 3015.

Zoning, Mosquito Range and San Juan Mountains: Loughlin, 2104.

Historical geology.

Adit tunnel and Columbia mine, Ward: Murray, 2446.

Algal reef, Permian, South Park: Johnson, 1699.

Arrastre Basin, Silverton and Telluride Quadrangles, vein systems: Burbank, 483.

Benton formation, eastern Colorado: Johnson, 1694.

Box Elder Creek and Sand Creek region, Larimer County: Coke, 694.

Breckenridge mining district: Lovering, 2111.

Calumet district: Rainwater, 2687.

Carter Lake area, en échelon structure: Stagner, 3165.

Cretaceous, older, formations, north-eastern Colorado: Waldschmidt, 3537.

Eastern Colorado: Dane, 839.

Fish horizons, Ordovician and Devonian: Behre, 242.

Front Range and Rocky Mountains: Kansas Geol. Soc., 1742.

Iron Dike: Boos, 347.

Pre-Pennsylvanian stratigraphy: Brainerd, 379.

Sangre de Cristo Range, Raton Basin: Kansas Geol. Soc., 1743.

Fountain and pre-Fountain rocks, Front Range, contact: Thompson, 3377.

General: Henderson, 1455; Kansas Geol. Soc., 1747.

Greenhorn limestone, Cretaceous: Keyes, 1869.

Hermosa formation, type section: Roth, 2842.

Longs Peak-St. Vrain batholith: Boos, 348.

Lyons formation: Maxwell, 2262.

Lyons sandstone: Thompson, 3378.

McCallum anticlines, Jackson County: Miller, 2336.

Mapping method: Margerie, 2215.

Mississippian: Brainerd, 380; Johnson, 1697.

Montana group, eastern Colorado: Lavington, 2015.

Northeastern Colorado, well sections: Rankin, 2696.

Paradox formation: Baker, 132.

Colorado—Continued.

Historical geology—Continued.

- Rabbit Mountain: Quam, 2679.
Recent volcanism, date: Landon, 1981.
Salt Creek area, South Park: Gould, 1289.
Sangre de Cristo Range: Johnson, 1693.
Shales, Miocene, Florissant: Cockerell, 678.
Two Buttes dome, southeastern Colorado: Parker, 2577; Sanders, 2938.
Unconformities, central Colorado: Loring, 2110.

Mineralogy.

- Asbestos, Camp Albion, Boulder County: Wahlstrom, 3531.
Corvusite and rilandite: Henderson, 1458.
Galena bearing silver and bismuth, Leadville: Chapman, 632.
Heavy minerals in Tertiary intrusives: Stark, 3172.
Laumonite and thomsonite, Table Mountain: Henderson, 1459.
Manganese minerals, Sunnyside veins, Eureka Gulch: Burbank, 486.
Ohio City area: Seaman, 3013.
Oligonite, Leadville: Mayo, 2267.
Opal, Specimen Mountain: Seaman, 3014.
Stability, pisanite (cuprian melanterite): Eckel, 979.
Topaz, Tarryall Mountains: Wulff, 3802.

Paleontology.

- Cephalela caplan (sawfly), Miocene, Creede: Cockerell, 681.
Chrysopidae, Miocene, Creede and Florissant: Carpenter, 588.
Conodonts: Branson, 393.
Coprolites of ganoid fishes, Pennsylvanian, Chaffee and Park Counties: Johnson, 1901.
Diatryma, supposed plumage, Eocene: Wetmore, 3627.
Ephedra miocenican, Florissant, Miocene: Wodehouse, 3751.
Florissant region: Henderson, 1455.
Foxtail pine, Miocene, Creede: Cockerell, 683.
Gastropods: Girty, 1258.
General: Toepelman, 3391.
Goldenrod, Creede formation: Cockerell, 680.
Goniopholis (Amphicotylus) lucasii Cope (crocodile): Mook, 3295.
Green River flora, Eocene: Brown, 428.
Holcorpa maculosa, Tertiary, Florissant: Carpenter, 584.
Mollusca, Cretaceous: Henderson, 1464.
Moth, Eocene, Parachute Creek: Forbes, 1133.
Phyllopod crustaceans, South Park: Johnson, 1698.

Colorado—Continued.

Paleontology—Continued.

- Plants, Morrison: Berry, 272.
Pollen, oil shales of the Green River formation: Wodehouse, 3750.
Pottsville flora, Mosquito Range: Read, 2708.
Procanopus, Oligocene, Weld County: Figgins, 1087.
Rails, Eocene: Wetmore, 3629.
Rhinoceros, Oligocene, Weld County: Barbour, 185; Figgins, 1089; Wood, 3763.
Syrphus (?) hendersoni, Eocene syrphid (Diptera): James, 1648.
Termites, Florissant, Miocene: Snyder, 3146.
Titanoides, amblypod: Patterson, 2589.
Osteology: Patterson, 2590.
Trichopitys, Carboniferous: Read, 2707.
Trout Creek flora, central Colorado: Johnson, 1695.
Wild County: Figgins, 1086.

Petrology.

- Front Range, granites: Boos, 349.
Granite, alteration to sercite schist, Leadville district: Schwartz, 3004.
Hygiene sandstone, Front Range: Murphy, 2445.
Iron Hill, alkaline rocks: Larsen, 2002.
Log Cabin batholith: Boos, 350.

Physical geology.

- Arkansas (upper), and Eagle Rivers: Behre, 244.
Bull Mountain thrust fault: Thomas, 3364.
Cripple Creek volcano: Loughlin, 2103.
Fox Hills formation, calcareous sandstone concretions: Mathias, 2241.
Intrusions, Tertiary, igneous, Green Lakes and Isabelle Lake valleys, Boulder County: Graham, 1290.
Recent volcanism, date: Landon, 1981.
Rockslide, Durango, La Plata County: Vanderwilt, 3473.
Sawatch Range, reverse faulting on western slope: Stark, 3173.
Sink holes, fossil, in Cretaceous beds, Prowers County: Danc, 840.
Structure map: Anonymous, 3822.
Talus behavior above timber in Rocky Mountains: Behre, 243.
Viscosity of lavas, San Juan region: Ross, 2824.

Physiographic geology.

- Arkansas River, Royal Gorge: Powers, 2660, 2661.
Arkansas (upper), and Eagle Rivers: Behre, 244.
Front Range: Van Tuyl, 3486.
Medicine Bow and Park Ranges, warped peneplain and glacial features: Atwood, 103.
Multiple glaciation, Sawatch Range: Powers, 2659.
Park Range: Atwood, 100, 102.

Colorado—Continued.

Physiographic geology—Continued.

Peneplanation and base leveling in the Rocky Mountains: Worcester, 3781.

San Juan and Front Ranges, geomorphic correlation: Atwood, 99.

Sink holes, Eagle County: Johnson, 1696.

Concretions.

Arizona, Chuar: Bryan, 451.

California, sand: Edwards, 989.

Clay rhizoconcretions, St. Lawrence River, formed by tidal plants: Rousseau, 2853.

Colorado, Fox Hills formation, sandstone: Mathias, 2241.

Connecticut, Champlain formation: Tarr, 3316.

North Dakota, Black Hills: Hamilton, 1376.

Harney Peak region, Black Hills: Runner, 2881.

Ontario, cylindrical structures in sandstones, Kingston: Hawley, 1428.

South Dakota, metamorphosed calcareous concretions: Runner, 2880.

Texas, Manning beds: Burt, 500.

Conglomerate. See also Sedimentation.

California, Pliocene, Los Angeles Basin: Edwards, 985.

Ontario, Abram Lake area: Pettijohn, 2620.

Congresses. See also Associations.

Sixteenth International Geological Congress: Mendenhall, 2287.

Cone-in-cone structure, Fox Hills formation: Boos, 346.

Connecticut.

Fifteenth biennial report of State Survey: Britton, 407.

Historical geology.

Connecticut Valley: Kitson, 1900.

Danbury gneiss: Agar, 15.

Granites and related intrusives, western Connecticut: Agar, 17.

Salisbury district: Agar, 16.

Triassic belt: Longwell, 2085.

Paleontology.

Concretions of Champlain formation, origin: Tarr, 3316.

Littorina irrorata, post-Pleistocene: Knight, 1915.

Petrology.

Danbury gneiss: Agar, 15.

Diorite, thermally metamorphosed, Brookfield: Agar, 18.

Granites and related intrusives, western Connecticut: Agar, 17.

Salisbury district: Agar, 16.

Physiographic geology.

Connecticut Valley, Pleistocene: Flint, 1116.

Connecticut—Continued.

Physiographic geology.

Quinnipiac-Farmington lowland, late-glacial features: Flint, 1117.

Varves, Windsor Locks: Lougee, 2101.

Conodonts.

Arkansas, Caddo Gap: Cooper, 744.

Colorado, Ordovician: Branson, 393.

Ecology: Branson, 398.

Illinois, Niagaran, scolecodonts: Cro-neis, 794.

Ligonodina and Prioniodus, revision: Cooper, 743.

Micropaleontology, Johns Valley shale, Ouachita Mountains, Oklahoma: Harlton, 1405.

Missouri, Devonian: Branson, 395;

Mississippian: Branson, 396, 400.

Ordovician: Branson, 394.

Ordovician and Silurian: Branson, 393, 394.

New Albany shale, Indiana: Huddle, 1606.

New York, Devonian: Branson, 394.

Ohio, Devonian: Branson, 394.

Oklahoma: Bush, 505.

Pennsylvanian: Harris, 1411.

Ontario, Ordovician: Branson, 394.

Paleozoic plankton: Ruedemann, 2878.

Pennsylvanian, Missouri and Kansas: Gunnell, 1352.

Quebec, Ordovician: Branson, 394.

Zoological relationships: Scott, 3011.

Continental drifting.

Continental drift: Douglas, 932.

Ice ages and the drift of continents: Coleman, 702.

Copper.

Arizona, Bisbee mining district: Ransom, 2697.

Yuma County, southern: Wilson, 3723.

Arsenical and argentiferous: Gregg, 1315.

British Columbia, Copper Mountain mining area, Similkameen district: Dolmage, 911.

Cranbrook area: Cairnes, 536.

Slocan mining camp area: Cairnes, 537.

California, Del Norte and Siskiyou Counties: Maxson, 2256.

Squaw Creek district: Shenon, 3047.

Chalcocite types: Bastin, 224.

Disseminated deposits: Locke, 2073.

Ducktown district, Tennessee: Kendall, 1777.

Lake Superior region: Hotchkiss, 1563.

Mesothermal veins and replacement: Hart, 1418.

Michigan, geothermal measurements, copper district: Fisher, 1103.

Microscopy in assaying disseminated deposits: Frobes, 1170.

Copper—Continued.

- Montana, Butte mining district: Perry, 2607.
 Metalliferous deposits, Helena region: Pardee, 2570.
 Nevada, Rio Tinto deposit: Crawford, 770.
 New Mexico, Santa Rita and Hanover region: Ransome, 2697.
 Sierra County: Harley, 1404.
 Northwest Territories, Great Bear Lake: Riley, 2770.
 Oregon, Squaw Creek and Silver Peak districts and Alameda mine: Shenon, 3047.
 Takilma-Waldo and Blue Creek districts: Shenon, 3046.
 Paragenesis of oxidized ores: Schwartz, 3005.
 Pipe deposits: Weed, 3584.
 Porphyry coppers: Parsons, 2585.
 Quebec, Amulet mine, Noranda district: Wilson, 3731.
 Horne mine, Rouyn Township: Butterfield, 512.
 Rouyn-Bell River Region: Lang, 1996.

Coral Islands and reefs: Lloyd, 2068.
 Origin: Davis, 865.

Corals. See Anthozoa.

Coronadite redivivus: Lindgren, 2063.

Correlation. See also Geologic formations, tables; Historical geology.

Arkansas and Oklahoma, coal fields, Pennsylvanian: Hendricks, 1468.
 El Paso limestone, Ordovician: Kirk, 1897.

Foraminifera, fusuline, Permian and Pennsylvanian: Dunbar, 946.

Glacial epoch: Anteys, 74.

Glenwood shales: Sardeson, 2952.

Iowa, Chouteau limestone: Keyes, 1856.

Upper Devonian: Stookey, 3257.

Jordan sandstone: Keyes, 1845.

Mexico, South and Central America, lower Oligocene: Dorr, 923.

Mississippian formations, Pennsylvania and Ohio: Caster, 601.

Pennsylvanian: Knight, 1910.

Radioactive method: Foye, 1147.

Structural bearings and time determinations: Burwash, 504.

Sylvan shale, Oklahoma: Thomas, 3361.

Texas, Pecan Gap chalk: Ellisor, 1013.

Volcanic ash-falls: Keyes, 1825.

Tables.

Alabama and Mississippi, Midway and Wilcox groups: Cooke, 730.

Alberta, central: Allan, 36.

Zones in Benton group shales: Webb, 3582.

6022°—35—19

Correlation—Continued.

Tables—Continued.

California, Coast Ranges: Anderson, 68.

"Domengine" middle Eocene, Ventura County: McMasters, 2201.

Kettleman Hills oil field: Gester, 1227.

Knoxville-Shasta succession: Anderson, 66.

San Joaquin clay, San Joaquin Valley: Barbat, 162.

Southern: Livingston, 2067.

Carboniferous, eastern States, correlation with Europe: Jongmans, 1736.

North America: Van der Gracht, 3461.

Colorado, Ordovician: Branson, 393.

Cretaceous, United States: Wells, 3602.

Devonian: Bassler, 220.

Geologic formations of North America: Shimer, 3071.

Idaho, south-central: Ross, 2837.

Iowa, Missouri River traverse: Condra, 716.

Louisiana, Caldwell and Catahoula Parishes: Shreveport Geol. Soc., 3075.

Michigan, Marquette and Crystal Falls districts, correlation: Zinn, 3818.

Oil and gas fields: Newcombe, 2469.

Mississippian: Bassler, 220.

Missouri, Devonian and Mississippian: Branson, 395.

Ordovician and Silurian: Branson, 393.

Nebraska and Iowa, pre-Pennsylvanian systems: Lugn, 2123.

Ordovician: Bassler, 220.

Ouachitas, Carboniferous stratigraphy, Bendian: Harlton, 1406.

Pennsylvania, western: Sisler, 3107.

Pennsylvanian: Bassler, 220.

Permian: Bassler, 220.

Rocky Mountain region: Heaton, 1437.

Silurian: Bassler, 220.

North Greenland: Poulsen, 2657.

South Dakota, Nemo district, Black Hills: Runner, 2882.

Simpson, 3094.

Tertiary: Shreveport Geol. Soc., 3074; Midway and Wilcox groups: Cooke, 730.

Texas: Adkins, 13; Plummer, 2640.

Texas-New Mexico-Oklahoma-Kansas: Cotner, 762.

Pecan Gap chalk: Ellisor, 1013.

Trans-Pecos: King, 1886.

Wilcox of central Texas: Claypool, 658.

United States: Reeside, 2725.

Costa Rica.

Historical geology.

Highlands of Costa Rica: Lohmann, 2084.

Physical geology.

Talamanca Mountains and Reventazon Valley: Lohmann, 2083.

Underground water.

Mineral and warm springs: Schaufelberger, 2965.

Cranbrook area, British Columbia: Cairnes, 536.

Craters.

Craters, meteoric, formation: Wylie, 3804.

Texas, air blowers: Price, 2672.

Cretaceous. See also Paleontology, Cretaceous.

Alabama, northern: Johnston, 1714.

Alaska, Girdwood district: Park, 2573.

Moose Creek area: Waring, 3550.

Alberta: Hume, 1615.

Canadian Rockies: Telfer, 3332.

Central: Allan, 36.

Coleman South coal area: McKay, 2179.

Crowsnest Pass area: Warren, 3558.

Sweetgrass arch, northward extension: Michener, 2312.

Zones in Benton group shales: Webb, 3582.

Benton shales: Keyes, 1863.

Bonaire, Danish West Indies: Pijpers, 2628.

British Columbia: Hume, 1615.

Canadian Rockies: Telfer, 3332.

Michel coal area: McKay, 2179.

California: Reed, 2714.

Coast Ranges: Anderson, 68.

Knoxville-Shasta succession: Anderson, 66, 67.

Northern Sierra Nevada: Jenkins, 1653.

Redding-Weaverville districts: Hinds, 1516.

Southern: Livingston, 2067.

San Gabriel Mountains, western: Miller, 2354.

Colorado: Kansas Geol. Soc., 1747.

Colorado, Benton formation: Johnson, 1694.

Breckenridge mining district: Lovering, 2111.

Central: Lovering, 2110.

Eastern: Lavington, 2015.

Fossil sink holes, Prowers County: Dane, 840.

McCallum anticlines, Jackson County: Miller, 2336.

Northeastern: Rankin, 2696; Waldschmidt, 3537.

Two Buttes dome: Parker, 2577.

Two Buttes dome, southeastern Colorado: Sanders, 2938.

Cretaceous—Continued.

Cuba: Sánchez Roig, 2935.

Fauna: Douville, 933.

Habana and vicinity: Palmer, 2566.

Sierra Maestra: Taber, 3297.

Delaware, Chesapeake Bay region: Stephenson, 3203.

Exogyra cancellata zone: Stephenson, 3204.

Fuson-Cloverly formation: Brown, 416.

Greenland, east: Bøgvad, 342; Rosenkrantz, 2814.

Iowa: Keyes, 1857.

Northwestern: Tester, 3336.

Kansas: Kansas Geol. Soc., 1747.

Manitoba: Hume, 1615.

Well sections: Wickenden, 3682.

Maryland, Atlantic Coastal Plain: Jonas, 1717.

Chesapeake Bay region: Stephenson, 3203.

Southern: Cooke, 729.

Massachusetts, Cape Cod region: Woodworth, 3779.

Mexico, Acatic and Las Delicias areas, Coahuila: Kelly, 1776.

Northern Sonora: Taliaferro, 3301.

Sierra de Los Lamentos: Foshaag, 1136.

Tehuacan region: Müllerried, 2431.

Valley of Tecocomulco, State of Hidalgo: Vivar, 3511.

Mississippi, Jackson gas field, Hines and Rankin Counties: Monroe, 2373.

Tombigbee sands: Needham, 2457.

Missouri, Crowley's Ridge: Matthes, 2247.

Montana, Cinnabar Mountain, Park County: Wilson, 3720.

Cut Bank oil field: Perry, 2611.

Montana, Medicine Bow Mountains: Neely, 2459.

Ness and Hodgeman Counties, Kansas: Moss, 2424.

New Mexico: Kansas Geol. Soc., 1747; Winchester, 3747.

Northwest Territories: Hume, 1615.

Oklahoma: Kansas Geol. Soc., 1747; Sheerar, 3043.

Oil and gas fields: Wrathner, 3787.

Ontario, lignite and refractory clay, Onakawana region: Dyer, 958.

Northern, refractory clays: Dyer, 962.

Puerto Rico: Meyerhoff, 2307.

Fajardo district: Meyerhoff, 2308.

Rhode Island, Block Island: Woodworth, 3779.

Rocky Mountain region: Heaton, 1437.

Saskatchewan: Hume, 1615.

Southern: McLearn, 2198.

South Dakota, central Perkins County: Searight, 3017.

Stoneville area: Searight, 3016.

Cretaceous—Continued.

Texas: Adkins, 13; Kansas Geol. Soc., 1747.

Darst Creek oil field, Guadalupe County: McCallum, 2137.

Fredericksburg-Wasbata contact, Edwards Plateau region: Curry, 817.

Kelsey anticline, Upshur County: Denison, 895.

Midway group, age: Scott, 3009.

Northeast of East Texas oil field: Decker, 877.

Oil and gas fields: Wrather, 3787.

Pecan Gap chalk: Ellisor, 1013.

Somervell County: Fiedler, 1076.

Trans-Pecos: King, 1885.

Utah, Asphalt Ridge fauna: Tolmachoff, 3393.

Moab District: Baker, 131.

Virginia, Chesapeake Bay region: Stephenson, 3203.

Wyoming, Owl Creek Mountains: Love, 2107.

Shoshone Canyon area, Park County: Johnson, 1692.

Southwestern, Uinta County: Veatch, 3497.

Wind River Basin: Bauer, 228.

Yukon, Laberge area: Lees, 2024.

Crinoiden. See also Echinodermata.

Cedar Valley formation, Iowa: Laudon, 2011.

Corynecrinus, Devonian, Indiana: Kirk, 1896.

Edriocrinus, parasitism: Ehrenberg, 992.

Iowa, Gilmore City formation: Laudon, 2010.

Mississippian: Thomas, 3360.

New York and Ontario, Hamilton: Goldring, 1270.

Ohio Valley: Bassler, 214.

Pelmatozoan root-forms, fixation: Ehrenberg, 993.

Pterotocrinus, evolution in eastern interior basin, Chester epoch: Sutton, 3284.

Rhodocrinus mortoni, Oriskany, Maine: Goldring, 1269.

Syndetocrinus dartae, Quebec: Kirk, 1895.

Crocodyles. See Reptilia.

Cross-lamination in Casper sandstone: Knight, 1918.

Crustacea. See also Cirripedia; Ostracoda; Trilobita.

Decapod crustaceans, Eocene, Texas: Stenzel, 3200.

Decapods, Jurassic, Greenland: Van Straelen, 3482.

Phyllopoeds, Pennsylvanian (?), Colorado: Johnson, 1698.

Rhinocaris eblersi, Ohio: Stewart, 3219.

Cryptogams. See Paleobotany.

Crystallography. See also Mineralogy; Donnay, 914; Lazell, 2021; Tunell, 3422.

Anapalite, ainigmatite and eudidymite: Palache, 2553.

Biaxial crystals, model: Rogers, 2792.

Calcite, Godfrey, Ontario: Parsons, 2586.

Cassiterite: Gruner, 1347.

Castanite: Donnay, 915.

Century of progress: Whitlock, 3677.

Claudetite, minasragrite, samsonite, native selenium, indium: Palache, 2558.

Crystallographic presentation: Peacock, 2594.

Crystallographic relations, cubanite, chalcopyrite and secondary chalcopyrite: Buerger, 476.

General: Lazell, 2021.

Narsarsukite, X-ray study: Warren, 3552.

Nevada, searlesite, Esmeralda County: Foshag, 1135.

New Jersey, Franklin Furnace, tephroite crystal: Schaller, 2961.

New York, Dutchess County, chloritoid: Barth, 202.

Nomenclature: Landero, 1974.

Optic angle, determination of: Dodge, 910.

Polymorphic phenomena and crystal structure: Barth, 201.

Selective incrustation of crystal forms: Frondel, 1174.

Symbols for point symmetry groups: Soller, 3150.

Theory of determinants: Donnay, 916.

Uranium oxides: Palache, 2559.

Vermont, staurolite, Gassetts: Currier, 815.

Virginia, staurolites, Patrick and Henry Counties: Roberts, 2781.

X-ray exploration of mineral world: Bragg, 377.

Cuba. See also West Indies.

Geologic mapping: Corral, 755.

Economic geology.

Oil in igneous rocks: Lewis, 2057.

Historical geology.

Dutch geological investigations in Cuba: Rutten, 2913.

General: Sánchez Roig, 2935.

Guantanamo Bay region: Meinzer, 2274.

Habana and vicinity: Palmer, 2566.

Sierra Maestra: Haber, 3297.

Mineralogy.

Serpentinization: Chawner, 636.

Paleontology.

Birds from Ciego Montero, Pleistocene: Wetmore, 3621.

Cepolls: Clench, 663.

Cuba—Continued.

Paleontology—Continued.

Corals and Foraminifera, Guantanamo Bay region: Vaughan, 3492, 3493.

Corals, Eocene: Wells, 3605.

Echinodermata, Tertiary: Lambert, 1962.

Echinoids, Cretaceous and Miocene: Sánchez Roig, 2933.

Cretaceous and Tertiary: Lambert, 1963; Weisbord, 3591.

Revision, Oligocene: Sánchez Roig, 2932.

Fauna, Cretaceous, central Cuba: Sánchez Roig, 2934.

Upper Cretaceous: Douvillé, 933.

Foraminifera: Thalmann, 3347.

Cretaceous and Tertiary: Palmer, 2564.

Tertiary, north coast: Hadley, 1366. Gallowayina, Upper Cretaceous: Palmer, 2561.

General: Sánchez Roig, 2935.

Gümbelina, Eocene and Oligocene: Palmer, 2562.

Lepidocyclina: Vaughan, 3495.

Mollusks, Pleistocene: Richards, 2757.

Orbitoid, Eocene, Anaya River, Santa Clara Province: Ellis, 1009.

Pachydonts, American, relation to European: Müllerried, 2428.

Pleistocene plants, Santa Clara and Matanzas Provinces: Berry, 278.

Radiolaria, Cretaceous and Eocene: Palmer, 2563.

Rudistae, Pinar del Rio: Boissevain, 343.

Rudistids: Palmer, 2565.

Physical geology.

Earthquake, Santiago, February 3, 1932: Morales y Pedrosa, 2416.

Earthquakes: Duque de Estrada, 955; Montouilleu, 2376; Villa, 3506.

Physiographic geology.

Relief: Portella, 2649.

Sierra Maestra: Taber, 3297.

Cusps. See Shore lines.

Cycads. See Paleobotany.

Daemonehelix, Pleistocene, Texas: Wood, 3765.

Damariscotta shell heaps and coastal stability: Goldthwait, 1272.

Dams.

California, Pine Canyon dam, Los Angeles County: Berkey, 261.

Deep wells. See Borings.

Delaware.

Historical geology.

Baltimore & Ohio routes: Grimsley, 1331.

Chesapeake Bay region: Stephenson, 3203.

Deltas.

Colorado River delta: Sykes, 3295.

Dendrites.

Two-dimensional, origin: Swartzlow, 3292.

Denudation. See Erosion.

Deposition. See Sedimentation.

Deseritization: Landon, 1980.

Desert.

Geomorphogeny: Davis, 863.

Detrital grains, handling and determination: Partridge, 2588.

Devonian. See also Paleontology, Devonian.

Alabama, northern, Johnston, 1714.

Alberta, Canadian Rockies: Telfer, 3332.

Central: Allan, 36.

Crowsnest Pass area: Warren, 3558.

Limestone, McMurray, age: Warren, 3559.

Arizona, northern, Elden Mountain: Brady, 375.

Arkansas: Kansas Geol. Soc., 1746.

British Columbia, Brisco-Dogtooth area: Evans, 1032.

Canadian Rockies: Telfer, 3332.

California, Death Valley: Noble, 2497.

Northern Sierra Nevada: Jenkins, 1653.

Redding-Weaverville districts: Hinds, 1516.

Canada, eastern Arctic: Weeks, 3587.

Colorado, central: Lovering, 2110.

Fish horizons: Behre, 242.

Front Range: Brainerd, 379.

Eastern New York and western New England: Longwell, 2085.

Greenland, east: Kulling, 1052; Sæve-Söderbergh, 2918, 2921.

Caledonian Mountains: Teichert, 3327.

Fleming Inlet area: Noe-Nygaard, 2506.

Idaho, south-central: Ross, 2837.

Illinois, Hoing sand: Workman, 3784.

Western: Workman, 3786.

Iowa, Cedar Valley limestone, Glory and Waterloo: Wood, 3768.

Correlations: Stookey, 3257.

Middle Amana: Stookey, 3258.

Rockford series: Keyes, 1820.

Kansas, Hunton limestone, McPherson and Harvey Counties: Hall, 1374.

Manitoba, well sections: Wickenden, 3682.

Maryland, Appalachian region: Stose, 3260.

Michigan: Eddy, 983.

Oil and gas fields: Newcombe, 2469.

Montana, Cinnabar Mountain, Park County: Wilson, 3720.

Northwestern: Deiss, 884.

Devonian—Continued.

- Nebraska, pre-Pennsylvanian stratigraphy: Lugn, 2123.
 Nevada, east-central: Merriam, 2290.
 New Albany shale, top layers: Huddle, 1605.
 Newfoundland, western: Schuchert, 2996.
 New Hampshire, central: Billings, 303.
 Franconia region, White Mountains: Williams, 3703.
 Littleton quadrangle: Billings, 301.
 New Jersey, Hamilton group: Willard, 3698.
 New Mexico: Winchester, 3747.
 Sierra County: Harley, 1404.
 New York, Catskill delta: Chadwick, 613.
 Catskill formation: Chadwick, 614.
 Catskill region: Chadwick, 610.
 Eastern: Cooper, 746.
 Eastern, Hamilton group: Cooper, 751.
 Hamilton group: Willard, 3698.
 Hamilton red beds: Chadwick, 611.
 Ithaca: Caster, 598.
 Southern: Fettke, 1070.
 State: Newland, 2476.
 Taconic and Appalachian orogenies, Hudson River region: Pepper, 2602.
 Tully formation: Cooper, 752.
 Upper Devonian: Chadwick, 612.
 Ohio, bone beds and crinoidal limestones, Delaware limestone: Westgate, 3617.
 Sedimentary series: Lamborn, 1965.
 Serpent Mound structure: Bucher, 463.
 Oklahoma, oil and gas fields: Wrather, 3787.
 Ontario, lignite and refractory clay, Onakawana region: Dyer, 958.
 Oriskany sandstone, petrography: Stow, 3268.
 Pennsylvania: Behre, 241.
 Cameron County: Cathcart, 606.
 "Catskill" sedimentation: Willard, 3697.
 Early Chemung shore line: Willard: 3702.
 Hamilton group: Willard, 3698.
 Limestones: Miller, 2331.
 Northern: Fettke, 1070.
 Northwestern: Caster, 599, 601.
 Oriskany sand, Elk County: Cathcart, 607.
 Oriskany sand, McKean County: Cathcart, 608.
 Pocono (Oswayo) sandstone, plants: Arnold, 82.
 Potter County: Cathcart, 602, 603.
 Somerset-Windber quadrangles: Richardson, 2763.
 Southern: Stose, 3260.

Devonian—Continued.

- Pennsylvania—Continued.
 Southwestern: Piper, 2633.
 Southwestern, Chemung: Willard, 3695.
 Tioga County: Cathcart, 604.
 Tully limestone, Rush Township: Willard, 3699.
 Western: Sisler, 3107.
 Quebec, Gaspé Bay and Marsui River: Jones, 1726.
 Tabletop area, Gaspé Peninsula: Jones, 1725.
 Southern Appalachian region: Butts, 513.
 Texas: Sellards, 3029.
 Traverse-Hamilton ostracode correlation: Warthin, 3562.
 Virginia, Appalachian Valley: Butts, 514.
 Blue Ridge: Stose, 3262.
 Northern: Bevan, 288.
 Wyoming, Beartooth Butte: Dorf, 918.
 Shoshone Canyon area, Park County: Johnson, 1692.
 Diamonds. See also Precious stones; Blank, 333.
 Deposits of magmatic origin: Ball, 156.
 Diastrophism.
 Arizona, Colorado dome: Keyes, 1829.
 Diastrophism and intrusion: Delury, 890.
 Diatomaceae. See also Diatomaceous earth.
 Archaeomonas, Tertiary, Maryland: Deflandre, 878.
 Barbados: Fuge, 1182.
 Tertiary: Robinson, 2784.
 California, Cretaceous: Hanna, 1385.
 Tertiary: Hendy, 1470.
 Dismal Swamp: Cocke, 676.
 Florida, diatoms in peat deposits: Hanna, 1382.
 Hyrax, new mounting medium: Hanna, 1381.
 Turtle Bay, Lower California, Mexico, Tertiary fauna: Hertlein, 1481.
 Diatomaceous earth.
 California: Lewis, 2058; Taliaferro, 3304.
 Deposits: Taliaferro, 3304.
 Florida: Gunter, 1357.
 Nature, occurrence and use: Melhase, 2278.
 Oregon: Eardley-Wilmot, 972; Smith, 3137.
 Utah: Mamber, 3744.
 Virginia: Roberts, 2780.
 Diatomite.
 Oregon, eastern: Moore, 2400.
 Dikes. See also Intrusions.
 Colorado, Front Range, Iron Dike: Boos, 347.
 Labrador coast, diabase dikes: Wheeler, 3645.

Dikes—Continued.

New Mexico, Cimarron Valley, Union County, clastic plugs and dikes: Parker, 2575.

Pegmatites: Hess, 1487.

Quebec, Mount Johnson dike rocks: Osborne, 2540.

Waite-Ackerman-Montgomery mine, Noranda district: Wilson, 3733.

Texas, dolomite dikes, Clear Fork formation: Kramer, 1940.

Utah, pebble dikes, Tintic district: Farmin, 1048.

Virginia, Amelia dikes: Glass, 1260.

Diabase dikes near Lexington: Campbell, 548.

West Virginia and Pennsylvania, clay dikes in Redstone coal: Price, 2666.

District of Columbia.

Paleontology.

Plants, Pleistocene: Berry, 270.

Physiographic geology.

Terraces and overlaps: Darton, 851.

Dinosauria. See Reptilia.

Dislocations. See Faulting.

Dolomite.

Minnesota: Stauffer, 3175.

Oklahoma: Merritt, 2297.

Domes. See also Salt domes.

Kansas, Lincoln and Mitchell Counties, origin: Landes, 1977.

Drainage changes. See also Glacial geology, Physiographic geology (general).

Appalachian: Meyerhoff, 2309.

Appalachians, southern: Wright, 3793.

Arizona, Colorado River, Pleistocene origin: Blackwelder, 325.

Canada, Akpatok Island: Cox, 766.

Kicking Horse Pass district: Zernitz, 3816.

Colorado, upper Arkansas and Eagle Rivers: Behre, 244.

Eastern North America: Johnson, 1678.

Hudson-Delaware-Susquehanna drainage: Mackin, 2185.

Iowa: Keyes, 1861.

Kentucky, Pre-Illinoian glaciation, Cincinnati region: Desjardins, 899.

Massachusetts, Nashua and Millers Rivers valleys: Brown, 434.

Minnesota, Cannon River, glacial diversion: Sardeson, 2950.

Mississippi River, glacial diversion: Sardeson, 2949.

Mississippi River, Crowley's Ridge diversion: Matthes, 2245.

New Jersey, gaps in trap ridges: Hubbert, 1604.

Drainage changes—Continued.

New York, Susquehanna River, North Branch: Burroughs, 499.

Ohio River: Fowke, 1141.

Ohio, north-central: White, 3668.

North-central, buried topography: Ver Steeg, 3500.

Pre-Illinoian glaciation, Cincinnati region: Desjardins, 899.

Southeastern, and northwestern West Virginia: Happ, 1393.

Oklahoma, southeastern, Canadian River: Hendricks, 1466.

Ontario, origin of watercourses near French River: Quirke, 2684.

Pennsylvania, Susquehanna River, North Branch: Burroughs, 499.

Stream capture, methods: Crosby, 806.

Virginia, Natural Bridge region: Wright, 3794.

Upper Roanoke and James River basins: Wright, 3792.

Washington, channels in Ferry, Stevens and Pend d'Oreille Counties: Freeman, 1162.

West Virginia, Cheat River: Fridley, 1165.

West Virginia, northwestern, and southeastern Ohio: Happ, 1393.

Drift deposits. See Glacial geology; Ice ages (ancient), Drumlins.

Massachusetts: Crosby, 804.

Dunes.

Arizona, Alamogordo desert white sand: Talmage, 3306.

California and Oregon: Cooper, 754.

Michigan Basin: Scott, 3012.

Dust falls.

Buffalo, New York, November 13, 1933: Alexander, 24.

Dust cloud, May 11, 1934, Washington, D. C.: Hand, 1380.

Dust fall of November 12-13, 1933: Miller, 2334, 2335.

Dust fall, November 13, 1933: Alexander, 26, 27.

Dust fall of November 13, 1933, Buffalo, New York: Alexander, 27.

Dust storm, November 12, 1933, Great Plains: Hovde, 1568.

Dust storm, April 12, 1934, Baton Rouge, Louisiana: Russell, 2899.

Sand fall, Ontario: Lloyd, 2069.

Dynamic geology. See Physical geology.

Earth.

Age: Knopf, 1925; Larsen, 2000.

Canadian cyrtolite, age: Muench, 2436.

Determination from radioactive minerals: Kovarik, 1937.

Geologic chronology: Keyes, 1822, 1826.

Helium and geologic time: Urry, 3453.

Earth—Continued.

Age—Continued.

Maine, Fitchburg granite: Lane, 1987.

Postglacial time calculations from geothermal measurements: Hotchkiss, 1564.

Thorium minerals as age indicators: Wells, 3607.

Uranium method: Lane, 1991.

Earth as an engineering structure: Lambert, 1964.

Earth patterns in eastern New Mexico: Turley, 3423.

Magnetic anomalies: Jenny, 1665.

Crust: Berrera, 198; Daly, 836; DeLury, 889.

Anomalies, heavy: Heiskanen, 1450.

Continental drift: Douglas, 932.

Deformation: Bucher, 461.

Law of symmetry in development: Fourmarier, 1140.

Variations, horizontal: DeLury, 888.

Interior: DeLury, 889; Thom, 3357.

Constitution: Marsh, 2218.

Depths of the earth: Daly, 837.

Heat: Ward, 3549.

Interior, as revealed by seismological data: Neumann, 2465.

Magmatic wedge: DeLury, 891.

Plasticity of rocks: Nádal, 2449.

Temperature.

Geothermics, application to geology: Van Orstrand, 3480.

Measurement and interpretation: Van Orstrand, 3478.

Measurements in Calumet and Hecla conglomerate mine: Hotchkiss, 1564.

Michigan, geothermal measurements, copper district: Fisher, 1103.

Oklahoma, deep well temperatures: McCutchin, 2147.

Temperature gradients: Heald, 1436.

Temperature gradients in oil wells: Van Orstrand, 3479.

Thermal history: Holmes, 1557.

Earth movements. See Changes of level; Landslides.

Energy sources: Helm, 1448.

Earthquakes. See also Seismology: Leet, 2023; Macelwane, 2150; Reeds, 2724.

Arkansas, earthquake risks: Branner, 386.

California: Spitaler, 3159.

California and Nevada, 1769-1933: Wood, 3762.

Humboldt Bay, June 6, 1932: Byerly, 522.

Long Beach, March 10, 1933: Chick, 638; Clements, 661; Davis, 864; Eaton, 975; Hillis, 1513; Neumann, 2464; Wood, 3756, 3757, 3758.

Northern, registration: Byerly, 528.

Registration: Byerly, 520, 521.

Earthquakes—Continued.

Cuba, Santiago, February 3, 1932: Duque de Estrada, 955; Montoulieu, 2376; Morales y Pedrosa, 2416; Villa, 3506.

Definition and classification: Macelwane, 2151.

Diurnal periodicity: Davison, 868.

Focus, conception: Reid, 2731.

Forecasting: Keyes, 1809.

Hawaii, Mauna Loa: Jones, 1719.

Impact or rock fall earthquakes: Macelwane, 2154.

Instrumentally recorded in artesian wells: Leggette, 2032.

Intensity and surface geology: Wood, 3761.

Location of epicenters: Taber, 3296.

Long Beach, California, March 10, 1933: Reeds, 2721; Gutenberg, 1361.

Magnetic effects: Reid, 2729.

Major earthquakes, 25-year map: Reeds, 2722.

Mechanics, elastic rebound theory: Reid, 2730.

Mexico: Salazar Salinas, 2926.

Bay of Apulco: Sánchez, 2931.

June 1932: Ordóñez, 2531.

Nevada and California, 1769-1933: Wood, 3762.

Cedar Mountain, December 20, 1932: Gianella, 1232, 1234, 1235, 1237.

New York State: Newland, 2478.

Plutonic earthquakes: Macelwane, 2153.

Prediction, futility: De Montalk, 892.

Puerto Rico: Meyerhoff, 2307.

Report for 1933-34: Lynch, 2130.

September 6, 1933: Brunner, 447.

Tectonic earthquakes: Macelwane, 2152.

Texas, Valentine, August 16, 1931: Byerly, 529.

United States: Heck, 1439.

United States, 1932: Neumann, 2466.

Utah: Carlston, 580.

Volcanic earthquakes: Wood, 3759.

Washington, Tolt River, July, 1932: Bradford, 372.

Wyoming, Jackson Hole: Fryxell, 1179.

Echinodermata. See also Asteroidea; Blastoida; Crinoida; Echinoidea; Invertebrates (general).

Carboniferous, Iowa: Beane, 231.

Crinoids, Mississippian, Iowa: Barbour, 172.

Cuba, Tertiary: Lambert, 1962.

Iowa, Le Grand, Kinderhook limestone: Laudon, 2012.

Starfishes and crinoids, Carboniferous: Keyes, 1860.

Jamaica, Echini: Arnold, 80.

Echinodermata—Continued.

- Ophiura, Miocene, Maryland: Berry, 267.
Report on fossil echinoderms: Jackson, 1640, 1641.

Echinoidea.

- Chelonechinus, Neogene urchinid, Barbados: Bather, 225.
Cretaceous and Miocene, Cuba: Sánchez Roig, 2933.
Cuba, Cretaceous and Tertiary: Lambert, 1963.
Cretaceous and Tertiary: Weisbord, 3591.
Mexico, Eocene, Tamaulipas: Israel-sky, 1637.
Oligocene, Cuba: Sánchez Roig, 2932.
Pedicellariae: Geis, 1222.
Texas, Cretaceous: Smiser, 3110.

Economic geology (general). For areal see under the various States. See also Ore deposits, origin, and the particular products: Bruce, 441; Hewett, 1497.

Alteration, pyrite to pyrrhotite: Stevens, 3215.

Arsenic: Tyler, 3437.

Birmingham District, Alabama: Blair, 326.

Bottom-hole pressure: Wright, 3796.
Classification, ore deposits: Loughlin, 2102.

Copper deposits, western States: Finch, 1091.

Disseminated deposits: Locke, 2073.

Economic geology in ancient times: Sagui, 2922.

Epithermal antimony deposits: Schrader, 2988.

Fluorspar, western United States: Burchard, 491.

Geology, role in petroleum exploration: Herold, 1474.

Geophysics in nonmetallic field: Heiland, 1447.

Geothermics, application to geology: Van Orstrand, 3480.

Gold in old cyanide dumps: Crawford, 775.

Transportation by organic solutions: Fetzner, 1072.

Government surveys and mining industry: Sales, 2937.

Gulf border salt deposits, age: Brown, 425.

Lead and zinc deposits: Jackson, 1639.

Limonite derivatives: Blanchard, 331.

Manganese, western hydrothermal deposits: Hewett, 1496.

Mercury in native silver, origin: Newhouse, 2472.

Mesothermal copper veins and replacements: Hart, 1418.

Mesothermal gold deposits: Connolly, 721.

Economic geology (general)—Continued.

Mesothermal silver-lead-zinc deposits: McKnight, 2189.

Metalliferous deposits, southwestern United States and northern Mexico: Schmitt, 2978.

Microscopic mineralogic analysis: Ravitz, 2701.

Mineral industry, development: Loughlin, 2105.

Mining district, eastern States: Singewald, 3101.

Mining geology: McLaughlin, 2194; Singewald, 3104.

Mining, history and influence, western United States: Henderson, 1456.

North American oil fields: Bentz, 258.

Oil finding, progress in: Deussen, 903.

Oil reserves, recoverable, in sand fields: Brace, 369.

Ore deposits of the Southwest: Ransome, 2697.

Ore deposits, western States: Am. Inst. Min. and Met. Eng., 52.

Relation to geologic cycles: Butler, 510.

Ore, future supply: Hubbert, 1603.

Ore shoot bottoms, determination: Schmitt, 2980.

Organic content of rocks, petroleum: Russell, 2905.

Pegmatites: Hess, 1487.

Pennsylvania, Middletown quadrangle: Stose, 3261.

Permeability of porous media, measurement: Wyckoff, 3803.

Petroleum geology: Lahee, 1954.

Petroleum, origin, Hackford's theory: Ginter, 1256.

Placer deposits: Cockfield, 684.

Western United States: Pardee, 2571.

Pyrite-marcasite relation: Buerger, 474.

Quicksilver deposits: Ross, 2829.

Recent development as applied science: Berkey, 264.

Salt flowage in salt domes: Jones, 1727.

Sedimentary manganese deposits: Hewitt, 1495.

Stone industries: Bowles, 363.

Structural trends on the Gulf coast: Jenny, 1670.

Tectonic position of Rocky Mountain ore districts: Billingsley, 307.

Tungsten, western States: Lovering, 2109.

Uranium, vanadium, radium, gold, silver, and molybdenum sedimentary deposits: Hess, 1485.

Use of geology in seeking gold: Jenkins, 1656.

Western mining, historical review: Ransome, 2698.

Economic geology (general)—Continued.

Western States, ore deposits: Finch, 1090.

Phosphate: Mansfield, 2210.

Educational. See also Textbooks.

Examination tests in geology: Kay, 1754.

Elevation and subsidence. See Changes of level.

Engineering geology: Berkey, 264.

Application to civil engineering: Clark, 650.

Chicago and vicinity: Ekblaw, 997.

Enrichment. See Ore deposits, origin.

Eocene. See Tertiary.

Equus. See Mammalia.

Erosion. See also Sedimentation: Tharp, 3352.

Acceleration above geologic norms: Lowdermilk, 2113.

Beaches: Barden, 190; Schmitt, 2977.

Channel-contraction, effect upon stream bed: Straub, 3274.

Choking of pore space in soil: Hendrickson, 1469.

Control: Nat. Res. Board, 2453.

Cycle of erosion, later stages: Crickmay, 785.

Desert rainfall: Russell, 2898.

Dynamics, in controlled channels: Ramser, 2689.

Forests and stream flow: Hoyt, 1600.

Gateways through mountains, river-cut: Johnson, 1684.

Geomorphic processes at high altitudes: Bryan, 457.

Guatemala, Mayan cities, Peten district: Cooke, 732.

Indiana, island hills, Wabash valley: Fidler, 1073.

Mississippi: Tharp, 3352.

Nebraska: Condra, 719.

Nevada, Great Basin: Keyes, 1821.

New Jersey, Barnegat Inlet: Lucke, 2119.

Ohio, Lake Erie shore: Stout, 3264.

Ontario, Point Pelee, Lake Erie: Kindle, 1879.

Piedmont, southern, old plantation belt: Fuller, 1183.

Quantitative study: Bennett, 255.

Soil- and water-losses: Musgrave, 2447.

Rainfall, absorption and runoff: Lowdermilk, 2114.

Rains, dynamic action: Bennett, 256.

Rio Grande, silt carried: Flock, 1098.

Rock fans and pediments, origin and evolution: Rich, 2753.

Rock surfaces grooved by sand-laden currents: Blackwelder, 318.

Southwestern United States: Fleming, 1113.

Erosion—Continued.

Talus behavior above timber in Rocky Mountains: Behre, 243.

Texas, Brazos River watershed: Geib, 1220.

Transportation of bed load by streams: O'Brien, 2515.

Turbulence and transportation of debris by streams: Leighly, 2034.

Utah, control in Salina Canyon: Okeason, 2523.

Northern: Bailey, 122.

Erratic boulders, Carboniferous, Oklahoma: Kramer, 1938.

Eruptive rocks. See Igneous and volcanic rocks.

Essays. See Addresses.

Eureka and vicinity, Kantishna district, Alaska, lode deposits: Wells, 3598.

Eurypterid influence on vertebrate history: Romer, 2803.

Eurypterida.

New York, in graptolite shales: Ruedemann, 2875.

Moscow shales: Kjellesvig, 1901.

Paleozoic plankton: Ruedemann, 2878.

Wyoming, Beartooth Butte, *Pterygotus princetonii*: Ruedemann, 2874.

Evolution.

Aristogenesis: Osborn, 2535.

Crocodylia: Mook, 2398.

Dual principles: Osborn, 2538.

Eurypterid influence on vertebrate history: Romer, 2803.

Life processes: Staley, 3167.

Man: Gregory, 1322.

Man and the vertebrates: Romer, 2800.

Petroleum: Barton, 213.

Phylogeny, heteromyid rodents: Wood, 3752.

Vertebrate: Hamlett, 1377.

Proboscidea: Osborn, 2532, 2537.

Sirenia: Simpson, 3092.

Stegocephalia, progressive chondrification: Case, 590.

Trituberculy: Gregory, 1321.

Vertebrates: Gregory, 1318.

Excursions.

International Geological Congress, 16th: Pfordte, 2622.

New England intercollegiate geological excursion: Fisher, 1108.

Tri-States Geological Field Conference, Upper Mississippi Valley: Twenhofel, 3436.

Upper Mississippi Valley Tri-State field conference: Weller, 3593.

Experimental investigations.

Alteration, pyrite to pyrrhotite: Stevens, 3215.

Geysers, origin: Sherzer, 3065.

Experimental investigations—Continued.

- Mud-cracked layers, curvature: Bradley, 373.
- Oil accumulation, role of cap rock: Lockwood, 2075.
- Oil shales: Rand, 2690.
- Ore shoots: Douglas, 931.
- Petroleum, origin: Stadnichenko, 3162.
- Striations on etched limestone surfaces: Dunn, 954.

Explorations.

- Greenland, East: Schuchert, 2997.

Facies in stratigraphic paleontology: Kindle, 1881.

Fairbanks District, lode deposits, Alaska: Hill, 1510.

Faulting.

- Alberta, sheet thrusts in Jasper Park: Willis, 3717.

- Turner Valley gas and oil field: Link, 2065.

- Arizona, Empire Mountains: Wilson, 3739.

- California: Raguin, 2686.

- Buena Vista Hills oil field, Kern County: Koch, 1932.

- Grass Valley: Johnston, 1715.

- Kettleman Hills: Hill, 1512.

- Peninsular Mountains: Miller, 2355.

- Santa Lucia Range structure: Stanton, 3171.

- Canada, Akpatok Island: Cox, 766.

- Colorado, Bull Mountain thrust fault: Thomas, 3364.

- Sawatch Range, western slope: Stark, 3173.

- Cuba, Sierra Maestra: Taber, 3297.

- Cumberland thrust block, Virginia, Kentucky and Tennessee: Rich, 2954.

- Idaho, recent block faulting: Anderson, 57.

- Kansas, fracture patterns in horizontal strata: Melton, 2283.

- Lake Champlain region, normal faults: Quinn, 2631.

- Location by radioactivity: Lane, 1993.
- Maryland, Atlantic Coastal Plain: Jonas, 1717.

- Mechanics of: Hulin, 1612.

- Montana, northwestern: Clapp, 639.

- Thrust fault near Gardiner: Wilson, 3722.

- Movement of fault blocks: Ambrose, 51.
- Nevada, Desert Range: Longwell, 2086.

- Pleasant Valley: Page, 2530.

- Thrust faults: Longwell, 2087.

- New Mexico, postbolson faulting: Dake, 826.

- New York, New York City and vicinity: Berkey, 263.

- Nomenclature: Straley, 3271.

- Nova Scotia: Messervy, 2302.

- Slip faulting: Squires, 3161.

Faulting—Continued.

- Oklahoma, Arbuckle Mountains, overthrusting: Dott, 929.

- En échelon faults: Kramer, 1939.

- Fracture patterns in horizontal strata: Melton, 2283.

- Oregon, Columbia River fault-scarp: Hodge, 1536.

- Shear-control, dikes and sills: Washburne, 3566.

- Pennsylvania, Atlantic Coastal Plain and Piedmont province: Jonas, 1717.

- Strike slip faulting near International Boundary: Squires, 3161.

- Texas, McLennan County: Bryan, 450.
- Surface fractures: Barton, 209.

- Thrust faults: Willis, 3716.

- Thrusting younger rocks over older: Billings, 300.

- Utah, Basin-Range faulting, influence, Bingham: Farmin, 1047.

- Basin ranges: Becker, 236.

- Wasatch Mountains: Eardley, 967.

- Wyoming, Alcova area: Beckwith, 238.
- Five Springs Creek area: Wilson, 3721.

- Heart Mountain, overthrusting: Bucher, 467.

- Laramie Basin: Beckwith, 239.

- Recent movements along border scarps: Rubey, 2865.

- Sheep Mountain area: Bradford, 370.

- Whiskey Gap area: Neely, 2458.

- Woods-Jelm area, thrust faults: Knight, 1920.

- Feldspars, authigenic, in sediments: Tester, 3340.

Field work.

- Aerial surveying: Monroe, 2374.

- Alaska, United States Geological Survey work: Smith, 3128.

- Strata, thickness and depth: Price, 2673.

- Submarine geological exploration: Herold, 1475.

Fishes. See Pisces.

Fissures. See Faulting.

Florida.

- Geological Survey, administrative report: Gunter, 1355.

- Magnetic vector study: Jenny, 1667.

Economic geology.

- Bleaching clays: Nutting, 2513.

- Diatomaceous earth deposits: Gunter, 1357.

- Mineral production, 1930-32: Gunter, 1358.

- Oil possibilities: Hill, 1507.

- Search for: Jenny, 1666.

Historical geology.

- Calcareous shallow-water deposits: Thorp, 3384.

- Sarasota County: Stringfield, 3275.

Florida—Continued.

Paleontology.

Albula antiqua, Cretaceous: Cockrell, 682.

Bat, Pleistocene: Allen, 42.

Birds, Pleistocene: Wetmore, 3628.

Diatoms, peat deposits: Hanna, 1382.

Edentates, Pleistocene: Holmes, 1558.

Foraminifera: Cushman, 819.

Eocene: Cole, 698.

Larval chambers of mining bees: Brown, 430.

Mammals, land, Tertiary: Simpson, 3089.

Pleistocene: Simpson, 3088.

Miocene foraminifera, Coastal Plain: Cushman, 818.

Orbitoids, Oligocene, Duncan Church, Washington County: Cole, 699.

Pecten, Oligocene, Duncan Church, Washington County: Mansfield, 2213.

Tertiary: Tucker, 3418.

Schizodelphis bobengi (dolphin), Bone gravels, Polk County: Case, 591.

Sirenia, Miocene and Pliocene: Simpson, 3092.

Tertiary Mollusca: Tucker, 3417.

Vulsella, Ocala limestone: MacNeil, 2202.

Petrology.

Sediments, coastal: Tyler, 3438.

Physical geology.

Lime deposition at Tortugas: Gee, 1219.

Physiographic geology.

Straits of Florida: Staub, 3174.

Underground water.

Artesian wells, Sarasota County: Stringfield, 3276.

Ground-water: Stringfield, 3277.

Resources, Sarasota County: Stringfield, 3275.

Flow lines and flow planes in plastic masses: Fraser, 1149.

Fluorspar.

Western United States: Burchard, 488, 491.

Folding.

Appalachians, northern, symmetry: Sherrill, 3064.

California, Mount Diablo and Coalinga areas, Coast Ranges, Clark, 647.

Montana, northwestern: Clapp, 639.

Oklahoma, Arbuckle Mountains: Dott, 929.

Footprints.

Ohio, footprints, Pennsylvanian: Mitchell, 2366.

Texas, footprints, Comanchean limestone, Bandera County: Houston, 1567.

West Virginia, Permian: Happ, 1394.

Foraminifera: Cushman, 819, 820, 822.

Bibliography: Cushman, 819; Silvestri, 3085; 1931: Thalmann, 3345; 1931, supplement: Thalmann, 3349.

Bitubulogenerina, Tertiary, Mississippi and Louisiana: Howe, 1583.

Bonaire, Danish West Indies: Pijpers, 2628.

California, Contra Costa County, Miocene: Kleinpell, 1904.

Merced series, San Mateo County: Stewart, 3221.

Miocene, San Joaquin Valley: Barbat, 160.

Southern, distribution, living and fossil: Natland, 2456.

Classification and economic use: Cushman, 820.

Coastal Plain, eastern United States: Cushman, 818.

Concentration, technique: Carson, 589.

Contributions from Cushman Laboratory: Cushman, 819.

Cuba: Thalmann, 3347.

Anaya River, Santa Clara Province, Eocene: Ellis, 1009.

Cretaceous and Tertiary: Palmer, 2564.

Guantanamo Bay region: Vaughan, 3492, 3493.

Discocyclina, Eocene, California: Schenck, 2969.

Epistominoides and Coleites, Tertiary, Texas: Plummer, 2643.

Fabularia, Astero-cyclina and Lepidocyclina, Eocene, Florida: Cole, 698.

Fusulina, keriothecal wall structure: Henbest, 1452.

Fusulinidae, Pennsylvanian: Dunbar, 945.

Iowa: Thompson, 3375.

Gallowayina, Upper Cretaceous, Cuba: Palmer, 2561.

Globotruncana, regional distribution: Thalmann, 3350.

Gümbelina, Eocene and Oligocene, Cuba: Palmer, 2562.

Hantkenina, Alabama: Howe, 1581.

Eocene, Alabama and Mexico: Thalmann, 3343.

Index, genera and species, erected in 1931: Thalmann, 3346.

Jurassic, Alberta and Saskatchewan: Wickenden, 3681.

Montana: Sandidge, 2940.

Juvenarium, youthful stage of foraminiferal shells: Henbest, 1451.

Kansas and Oklahoma, Pennsylvanian: Newell, 2471.

Kansas, Upper Cretaceous: Morrow, 2420.

Key to genera: Cushman, 821.

Foraminifera—Continued.

- Lepidocyclus: Vaughan, 3495.
 California: Taliaferro, 3300.
 Eocene, Panama and Trinidad: David, 854.
 Range and distribution: Berry, 283.
 Lepidocyclus caneliei, Oligocene, Mexico: Thalmann, 3348.
 Long Island, western, and New York harbor: Shupack, 3083.
 Louisiana, Caldwell and Catahoula Parishes: Shreveport Geol. Soc., 3075.
 Jackson Eocene: Howe, 1577.
 Manual: Galloway, 1205.
 Micropaleontology, Johns Valley shale, Ouachita Mountains, Oklahoma: Harlton, 1405.
 Miocene, California: Deflandre, 879.
 Miogypsina, Oligocene, Mexico: Nuttall, 2512.
 Tertiary, Mexico: Thalmann, 3342.
 Mississippi, Clarke and Wayne Counties: Shreveport Geol. Soc., 3076.
 Montana, Mesozoic: Sandidge, 2939.
 New York, Ordovician: Kyellesvig, 1902.
 Oklahoma, Lower Paleozoic, arenaceous: Moreman, 2417.
 Oligocene, Washington: Frizzell, 1168.
 Orbitoids, biogeographic relations: Vaughan, 3494.
 Orbitoides and Gallowayina synonymous: Vaughan, 3496.
 Orbitoidae, classification and phylogeny: Dusenbury, 956.
 Oligocene, Florida: Cole, 699.
 Orbitulina, Cretaceous, Texas: Silvestri, 3084.
 Orbitolina walnutensis, Texas: Lynch, 2131.
 Oregon, western, Eocene: Berthiaume, 287.
 Phylogeny of the Fusulinidae: Rose, 2809.
 Preoccupied names: Thalmann, 3344.
 Recovery of Paleozoic arenaceous Foraminifera: Secrist, 3023.
 Reef Ridge shale, California: Barbat, 161.
 Rockford, Iowa, Devonian: Miller, 2324.
 Stage for sorting: Ellis, 1010.
 Tertiary, Cuba: Hadley, 1366.
 Texas, Jackson group: Ellis, 1012.
 Trinity, upper, microfossils, Oklahoma: Vanderpool, 3470.
 Upper Cambrian: Howell, 1589.

Formations. See Geologic formations.

Freeport quadrangle, Pennsylvania: Hughes, 1608.

Fossils. See Paleontology.

Fossil forests. See Petrified forests.

Fucoids.

Arizona, Grand Canyon: McKee, 2181.

Fuller's earth.

Florida, bleaching clays: Nutting, 2513.

Georgia, bleaching clays: Nutting, 2513.

Illinois, Olmstead: Grim, 1328.

Missouri, southeastern: Allen, 44.

Utah, Aurora deposit: Crawford, 771.

Gas. See Natural gas.

Gastropoda.

Arkansas, Carboniferous: Girty, 1258.
 Bearpaw formation, Cretaceous, Saskatchewan: Warren, 3561.

California, Haliotis, Pliocene: Vokes, 3515.

Cepolis, Cuba: 663.

Colorado, Carboniferous: Girty, 1258.

Epitonium fallaciosum, Pleistocene, California: Woodring, 3777.

Euomphalidae and Platyceratidae, St. Louis, Missouri: Knight, 1913.

Gyraulus cyclostomus, Interglacial, Saskatchewan: Baker, 141.

Kettleman Hills, California, freshwater fossils: Pilsbry, 2632.

Land and freshwater mollusks, Bahamas: Pilsbry, 2629.

Louisiana, Caldwell and Catahoula Parishes: Shreveport Geol. Soc., 3075.

Mexico, Isthmus of Tehuantepec: Gardner, 1210.

Neptunea, Miocene, Caliente Range, California: Grant, 1299.

Neritidae, Pennsylvanian, St. Louis, Missouri: Knight, 1912.

Pleurotomarid, Eocene, Oregon: Schenck, 2970.

Polygyra profunda Say, Pleistocene, Illinois: Baker, 142.

Pomatiopsis, Pleistocene, Illinois: Baker, 140.

Psammophilus mexicanus, Miocene, Santa Rosa, Vera Cruz, Mexico: Collins, 707.

Strombus dominator delabechi, Miocene, Jamaica: Rutsch, 2910.

Trinidad, Miocene: Rutsch, 2912.

Trocho-Turbinidae, Pennsylvanian, St. Louis, Missouri: Knight, 1911.

Turritellidae, Pennsylvanian, St. Louis, Missouri: Knight, 1914.

Utah, Pliocene, Collinston: Chamberlain, 618.

Utah, Stagnicola kingi: Chamberlain, 617.

Gems. See also Precious stones.

Benitoite, neptunite and joaquinite: Van Amringe, 3459.

California: McIntosh, 2174.

Benitoite: Yaeckel, 3810.

San Diego County: Grieger, 1325.

Gems—Continued.

- Cat's eye gems, determination: Hart, 1417.
 Colorado, Tarryall Mountains: Wulff, 3802.
 Emeralds: Randolph, 2694.
 Garnet: Randolph, 2692.
 Idaho: Fernquist, 1067.
 Maine, topaz deposit, Topsham: Palache, 2556.
 North Carolina: McIntosh, 2175; Pratt, 2662.
 Oregon: Dake, 833.
 Rhodonite: Randolph, 2691.
 South Dakota, Black Hills: Lincoln, 2059.
 Washington: Fernquist, 1066.
 Zircon: Randolph, 2693.

Genesis of ores. See Ore deposits, origin.

Geochemistry.

- Alteration, pyrite to pyrrhotite: Stevens, 3215.
 Chloride brine, subsurface concentration: Russell, 2901.
 Genesis of the elements: Lewis, 2055.
 Radium, uranium, and potassium, occurrence in the earth: Urry, 3452.
 Solutions, relation to geologic processes: Ingerson, 1632.

Geo-chronology, international: De Geer, 880.

Geodes.

- Illinois, Hamilton: McKinley, 2188.
 Indiana, Stouts Creek Canyon: Von Osinski, 3521.

Geologic climate. See Paleoclimatology.

Geologic formations, tables. See also Historical geology.

- Alabama, northern: Johnston, 1714.
 Alberta, Crownsnest Pass area: MacKay, 2178.
 Crownsnest Pass area: Warren, 3558.
 Arizona, Bisbee mining district: Ransome, 2697.
 Arkansas: Kansas Geol. Soc., 1746.
 British Columbia, Barkerville, Cariboo District, Johnston, 1706.
 Brisco-Dogtooth area: Evans, 1032.
 Slocan mining camp area: Cairnes, 537.
 California, Kettleman Hills oil field: Goudkoff, 1288.
 San Joaquin Valley: Beebe, 240.
 Colorado: Kansas Geol. Soc., 1747.
 Alma district: Singewald, 3105.
 Central: Lovering, 2110.
 Climax district: Butler, 507.
 Front Range: Brainerd, 379.
 McCallum anticlines, Jackson County: Miller, 2336.
 Two Buttes dome: Parker, 2577.
 Two Buttes dome, southeastern Colorado: Sanders, 2938.
 Costa Rica, highlands: Lohmann, 2084.

Geologic formations, tables—Continued.

- Cuba, Habana and vicinity: Palmer, 2566.
 Delaware, Chesapeake Bay region: Stephenson, 3203.
 Florida, Sarasota County: Stringfield, 3275.
 Geologic formations: Alcock, 21.
 Illinois, Jersey, Greene and Madison Counties: Collingwood, 704.
 Iowa: Keyes, 1814.
 Upper Mississippi Valley: Trowbridge, 3413.
 Kansas: Kansas Geol. Soc., 1747.
 Kentucky, western, asphalt region: Russell, 2900.
 Louisiana: Shaw, 3040.
 Louisiana and Texas Gulf coast: Deussen, 902.
 Lower Red River region: Jones, 1733.
 Maryland, Appalachian region: Stose, 3260.
 Chesapeake Bay region: Stephenson, 3203.
 Mexico, northern Sonora: Taliaferro, 3301.
 Michigan, oil and gas fields: Newcombe, 2469.
 Midcontinent region, northern, Pennsylvanian: Moore, 2406.
 Minnesota, upper Mississippi Valley: Trowbridge, 3413.
 Mississippi, Jackson gas field, Hines and Rankin Counties: Monroe, 2373.
 Missouri: Kansas Geol. Soc., 1746.
 Montana, Beartooth-Big Horn region: Bucher, 464.
 Big Horn Basin: Perry, 2612.
 Broadwater, Beaverhead, Phillips, and Fergus Counties: Corry, 756.
 Eastern and central: Perry, 2609.
 North Moccasin Mountains, Fergus County: Blixt, 334.
 Northwestern: Clapp, 639.
 Tobacco Root Mountains: Tansley, 3308.
 Nebraska, Tertiary: Cook, 725.
 Ness and Hodgeman Counties, Kansas: Moss, 2424.
 Newfoundland, western: Schuchert, 2996.
 New Mexico: Kansas Geol. Soc., 1747; Winchester, 3747.
 Central mining district: Schmitt, 2979.
 Cimarron Valley, Union County, clastic plugs and dikes: Parker, 2575.
 Santa Rita and Hanover region: Ransome, 2697.
 New York, John Boyd Thacher Park (Indian Ladder region): Goldring, 1268.
 New York State: Newland, 2476.

Geologic formations, tables—Continued.

North America geologic formations:
Shimer, 3071.

Northwest Territories, Echo Bay district, Great Bear Lake: Robinson, 2783.

Nova Scotia, Amherst area: Roliff, 2797.

Ohio: Stout, 3263.

Sedimentary series: Lamborn, 1965.

Oklahoma: Kansas Geol. Soc., 1747.

Arbuckle and Wichita Mountains, early Paleozoic: Decker, 874.

Eastern: Lowman, 2118.

Permian, Logan and Lincoln Counties: Patterson, 2591.

Ontario, Abram Lake conglomerate and its extensions: Pettijohn, 2620.

Heron Bay—White Lake area: Thomson, 3381.

Michipicoten River area: Matheson, 2234.

Moose River Basin: Hawkins, 1425.

Ozarkian: Kobayashi, 1927.

Pennsylvania, Lehigh-Northampton district: Behre, 241.

Limestones: Miller, 2331.

Middletown quadrangle: Stose, 3261.

Southeastern: Hall, 1307.

Southern: Stose, 3260.

Western: Sisler, 3107.

Pennsylvania, Midcontinent region: Miller, 2320.

Quebec, Palmarolle and Taschereau map areas: Lang, 1994.

Southern: Clark, 655.

Saskatchewan, Amisk Lake area: Wright, 3798.

Tennessee, brown iron ores, Western Highland Rim region: Burchard, 490.

Western: Wells, 3599.

Texas: Kansas Geol. Soc., 1747.

Texas and Louisiana Gulf coast: Deussen, 902.

Driscoll pool, Duval County: Sheldon, 3044.

Kelsey anticline, Upshur County: Denison, 895.

Kelsey area, Upshur County: Denison, 894.

Marathon region: Darton, 847.

Northeast of East Texas oil field: Decker, 877.

Webb County: Lonsdale, 2091.

Utah, Moab district: Baker, 131.

Salt Lake region: Boutwell, 356.

Wasatch Mountains, southern: Eardley, 966.

Vermont, northwestern, Cambrian and Ordovician: Schuchert, 2995.

Virginia, Appalachian Valley: Butts, 514.

Blue Ridge: Stose, 3262.

Geologic formations, tables—Continued.

Virginia—Continued.

Chesapeake Bay region: Stephenson, 3203.

Northern, ground-water resources: Cady, 532.

Wisconsin, upper Mississippi Valley: Trowbridge, 3413.

Wyoming, Beartooth-Big Horn region: Bucher, 464.

Beartooth Mountain front, Park County: Hughes, 1609.

Owl Creek Mountains: Love, 2107.

Southwestern, Uinta County: Veatch, 3497.

Wind River Basin: Bauer, 228.

Yellowstone-Beartooth-Big Horn region: Field, 1077.

Yukon, Laberge area: Lees, 2024.

Geologic history. See also Paleoclimatology; Paleogeography; Reimann, 2733.

Bonaire, Danish West Indies: Pijpers, 2628.

California: Reed, 2714.

Northern Sierra Nevada: Jenkins, 1653.

Canada, Canadian Shield: Young, 3813.

Western: Hume, 1615.

Carboniferous, North America: Vander Gracht, 3461.

Cincinnati region, Kentucky and Ohio, glaciation: Brand, 385.

Cuba, Guantanamo Bay region: Meiner, 2274.

Eastern New York and western New England: Longwell, 2085.

Greenland, Scoresby Sound: Rothé, 2843.

Illinois, Jersey, Greene, and Madison Counties: Collingwood, 704.

Michigan, oil and gas fields: Newcombe, 2469.

Montana, Broadwater, Beaverhead, Phillips, and Fergus Counties: Corry, 756.

North Moccasin Mountains, Fergus County: Blixt, 334.

Northwestern: Clapp, 639.

New Mexico, Roswell artesian basin: Fiedler, 1074.

New York, Hamilton group: Cooper, 749.

New York City and vicinity: Berkey, 263.

North Atlantic region: Gilligan, 1247.

Ontario, Janes, McNish, Pardo, and Dana Townships: Bruce, 440.

Orogeny, time of, in central Appalachians: Holden, 1551.

Pennsylvania, Middletown quadrangle: Stose, 3201.

Somerset-Windber quadrangles: Richardson, 2763.

Geologic history—Continued.

- Pennsylvanian: Knight, 1910.
 Puerto Rico: Meyerhoff, 2307.
 Quebec, southern: Clark, 655.
 Rocky Mountain region: Heaton, 1437.
 Saint-Pierre and Miquelon Islands: Aubert de la Rue, 106.
 Texas, Hemphill County: Reed, 2713.
 Inspiration Point, Palo Pinto County: Shuler, 3080.
 Kelsey anticline, Upshur County: Denison, 895.
 Wisconsin, Baraboo area: Wanenmacher, 3544.
 Wyoming, Beartooth Mountain front, Park County: Hughes, 1609.
 Laramie Basin, physical evolution: Knight, 1917.
 Owl Creek Mountains: Love, 2107.

Geologic maps.

- Alaska, Anthracite Ridge district: Richards, 2760.
 Chulitna River area: Ross, 2825.
 Curry district: Tuck, 3416.
 Eureka, Kantishna district: Wells, 3598.
 Fairbanks District: Hill, 1510.
 Girdwood district: Park, 2573.
 Moose Creek area: Waring, 3550.
 Moose Pass-Hope district, Kenai Peninsula: Tuck, 3415.
 Mount Eielson district: Reed, 2711.
 Suslota Pass district, upper Copper River: Moffit, 2371.
 Valdez Creek mining district: Ross, 2826.
 Willow Creek gold lode district: Ray, 2703.
 Alberta, central: Allan, 36.
 Arizona, Bisbee mining district: Ransome, 2697.
 Colorado Plateau region: Gregory, 1316.
 Fortuna region, Yuma County: Wilson, 3725.
 Katherine district: Wilson, 3725.
 Oatman district: Wilson, 3725.
 Payson district: Wilson, 3725.
 Yuma County, Castle Dome district: Wilson, 3723.
 Sheep Tank district: Wilson, 3723.
 Silver district: Wilson, 3723.
 Southern: Wilson, 3723.
 Auto radio, an aid in geologic mapping: Cloos, 667.
 Baffin Land and Melville Peninsula, Arctic America: Mathiassen, 2242.
 Bonaire, Danish West Indies: Pijpers, 2628.
 British Columbia: Can. G. S., 565.
 Brisco-Dogtooth area: Evans, 1032.
 Copper Mountain mining area, Similkameen district: Dolmage, 911.
 Quesnel Forks sheet, Cariboo District: Can. G. S., 566.
 Salmo area: Walker, 3538.

Geologic maps—Continued.

- British Columbia—Continued.
 Sandon (Slocan and Ainsworth mining divisions), Kootenay district: Cairnes, 537.
 Slocan sheet, Kootenay district: Cairnes, 537.
 California, Chico Quadrangle: Anderson, 62.
 Iron Canyon: Anderson, 62.
 Lassen Volcanic National Park: Williams, 3705.
 Madera County, northeastern: Erwin, 1030.
 Northern Sierra Nevada: Jenkins, 1653.
 Northern, Tuscan formation: Anderson, 62.
 Northwestern: Maxson, 2256.
 Panamint Range: Murphy, 2444.
 Providence, Marble and Ship Mountains: Hazzard, 1435.
 Redding-Weaverville districts: Hinds, 1516.
 San Gabriel Mountains, western: Miller, 2354.
 San Miguel Island, Santa Barbara County: Bremner, 401.
 Tertiary gold-bearing channels: Jenkins, 1659.
 Canada, eastern Arctic: Weeks, 3587.
 Colorado: Kansas Geol. Soc., 1747.
 Colorado (parts): Henderson, 1455.
 Alma district: Singewald, 3105.
 Breckenridge mining district: Lovering, 2111.
 Structure map: Anonymous, 3822.
 Connecticut, western: Agar, 17.
 Costa Rica, highlands: Lohmann, 2084.
 Delaware, along Baltimore & Ohio R. R.: Grimsley, 1331.
 Chesapeake Bay region: Stephenson, 3203.
 Duparquet Township, Quebec: O'Neill, 2526.
 Eastern New York and western New England: Longwell, 2085.
 Granville Lake area, northern Manitoba: Norman, 2508.
 Greenland, basalt formation, Clavering Island: Backlund, 118.
 Central East: Koch, 1931.
 East, Angmagsalik to Kap Dalton area: Wager, 3529.
 Caledonian Mountains: Teichert, 3327.
 Fleming Inlet area: Noe-Nygaard, 2506.
 Northwest, Inglefield Land: Koch, 1929.
 Washington Land, south coast: Koch, 1928.
 Guadeloupe and adjacent islands: Barabé, 197.
 Idaho, Idaho County, Elk City, Orogrande, Buffalo Hump and Ten-mile district: Shenon, 3050.

Geologic maps—Continued.

Idaho—Continued.

Nezperce National Forest, Idaho County: Reed, 2712.

Pearl-Horseshoe Bend gold belt: Anderson, 60.

Quartzburg area, Boise Basin: Ross, 2834.

South-central: Ross, 2837.

Illinois: Lamar, 1961.

Along Baltimore & Ohio R. R.: Grimsley, 1331.

Indiana, along Baltimore & Ohio R. R.: Grimsley, 1331.

Iron, Pennsylvania, Cornwall district: Hickok, 1503.

Kansas: Kansas Geol. Soc., 1747.

Lake Superior region: Hotchkiss, 1563.

Louisiana: Shaw, 3040.

Maine: Keith, 1757.

Manitoba and Saskatchewan, Pas sheet: Can. G. S., 572.

Oxford House sheet: Can. G. S., 570.

Winnipeg area, surface deposits: Johnston, 1710.

Maryland: Mathews, 2238.

Along Baltimore & Ohio R. R.: Grimsley, 1331.

Appalachian region: Stose, 3260.

Chesapeake Bay region: Stephenson, 3203.

Massachusetts, Cape Cod region: Woodworth, 3779.

Mexico: Sánchez, 2931.

Central Sonora: King, 1891.

Las Delicias area, Coahuila: King, 1890.

Northern Sonora: Taliaferro, 3301.

Michigan, oil and gas fields: Newcombe, 2469.

Mid-Continent, southern: Miser, 2364.

Minnesota, northeastern: Grout, 1335.

Missouri, along Baltimore & Ohio R. R.: Grimsley, 1331.

Silver Mine area, Madison County: Tolman, 3394.

Montana, area near Gardiner: Wilson, 3722.

Badger Pass mining district, Beaverhead County: Sahinen, 2923.

Big Horn Basin: Perry, 2612.

Medicine Bow Mountains: Neely, 2459.

Metalliferous deposits, Helena region: Pardee, 2570.

North Moccasin Mountains, Fergus County: Blixt, 334.

Northwestern: Clapp, 639.

Tobacco Root Mountains: Tansley, 3308.

Ness and Hodgeman Counties, Kansas: Moss, 2424.

Nevada, Paradise Range, Nye County, Brucite area: Callaghan, 539.

Tybo District: Ferguson, 1064.

Geologic maps—Continued.

New Hampshire, Littleton area: Billings, 304.

New Jersey, along Baltimore & Ohio R. R.: Grimsley, 1331.

Mineral resources: Berkey, 262.

New Mexico: Kansas Geol. Soc., 1747; Winchester, 3747.

Oil and gas map: Winchester, 3747.

Roswell artesian basin: Fiedler, 1074.

Santa Rita and Hanover region: Ransome, 2697.

Sierra County: Harley, 1404.

New York, along Baltimore & Ohio R. R.: Grimsley, 1331.

John*Boyd Thacher Park (Indian Ladder region): Goldring, 1268.

New York City and vicinity: Berkey, 263.

North America, tectonic: Van der Gracht, 3461.

North Carolina, Coleman dam site, Cherokee County: Moneymaker, 2372.

Northwest Territories, Great Bear Lake (McTavish Arm), Mackenzie District: Can. G. S., 562.

Nova Scotia, Lake Ainslie sheet, Inverness County: Can. G. S., 563.

New Brunswick, Minudie anticlinorium: Imperial Oil Limited, 1630.

Ohio, along Baltimore & Ohio R. R.: Grimsley, 1331.

Oklahoma: Kansas Geol. Soc., 1747; Sheerar, 3043.

Arbuckle Mountains: Weatherby, 3576.

Ontario and Minnesota, Seine-Coutchiching problem, Rainy Lake: Merritt, 2298.

Heron Bay-White Lake area: Thomson, 3381.

Janes, McNish, Pardo, and Dana Townships: Bruce, 440.

Kakagi Lake area: Burwash, 503.

Kenora sheet: Tanton, 3309.

Lake Huron sheet: Can. G. S., 564.

Little Long Lac area, Thunder Bay: Can. G. S., 568.

Manitou-Stormy Lakes area: Thomson, 3382.

Minnitaki Lake area, Kenora district: Pettijohn, 2620.

Moose Mountain-Wanapitei area: Kindle, 1883.

Pashkokogan-Misehkwow area: Dyer, 961.

Pleistocene, Toronto region: Coleman, 701.

Rush Lake sheet, Sudbury District: Can. G. S., 567.

Shabumeni-Birch Lakes area: Furse, 1196.

Straw-Manitou Lakes area: Thomson, 3383.

Geologic maps—Continued.

- Ontario and Minnesota—Continued.
 Sturgeon River area, Thunder Bay district: Can. G. S., 573.
 Swayze gold area: Rickaby, 2767.
 Oregon, Blackbutte-Elkhead area: Wells, 3601.
 Eastern, mining districts: Gilluly, 1248.
 Josephine County, Robertson mine area: Shenon, 3045.
 Takilma-Waldo and Blue Creek districts: Shenon, 3046.
 Trout Creek flora: MacGinitie, 2170.
 Pennsylvania, along Baltimore & Ohio R. R.: Grimsley, 1331.
 Eastern: Berkey, 262.
 Freeport quadrangle: Hughes, 1608.
 Lehigh-Northampton district: Behre, 241.
 Middletown quadrangle: Stose, 3261.
 Somerset-Windber quadrangles: Richardson, 2763.
 Southeastern: Hall, 1307.
 Southern: Stose, 3260.
 Southwestern: Piper, 2633.
 Puerto Rico: Meyerhoff, 2307.
 Quebec, Arntfield-Aldermac mines area, Beauchastel Township: Bruce, 439.
 Assup River area, County of Abitibi: Bell, 247.
 Coulonge and Black Rivers area: Retty, 2746.
 Desmeloizes sheet, Abitibi County: Can. G. S., 560.
 Duparquet sheet, Abitibi and Témiscamingue Counties: Can. G. S., 561.
 Eastern, chromite areas: Denis, 893.
 Foch area, County of Abitibi: Bell, 252.
 Macamic sheet, Abitibi County: Can. G. S., 569.
 North Shore, Part of County of Saguenay, Papinachois sheet: Faessler, 1039.
 Palmarolle sheet, Abitibi County: Can. G. S., 571.
 Rivière à Pierre, Guenette, Brownsburg, etc.: Osborne, 2539.
 Senneterre area, Abitibi district: Bell, 253.
 Tabletop Mountains area: Jones, 1725.
 Taschereau sheet, Abitibi County: Can. G. S., 574.
 Waite-Ackerman-Montgomery mine, Noranda district: Wilson, 3733.
 Rhode Island, Block Island: Woodworth, 3779.
 Saskatchewan and Manitoba, Pas sheet: Can. G. S., 572.
 Small-scale, catalogue: Bucher, 462.

6022°—35—20

Geologic maps—Continued.

- South Dakota, central Perkins County: Searight, 3019.
 South Dakota, Grant County: Rothrock, 2847.
 South Dakota, Lake Kampeska area: Rothrock, 2845.
 South Dakota, Nemo district, Black Hills: Runner, 2882.
 South Dakota, Stoneville area: Searight, 3016.
 Tennessee: Pond, 2645.
 Tennessee River basin, mineral resources: U. S. G. S., 3449.
 Tennessee Valley Authority region: Eckel, 982.
 Texas: Kansas Geol. Soc., 1747; Sel-lards, 3028.
 Coastal Plain: Weeks, 3585.
 Duval County: Sayre, 2956.
 Hemphill County: Reed, 2713.
 Kelsey anticline, Upshur County: Denison, 895.
 Somervell County: Fiedler, 1076.
 United States: Stose, 3259.
 Structural features: King, 1884.
 Petroleum: White, 3658.
 Utah, Colorado Plateau region: Gregory, 1316.
 Moab District: Baker, 131.
 Marysville Canyon and vicinity: Eardley, 971.
 Salt Lake region: Boutwell, 356.
 Uinta Basin: Kay, 1755.
 Virginia, Appalachian Valley: Butts, 514.
 Chesapeake Bay region: Stephenson, 3203.
 Northern, ground-water resources: Cady, 533.
 Pyrite-gold belt, Louisa and Spotsylvania Counties: Virginia Geol. Survey, 3510.
 Wasatch Mountains, southern, Utah: Eardley, 968.
 West Virginia, along Baltimore & Ohio R. R.: Grimsley, 1331.
 Wisconsin: Wisconsin Geol. and Nat. His. Survey, 3748.
 Wyoming, Beartooth Butte: Dorf, 922.
 Beartooth Mountain front, Park County: Hughes, 1609.
 Jackson Hole: Fryxell, 1177.
 Owl Creek Mountains: Love, 2107.
 Shoshone Canyon area, Park County: Johnson, 1692.
 Wind River Basin: Bauer, 228.

Geologic maps, small scale, catalogue: Bucher, 462.

Geologic terms, pronunciation: Brown, 429.

Geologic time: Keyes, 1826; Lane, 1986.

Actinouranium and the geologic time scale: Western, 3616.

Cambrian: Resser, 2742.

Earth, age: Knopf, 1925.

Glacial epochs: Keyes, 1818.

Helium, radioactivity: Urry, 3453.

Measurement: Lane, 1984, 1990.

Ocean, age: Knopf, 1925.

Paleontological chronology: Crickmay, 783.

Pleistocene formations: Kay, 1749.

Sedimentary and climatic records, correlation: Bowman, 365.

Uranium: Kovarik, 1936.

Geological Surveys. See Surveys.

Geomorphogeny. See Physiographic geology.

Geomorphology. See also Physiographic geology.

Virginia, northern: Bevan, 288.

Geophysical prospecting: Eickelberg, 995; Fleming, 1115; Heiland, 1444; Kelly, 1770; Thom, 3357; Waitz, 3534; Weatherby, 3575.

Alabama and Florida, magnetic vector study: Jenny, 1667.

Anomalies, heavy: Heiskanen, 1450.

Arbuckle Mountains, Oklahoma: Harding, 1398.

Buried-river channels, tracing: Ellsworth, 1016.

Buried river gorges, detection: Wilcox, 3689.

California, reflection seismograph records: Salvatori, 2928.

Depths of strata, seismographic determination: Harris, 1412.

Dip shootings, applications and limitations: Rosaire, 2808.

Earth resistivities: Keller, 1761.

Earth-resistivity survey, Illinois: Hubbert, 1601.

Electrical methods, for gold: Kihlstedt, 1878.

Electrical prospecting for gold quartz veins: Kelly, 1771.

Faults, location, by earth-resistivity method, Hardin County, Illinois: Hubbert, 1602.

Field problems in reflection seismology: Pugh, 2677.

Geophysics: Kelly, 1772.

Geophysics applied to geology: Lundberg, 2124.

Geophysics in nonmetallic field: Heiland, 1447.

Louisiana, Valentine (LaRose) dome, Lafourche Parish: Buchanan, 460.

Magnetic anomalies in oil fields: Van Weelden, 3488.

Magnetic surveys, failure to show commercial structures: Jenny, 1669.

Geophysical prospecting—Continued.

Magnetic vector study, Hart field, Michigan: Jenny, 1668.

Magnetometer field method: De Beck, 872.

Magnetometer system, compensated: Heiland, 1445.

Methods: Barton, 205.

Michigan, magnetic data use in iron ranges: Swanson, 3285.

Missouri, magnetic surveys: Grohskopf, 1332.

Magnetometer results and siliceous residues: Buehler, 471.

New Jersey, gaps in trap ridges: Hubbert, 1604.

Oil fields: Weaver, 3580.

Oil industry: DeGolyer, 892.

Oklahoma, Arbuckle Mountains: Harding, 1398; Weatherby, 3576.

Ontario: Miller, 2319.

Moose River Basin: Hawkins, 1425.

Placer and water-supply problems: Jakosky, 1645.

Placer, examination: Jakosky, 1647.

Prospects, examination: Jakosky, 1646.

Reflection methods in seismic prospecting: Rutherford, 2908.

Reflection seismology, instrument problems: Heiland, 1446.

Relations to geology: Weaver, 3581.

Seismic method: McDermott, 2148.

Seismic reflection methods in exploration of oil: Mitera, 2368.

Seismic refraction methods: Partlo, 2587.

Structural trends on the Gulf coast: Jenny, 1670.

Velocity determinations: Weatherby, 3576.

Wichita-Arbuckle mountain region: Van Weelden, 3489.

Geophysics.

$\text{Ca}_2\text{SiO}_4\text{--Fe}_2\text{SiO}_4$: Bowen, 359.

Geophysical Laboratory investigations: Day, 870.

Seismographic methods: Gutenberg, 1359.

Silica, volatile transport: Greig, 1323; Terzaghi, 3334.

System CaO--FeO--SiO_2 : Bowen, 360.

System $\text{K}_2\text{O--Al}_2\text{O}_3\text{--SiO}_2$: Schairer, 2959.

Georges Bank, origin: Shepard, 3058.

Georgia.

Economic geology.

Bleaching clays: Nutting, 2513.

Gold mining: Anderson, 61.

Gold: Crickmay, 788; Wilson, 3740.

Kyanite, vermiculite and olivine: Smith, 3132.

Shales and brick clays: Smith, 3131.

Petrology.

Mylonites in crystalline rocks: Crickmay, 790.

Geysers. See also Underground water.

Geyser basins and igneous emanations:
Allen, 40.

Nevada, Beowawe, Eureka County: Nolan, 2507.

Origin: Sherzer, 3065.

Glacial boulders, migrating, Teton glacier:
Fryxell, 1180.

Glacial erosion. See Erosion.

Glacial geology. See also Glacial lakes;
Quaternary: Daly, 838; Johnston,
1705; Keyes, 1805, 1849; Reid,
2728.

Ablation of snow fields by solar heat,
high altitudes: Matthes, 2250.

Alaska, Alaska Peninsula and Aleu-
tian Islands: Capps, 578.

Mount Elison district: Reed, 2711.

Anticyclones, glacial, in extension Pleis-
tocene ice sheets: Evans, 1034.

Arctic America, Baffin Land and Mel-
ville Peninsula: Mathiasen, 2242.

British Columbia, Barkerville, Cariboo
District: Johnston, 1706.

Bear River delta: Hanson, 1392.

Northern: Kerr, 1783.

Southern: Flint, 1118.

California, Santa Monica Mountains:
Davis, 862.

Sierra Nevada: Blackwelder, 316.

Sierra Nevada and Basin ranges,
Pleistocene: Blackwelder, 315.

Canada, Arctic America, north of Hud-
son Bay: Freuchen, 1163.

Canadian Shield: Bruce, 442.

Central States: Alden, 22.

Cincinnati region, Kentucky and Ohio:
Brand, 385.

Classification of drift sheets: Kay,
1752.

Climaxes of last glaciation: Antevs, 75.

Colorado, Climax district: Butler, 507.
Medicine Bow and Park Ranges: At-
wood, 103.

Park Range: Atwood, 102.

Sawatch Range: Powers, 2659.

Upper Arkansas and Eagle Rivers:
Behre, 244.

Connecticut, Quinnipiac-Farmington
lowland: Flint, 1117.

Connecticut Valley, late-Pleistocene
sequence: Flint, 1116.

Dispersion, Jasper conglomerate: Slaw-
son, 3108.

Eldoran epoch, Pleistocene: Kay,
1752.

Geo-chronology, international: De Geer,
880.

Geologic time, measure: Keyes, 1818.
Glacial concept before Agassiz: Keyes,
1867.

Glacial geology: Thwaites, 3388.

Glacial migration, eastern America,
extent and limits: Eckel, 981.

Glacial geology—Continued.

Great Basin, Pleistocene: Blackwelder,
323.

Greenland: Hobbs, 1530, 1531.

Central east: Koch, 1931.

East: Mikkelsen, 2313.

Upernivik region: Belknap, 246.

Illinois, Decatur region: Leighton,
2040.

Glacial till, variations: Krumbein,
1946.

Glaciated areas, mapping: Leighton,
2038.

Pre-Illinolan drifts, correlation: Mac-
Clintock, 2141.

Indiana, glacial till, variations: Krum-
bein, 1946.

Interglacial diversity: Keyes, 1815.

Iowa, Ashawa till sheet: Keyes, 1808.
Central, Pleistocene: Smith, 3121.

Duration: Kay, 1749.

Limestone boulders, quarry at Win-
terset: Goshorn, 1283.

Northeastern, Iowan gravels: Mil-
ler, 2350.

Pleistocene gravels: Kay, 1751.

Pre-Wisconsin valley, Hancock
County: Wood, 3772.

Iowan till, pebble band, origin: Kay,
1750.

Kansas, glacial striae, Doniphan Coun-
ty: Schoewe, 2984.

Kentucky, Pre-Illinoian glaciation, Cin-
cinnati region: Desjardins, 899.

Loess, rate of deposition: Keyes, 1833.

Maine, eskers: Perkins, 2604.
Wisconsin glaciation: Perkins, 2603.

Manitoba: Antevs, 74.

Map of maxima of Pleistocene glacia-
tion in North America: Martin,
2223.

Massachusetts: Crosby, 804.

Cape Cod region: Woodworth, 3779.

Glacial Lakes Hadley and Montague:
Brown, 435.

Glacial marginal shores: Crosby,
807.

Ice sheet retreat: Brown, 433.

Millers River valley: Brown, 431.

Nashua and Millers Rivers valleys:
Brown, 434.

Michigan, Crystal Falls-Iron River dis-
trict: Bergquist, 260.

Glacial till, variations: Krumbein,
1946.

Minnesota, Cannon River, diversion:
Sardeson, 2950.

Glacial chronometer: Sardeson, 2951.

Mississippi River, diversion: Sarde-
son, 2949.

Missouri, Kansas City, glacial striae:
Jewett, 1675.

Montana, natural tunnel, Boulder
River: Wentworth, 3611.

Nebraska: Condra, 719.

Pleistocene: Lugin, 2122.

Glacial geology—Continued.

- New Hampshire, Bethlehem moraine: Crosby, 805.
 Ice readvance at Littleton: Lougee, 2100.
 White Mountains: Johnson, 1682.
 New York, Catskill region: Chadwick, 610.
 Cayuga Valley, lake history: Fairchild, 1043.
 New York City and vicinity: Berkey, 263.
 Seneca Valley: Fairchild, 1045.
 State: Newland, 2476.
 Nomenclature: Keyes, 1801.
 Nova Scotia, Purcell's Cove, Halifax County: Howse, 1599.
 Ohio, drift deposits: Ver Steeg, 3499.
 North-central, buried topography: Ver Steeg, 3500.
 North-central, drainage changes: White, 3668.
 North-central, Pleistocene: White, 3665.
 Pre-Illinoian glaciation, Cincinnati region: Desjardins, 899.
 Wisconsin-Illinoian drift boundary: White, 3667.
 Ontario, lignite and refractory clay, Onakawana region: Dyer, 958.
 Pleistocene, Toronto region: Coleman, 701.
 Toronto region: Taylor, 3319.
 Varved clays: Rittenhouse, 2772.
 Oregon, exceptional morainelike deposits: Hodge, 1537.
 Patrician glaciation, extent: Keyes, 1858.
 Pennsylvania: Ashley, 91.
 Glacial deposits outside of Wisconsin terminal moraine: Leverett, 2048.
 Southwestern: Piper, 2633.
 Quebec, St. Lawrence submarine trough: Shepard, 3051.
 Rhode Island, Block Island: Woodworth, 3779.
 Rivers, recessional: Keyes, 1854.
 Rocky Mountains: Strzygowski, 3279.
 Soil profile studies as aids in mapping glacial drifts: Conrey, 723.
 South Dakota, Lake Kampeska area: Rothrock, 2845.
 Till reliefs, contrasted: Keyes, 1795.
 Vertebrates, Pleistocene, North America: Romer, 2802.
 Volcanic dust, relation to climate: Humphreys, 1619.
 Washington, channeled scabland: Bretz, 402.
 Channels in Ferry, Stevens, and Pend d'Oreille Counties: Freeman, 1162.
 Columbia River: Waters, 3571.
 Northern: Flint, 1118.
 Okanogan lobe, Cordilleran ice sheet, physiographic effects: Freeman, 1161.

Glacial geology—Continued.

- Washington—Continued.
 Scablands area: Hodge, 1541.
 Spokane flood: Allison, 46.
 West Virginia, Teas Valley: Petty, 2621.
 Wisconsin glacial age, subdivisions: Leighton, 2037, 2047.
 Glacial title: Keyes, 1873.
 Glaciation, quadruple nature: Keyes, 1811.
 Glacier, Delaware Valley: Ward, 3548.
 Wyoming, Jackson Hole: Fryxell, 1177.
 Medicine Bow and Park Ranges: Atwood, 103.
 Natural tunnel, Dinwoody Creek: Wentworth, 3611.
 Valley region, Park County: Rouse, 2852.
 Yukon, Carmacks map area: Bostock, 354.
 Glacial lakes. See also Beaches; Lakes (extinct); Shore lines; Terraces.
 California, lakes: Davis, 857.
 Huron and Saginaw basins, Pleistocene shore lines: Leverett, 2049.
 New York, east end of Lake Ontario: Baker, 145.
 Seneca Valley: Fairchild, 1045.
 Ontario, east end of Lake Ontario: Baker, 145.
 Vermont, Stowe Valleys: Bigelow, 299.
 Washington, channels in Ferry, Stevens, and Pend d'Oreille Counties: Freeman, 1162.
 Glacial migration, eastern America, extent and limits: Eckel, 981.
 Glacial period. See Glacial geology.
 Glacial tables, formation, Teton National Park: Fryxell, 1178.
 Glaciers: Reid, 2728.
 Alaska: Washburn, 3565.
 Alaska Peninsula and Aleutian Islands: Capps, 578.
 Curry district: Tuck, 3416.
 Glacier positions in 1931: Wentworth, 3613.
 Alberta, Toby glacier, Purcell Range: McCoubrey, 2144.
 California, Palisade glacier, Sierra Mountains: Von Engeln, 3519.
 Mount Shasta: Williams, 3707.
 Condition: Matthes, 2248.
 Greenland: Hobbs, 1530.
 East: Teichert, 3330.
 Northwest, Inglefield Land: Koch, 1929.
 West, Umanag district: Loewe, 2076.
 Motion: Chamberlin, 621; Von Engeln, 3520.
 Mountain and continent: Hobbs, 1532.
 Report of committee for 1932: Matthes, 2246; 1933-34: Matthes, 2251.

Glaciers—Continued.

Wyoming, Grand Teton National Park :
Fryxell, 1181.

Glauconite.

Virginia : Roberts, 2780.

Gold.

Alaska, Eureka, Kantishna district :
Wells, 3598.

Fairbanks district : Hill, 1510.

Girdwood district : Park, 2573.

Moose Pass-Hope district, Kenai
Peninsula : Tuck, 3415.

Placers : Smith, 3127.

Rampart and Hot Springs districts :
Mertie, 2300.

Rampart and Hot Springs districts,
placer concentrates : Waters, 3568.

Suslota Pass district, upper Copper
River : Moffit, 2371.

Valdez Creek mining district : Ross,
2826.

Willow Creek gold lode district : Ray,
2703.

Alberta, central : Allan, 36.

Arizona, lode gold mines : Wilson, 3725.
Placers : Wilson, 3724.

Yuma County, southern : Wilson,
3723.

British Columbia : Nichols, 2481.

Barkerville, Cariboo district : John-
ston, 1706.

Brisco-Dogtooth area : Evans, 1032.

Cadwallader Creek mining area,
Bridge River district : Cockfield,
686.

Cariboo and Bridge River fields :
Dolmage, 912.

Cariboo gold area : Nichols, 2480.

Copper Mountain mining area, Simil-
kameen district : Dolmage, 911.

Cranbrook area : Cairnes, 536.

Lilloet district : Walker, 3539.

Lode-gold developments, 1932 : Gal-
loway, 1206.

McConnell Creek area : Lay, 2019.

Manson River and Slate Creek
placers : Kerr, 1782.

Northern : Kerr, 1781.

Quesnel Forks area, Cariboo dis-
trict : Cockfield, 685.

Salmo area : Walker, 3538.

Willow River map area, Cariboo dis-
trict : Cockfield, 688.

Ymir-Sheep Creek goldfield : Nichols,
2482.

Zeballos River area : Gunning, 1353.

California, buried-river channels, trac-
ing : Ellsworth, 1016.

Del Norte and Siskiyou Counties :
Maxson, 2256.

Kern County : Tucker, 3420.

Northern Sierra Nevada : Jenkins,
1653.

Panamint Range : Sampson, 2029.

Gold—Continued.

California—Continued.

Redding-Weaverville quadrangles :
Averill, 115.

Sierra Nevada placers : Jenkins,
1658.

Tertiary gold-bearing channels : Jen-
kins, 1659.

Canada, 1933 : Robinson, 2782.

Central gold belts : Knight, 1908.

Colorado, Alma quartzite deposits :
Landon, 1983.

Breckenridge mining district : Lover-
ing, 2111.

Mosquito gold mining district : Dy-
renforth, 964.

Red Arrow mine : Root, 2807.

Southwestern : Burdick, 492.

Cyanide dumps : Crawford, 775.

Electrical prospecting for gold quartz
veins : Kelly, 1771.

Geophysical prospecting : Kihlstedt,
1878.

Georgia : Anderson, 61 ; Crickmay, 988 ;
Wilson, 3740.

Idaho, Banner district : Anderson, 58.

Boise Basin : Ross, 2834.

Boise County : Ross, 2831.

Elk City mining district : Shenon,
3049.

Idaho County, Elk City, Orogrande,
Buttalo Hump and Tenmile dis-
trict : Shenon, 3050.

Nezperce National Forest, Idaho
County : Reed, 2712.

Pearl-Horseshoe Bend gold belt : An-
derson, 60.

Snake River : Hite, 1527, 1529.

Thunder Mountain mining district,
Valley County : Ross, 2832.

Manitoba : McLaren, 2190.

Flinflon district : Wright, 3797.

Mesothermal gold deposits : Connolly,
721.

Microscopic features : Crawford, 777.

Montana, Broadwater, Beaverhead,
Phillips, and Fergus Counties :
Corry, 756.

Gold Creek placers : Crawford, 772,
776.

Gold-quartz veins, Libby, southwest-
ern Montana : Giuson, 1229.

Metalliferous deposits, Helena re-
gion : Pardee, 2570.

North Moccasin Mountains, Fergus
County : Blixt, 334.

Placer mining : Dingman, 906.

Spring Hill mine, Helena : Jones,
1732.

Mother Lode system : Jenkins, 1654.

Nevada, Comstock Lode : Lyman, 2129.

Gold Circle mining district, Elko
County : Rott, 2849.

Goldfield : Tolman, 3397.

Gold—Continued.

Nevada—Continued.

McCoy mining district and Horse Canyon, Lander County: Schraeder, 2989.

Silver City: Smith, 3111.

New Mexico, Sierra County: Harley, 1404.

New York, possibilities: Newland, 2477.

Northwest Territories, Great Bear Lake area: Kidd, 1876.

Nova Scotia, Middle River gold field: Alcock, 20.

Ontario: Frohberg, 1172.

Atigogama and Dillabough Lakes area: Burwash, 502.

Kakagi Lake area: Burwash, 503.

Manitou-Stormy Lakes area: Thomson, 3382.

Matatchewan area: Dyer, 960.

Michipicoten District: Frohberg, 1171.

Michipicoten River area: Matheson, 2234.

Moose Mountain-Wanapitei area: Kindle, 1833.

Pashkokogan-Misehkw area: Dyer, 961.

Porcupine district, Hollinger Mine: Graton, 1304.

Red Lake area, pre-Cambrian: Bruce, 444.

Shabumeni-Birch Lakes area: Furse, 1196.

Sioux Lookout area, Kenora district: Hurst, 1624.

Straw-Manitou Lakes area: Thomson, 3383.

Swayze gold area: Rickaby, 2767.

Vipond gold mine, Porcupine district: Dougherty, 930.

Oregon, beach placers, coastal: Pardee, 2572.

Chieftain and Continental mines: Wells, 3597.

Robertson, Humdinger, and Robert E. mines: Shenon, 3045.

Takilma-Waldo and Blue Creek districts: Shenon, 3046.

Placer deposits: Cockfield, 684.

Quebec, Arntfield-Aldermac mines area, Beauchastel Township: Bruce, 439.

Assup River area, Abitibi County: Bell, 247.

Beattie gold mine, Duparquet Township: O'Neill, 2526, 2528; Rowe, 2856.

Horne mine, Noranda, Rouyn Township: Price, 2669; Butterfield, 512.

Pascalis-Louvicourt area: Bell, 251.

Rouyn-Bell River region: Lang, 1996.

Senneterre area, Abitibi district: Bell, 253.

Siscoe gold deposit: Hawley, 1426.

Gold—Continued.

Quebec—Continued.

Southeastern, Ditton gold placers: Goodwin, 1279.

Saskatchewan, Amisk Lake area: Wright, 3798.

Amisk Lake area, western half: Wright, 3799.

Flinflon district: Wright, 3797.

South Dakota, Black Hills: Connolly, 722.

Homestake gold formation: Gustafson, 1358.

Homestake mine: Simmons, 3086.

Placer gold: Anderson, 65.

Texas: Baker, 133.

Transportation by organic solutions: Fetzner, 1072.

Use of geology in seeking gold: Jenkins, 1656.

Virginia: Bevan, 290; McGill, 2164, 2166, 2168.

Yukon: Bostock, 354.

Laberge area: Lees, 2024.

Goshen flora, west-central Oregon: Chaney, 625.

Grains, transfer from one liquid to another: Calkins, 538.

Grand Canyon. See Arizona.

Granite.

Colorado, Leadville district, granite alteration to sericite schist: Schwartz, 3004.

Ontario, Heron Bay-White Lake area: Thomson, 3381.

Quebec, Rivière à Pierre area, plutonic massifs: Osborne, 2542.

Rivière à Pierre, Guenette, Brownsburg, etc.: Osborne, 2539.

South of St. Lawrence River: Burton, 501.

South Dakota, Grant County: Rothrock, 2847.

Granville Lake area, northern Manitoba: Norman, 2508.

Graphite: Miller, 2330.

California, Los Angeles County: Beverly, 298.

Maine, graphite in pegmatite: Fisher, 1106.

Nova Scotia: Messervey, 2303.

Graptolitoidea.

Alabama: Poor, 2647.

Cambrian: Ruedemann, 2872, 2877.

Climacograptus inuiti, Ungava Bay, northern Canada: Cox, 765.

Kansas, Ordovician: Ver Wiebe, 3503.

Paleozoic plankton: Ruedemann, 2878.

Gravel.

Illinois, Buda quadrangle: Ekblaw, 996.

Gravity surveys.

Texas-Louisiana Gulf Coast: Barton, 207.

Great Bear Lake area, Northwest Territories: Kidd, 1876.

Great Slave Lake-Coppermine River area: Northwest Territories: Stockwell, 3249.

Greenland, ice cap, form and age: Wager, 3528.

Greenland: Hobbs, 1530.

Eastern Greenland: Teichert, 3328.

Historical geology.

Angmagsalik to Kap Dalton area, east Greenland: Wager, 3529.

Basalt formation, northeast Greenland: Backlund, 118.

Caledonian Mountains, east Greenland: Teichert, 3327.

Cape Dalton, Tertiary, east Greenland: Havn, 2702.

Cretaceous, Lower, northeast Greenland: Frebold, 1152.

Devonian, east Greenland: Sive-Söderbergh, 2918.

Devonian vertebrate localities: Kulling, 1952.

East Greenland, Cretaceous: Rosenkrantz, 2814.

Devonian: Sive-Söderbergh, 2921.

Lower Cretaceous: Bøggvad, 342.

Fleming Inlet area, east Greenland: Noe-Nygaard, 2506.

General: Koch, 1930; Schuchert, 2997.

Inglefield Land, northwest Greenland: Koch, 1929.

Jurassic, east Greenland: Rosenkrantz, 2815.

Upper, east Greenland: Frebold, 1155.

Kap Stosch formation, Carboniferous, east Greenland: Frebold, 1154.

Lower Cretaceous, east Greenland: Rosenkrantz, 2813.

Permian, lower, east Greenland: Frebold, 1151.

Portlandian, Scoresby Sound: Parat, 2569.

Scoresby Sound: Rothé, 2843.

Washington Land, northwest Greenland, south coast: Koch, 1928.

Wollaston area, northeast Greenland, Permian: Frebold, 1153.

Mineralogy.

Cape York meteorites: Figgins, 1085.

Igalikite and naujakasite: Bøggild, 340.

Ivigut, southwest Greenland: Bøggvad, 341.

Paleontology.

Actinoceroid Cephalopoda, Ordovician, north Greenland: Teichert, 3329.

Cambrian, Lower, faunas, east Greenland: Poulsen, 2656.

Cape Dalton, Tertiary, east Greenland: Havn, 2702.

Greenland—Continued.

Paleontology—Continued.

Caytonia thomasi, Lias, east Greenland: Harris, 1415.

Cretaceous, Lower, northeast Greenland: Frebold, 1152.

Decapods, Jurassic: Van Straelen, 3482.

Devonian, east Greenland: Sive-Söderbergh, 2918.

Devonian vertebrate localities: Kulling, 1952.

Diplopterax, east Greenland: Sive-Söderbergh, 2920.

Dolophonodus Branson, fish, Permian-Carboniferous: Woodward, 3778.

East Greenland, Lower Cretaceous: Bøggvad, 342.

Fishes, Permian-Carboniferous, east Greenland: Nielsen, 2486.

Flora, Scoresby Sound: Harris, 1413.

Gleicheniopsis fecunda, Cretaceous fern: Tutin, 3427.

Gleicheniopsis, Upper Cretaceous: Miner, 2356.

Invertebrate faunas, Jameson Land, east Greenland: Spath, 3154.

Jurassic, east Greenland: Rosenkrantz, 2815.

Upper, invertebrates, east Greenland: Frebold, 1155.

Kap Stosch formation, Carboniferous, east Greenland: Frebold, 1154.

Lower Cretaceous, east Greenland: Rosenkrantz, 2813.

Microfossils, Greenland coal: Arnold, 81.

Mytilus edulis in raised beaches, post-glacial: Noe-Nygaard, 2505.

Permian, lower, ammonites: Frebold, 1151.

Phyllolepidia and Arthrodira, Devonian, east Greenland: Stensio, 3197.

Plants, east Greenland: Mathiesen, 2243.

Scoresby Sound, Caturus groenlandicus (fish): Aldinger, 23.

East Greenland, flora: Harris, 1414.

Sharks, Permian: Branson, 390.

Silurian, north Greenland: Poulsen, 2657.

Stegocephallians, Devonian, east Greenland: Sive-Söderbergh, 2919.

Triassic fishes: Stensio, 3196.

Wollaston area, Permian fauna: Frebold, 1153.

Physical geology.

Changes of level, Quaternary, southeast Greenland: Vogt, 3514.

East Greenland, central: Koch, 1931.

Petrology.

Basalt formation, northeast Greenland: Backlund, 118.

Basalt, hydrothermal alteration: Holter, 1554.

Peridotite, Kaersut: Drescher, 934.

Greenland—Continued.

Petrology—Continued.

Rock specimens, east Greenland: Ofstedal, 2521.

Physiographic geology.

East Greenland: Mikkelsen, 2313.

East Greenland, central: Koch, 1931.

Glaciers, Umanag district, west Greenland; 1932: Loewe, 2076.

Ice cap, form and age: Wager, 3528.

Inland ice and glaciers, east Greenland: Teichert, 3330.

Loess: Hobbs, 1531.

Upernivik region: Belknap, 246.

Greensand. See Glauconite.

Ground water. See Underground water.

Guadeloupe.

Economic geology.

Petroleum possibilities: Barrabé, 197.

Historical geology.

Sedimentary formations: Barrabé, 195.

Physiographic geology.

Désirade, Lesser Antilles: Barrabé, 196.

Guatemala. See also Central America.

Paleontology.

Rudistae, Alta Verapaz: Mac Gillavry, 2169.

Petrology.

Volcano Pacayo: Deger, 881.

Physical geology.

Erosion, Mayan cities, Peten district: Cooke, 732.

Santa Maria, volcanic activity: Termer, 3333.

Santa Maria volcano: Zies, 3817.

Volcanoes, active: Sapper, 2947.

Physiographic geology.

Lake Atitlan, origin and history: Atwood, 98.

Guidebook, Southern Pacific Lines, New Orleans to Los Angeles: Darton, 848.

Gypsum.

Alberta, Rocky Mountains: Allan, 37.

Hail prints and mud cracks, Proterozoic: Fenton, 1058.

Hawaiian Islands.

Oahu: Stearns, 3184.

Mineralogy.

Crystal cavities in Hawaiian lavas: Dunham, 948.

Petrology.

Crystal cavities in Hawaiian lavas: Dunham, 948.

Physical geology.

Earthquakes accompanying 1933 eruption of Mauna Loa: Jones, 1719.

Kilauea volcano, changes: Jaggar, 1644.

Mauna Loa, eruption: Alexander, 35.

Volcanoes: Stearns, 3182.

Hawaiian Islands—Continued.

Underground water.

Honolulu, future ground water supplies: Stearns, 3185.

Historical (stratigraphic) geology. For areal see names of States. See also the different systems; Correlation; Geologic formations, tables: Mather, 2231; Richards, 2759; Ver Wiebe, 3505.

Appalachian, eastern, geosyncline: Morris, 2418.

Carboniferous, eastern States, correlation with Europe: Jongmans, 1736.

Cartographic terminology in geology: Kleinpell, 1905.

Coals, Pennsylvanian, and their underclays: Wanless, 3547.

Cyclothems, Pennsylvanian, boundaries: Weller, 3596.

Deformation of earth's crust: Bucher, 461.

Devonian-Carboniferous boundary: Schindewolf, 2972.

Gulf border salt deposits, age: Brown, 425.

Gulf Coast crude oil: Barton, 212.

Leiorhynchus as a guide fossil: Chadwick, 616.

Mesozoic systems, distribution and thickness: Ver Wiebe, 3504.

Montana, Medicine Bow Mountains: Neely, 2459.

Oil gravities, Rocky Mountain States: Bartram, 214.

Permo-Carboniferous: van der Gracht, 3460.

Pre-Cambrian: Leith, 2043.

Principles of historical geology: Field, 1078.

Rocky Mountain region: Heaton, 1437.

Rocky Mountains, Cambrian: Resser, 2745.

Sedimentary and climatic records, correlation: Bowman, 365.

Sedimentation and stratigraphy: Twenhofel, 3435.

Strata, correlation and classification: Ulrich, 3444.

Stratigraphic nomenclature: Reeside, 2725.

Upper Mississippi Valley, Tri-State field conference: Weller, 3593.

History. See also Surveys.

Canada, Geological Survey: Gray, 1307.

Canadian mining: Edwards, 986.

Development of knowledge of fossil birds: Wetmore, 3633.

Economic geology in ancient times: Sagui, 2922.

Geologic map of the United States: Stanton, 3170.

Glacial geology investigations: Keyes, 1805.

History—Continued.

National Research Council, Division of Geology and Geography: Twenhofel, 2428.

Oil and gas accumulation theory: Howell, 1598.

Ore deposits, origin and nature: Adams, 5.

Petroleum, carbon-ratio theory of origin: Thom, 3358.

Petroleum industry: Cronels, 798.

United States Geological Survey: Mendenhall, 2286.

Western mining, historical review: Ransome, 2698.

Hydrogenation and origin of petroleum: Pratt, 2663.

Hydrothermal metamorphism, geyser basins: Fenner, 1055.

Hot springs. See Thermal waters.

Huronian. See Pre-Cambrian.

Hydrozoa.

Camptostroma, Pennsylvania: Ruedemann, 2870.

Hydrocorallinae, New Jersey, Quarterly: Richards, 2756.

Hyrachyidae, revision: Wood, 3766.

Ice age. See Glacial geology.

Ice ages (ancient).

Varves, cobalt and squantum: Collet, 703.

Ice caves.

Origin: Harrington, 1408.

Idaho.

Report of Bureau of Mines: Finch, 1092.

Areas described.

Elk City, Orogrande, Buffalo Hump and Tenmile districts, Idaho County: Shenon, 3050.

Economic geology.

Boise Basin, lode deposits: Ross, 2834.
Clays, composition and origin: Tullis, 3421.

Coeur d'Alene district: Hershey, 1478.
Dome mining district, Butte County: Ross, 2833.

Elk City mining district: Shenon, 3049.
Quartz veins: Shenon, 3048.

Gold and platinum, Snake River: Hite, 1527.

Gold-bearing gravel, Nezperce National Forest, Idaho County: Reed, 2712.
Snake River: Hite, 1529.

Kaolin and china clay, Inland Empire: Wilson, 3726.

Lode deposits, Boise County: Ross, 2831.

Mica pegmatites, Latah County, origin: Anderson, 53.

Idaho—Continued.

Economic geology—Continued.

Mining industry, 1932: Campbell, 556;
1933: Simons, 3087.

Ore deposits, geological relations: Ross, 2828.

Pearl-Horseshoe Bend gold belt: Anderson, 60.

Silver, Banner district: Anderson, 58.

Silver-tetrahedrite relationships, Coeur d'Alene district: Warren, 3556.

Thunder Mountain mining district, Valley County: Ross, 2827, 2832.

Historical geology.

Banner district: Anderson, 58.

Batholith: Clapp, 641; Ross, 2830.

Boise Basin: Ross, 2834.

Correlation by heavy minerals: Ross, 2836.

Dome mining district, Butte County: Ross, 2833.

Elk City mining district: Shenon, 3049.

Ore genesis, Meadow Creek mine: Bailey, 121.

Paleozoic, south-central Idaho: Ross, 2837.

Pearl-Horseshoe Bend gold belt: Anderson, 60.

Valley County: Ross, 2827.

Mineralogy.

Coeur d'Alene minerals: Fernquist, 1069.

Gem minerals: Fernquist, 1067.

Mica pegmatites, Latah County, origin: Anderson, 53.

Opal, Columbia River basalt: Fernquist, 1065.

Star garnet: Kayser, 1756.

Paleontology.

Birds, Pliocene, aquatic: Wetmore, 3640.

Blarina gidleyi, shrew, Pliocene, Hagerman: Gazin, 1212.

Cephalopods, Phosphoria formation: Miller, 2326.

Felids, Pliocene, Hagerman: Gazin, 1214.

Hares, Pliocene, southern Idaho: Gazin, 1216.

Mustelids, upper Pliocene, Snake River Basin: Gazin, 1218.

Otter, Cenozoic: Furlong, 1194.

Plants, Miocene: Berry, 275.

Pseudemys idahoensis (turtle), Twin Falls County, Pliocene: Gilmore, 1254.

Rodent fauna, Grand View and Hagerman: Wilson, 3737.

Petrology.

Cassia batholith, contact phenomena: Anderson, 56.

Hornblende, giant, occurrence: Anderson, 54.

Idaho batholith, Boise County, composition: Anderson, 55.

Idaho—Continued.

Physical geology.

- Block faulting, recent: Anderson, 57.
Cassia batholith, contact phenomena: Anderson, 56.

Igneous and volcanic rocks. See also Intrusions; Magmas; Petrology: Buddington, 469; Daly, 836; Howe, 1587.

- Alabama, crystallines: Adams, 6.
Alaska, Girdwood district: Park, 2573.
Mount Eielson district: Reed, 2711.
Arizona, Elden Mountain, Flagstaff: Brady, 376.

- Basaltic magmas, differentiation: Kennedy, 1779.

- Bonaire, Danish West Indies: Pijpers, 2628.

- British Columbia, Barkerville, Cariboo District: Johnston, 1706.

- Quesnel Forks area, Cariboo District: Cockfield, 685.

- Salmo area: Walker, 3538.

- Shuswap terrane: Brock, 408.

- Whitewater gold belt, Taku River District: Kerr, 1780.

- Zeballos River area: Gunning, 1353.

- California, Jurassic granitoid intrusives, Klamath Mountains and Sierra Nevada: Hinds, 1517.

- Lassen Volcanic National Park: Williams, 3705.

- Madera County, northeastern: Erwin, 1030.

- Northern, Tuscan formation: Anderson, 62.

- Panamint Range: Murphy, 2444.

- San Gabriel Mountains, western: Miller, 2354.

- Weaverville district: Hinds, 1518.

- Canada, Canadian Shield, Keewatin and Laurentian rocks, genetic relations: Moore, 2401.

- Chemical constituents, minor: Harcourt, 1396.

- Colorado, Alma district: Singewald, 3105.

- Breckenridge mining district: Lovering, 2111.

- Climax district: Butler, 507.

- Heavy minerals in Tertiary intrusives: Stark, 3172.

- Jamestown district: Goddard, 1265.

- Longs Peak-St. Vrain batholith: Boos, 348.

- Tertiary intrusions, Green Lakes and Isabelle Lake valleys: Graham, 1290.

- Connecticut, western: Agar, 15, 17.

- Cuba, Sierra Maestra: Taber, 3297.

- Determination: Van Amringe, 3456.

- Diorite, thermally metamorphosed, Brookfield, Connecticut: Agar, 18.

- Duparquet Township, Quebec: O'Neill, 2526.

Igneous and volcanic rocks—Continued.

- Flow lines and flow planes in plastic masses: Fraser, 1149.

- Greenland, basalt: Holler, 1554.

- East, Angmagsalik to Kap Dalton area: Wager, 3529.

- Fleming Inlet area: Noe-Nygaard, 2506.

- Northeast, basalt formation: Backlund, 118.

- Guatemala, volcano Pacayo: Deger, 881.

- Idaho, Boise County: Ross, 2831.

- Cassia batholith, contact phenomena: Anderson, 56.

- Hornblendite, giant: Anderson, 54.

- Idaho County, Elk City, Orogrande, Buffalo Hump and Tenmile district: Shenon, 3050.

- Latah County, mica pegmatites, origin: Anderson, 53.

- Pearl-Horseshoe Bend gold belt: Anderson, 60.

- Quartzburg area, Boise Basin: Ross, 2834.

- Labrador coast, diabase dikes: Wheeler, 3645.

- Magmatism: Ellis, 1011.

- Maine, Pleasant Mountain, alkaline stock: Jenks, 1663.

- Rhyolites: Smith, 3112.

- Manitoba, genesis of pegmatites: Stockwell, 3251.

- Lithium pegmatite, Bear mineral claim: Stockwell, 3250.

- Maryland, Ellicott City granite: Cloos, 665.

- Mexico, Lower California: Hirschi, 1525.

- Valley of Tecocomulco, State of Hidalgo: Vivar, 3511.

- Michigan, Republic granite, intrusive relations: Lamey, 1967.

- Minnesota, anorthosites, coast of Lake Superior: Schwartz, 3006.

- Origin: Grout, 1336.

- Snowbank stock: Balk, 150.

- Miquelon and Saint Pierre Islands: Aubert de la Rue, 104, 105.

- Missouri, Mount Devon diabase porphyry: Muilenburg, 2437.

- Silver Mine area, Madison County: Tolman, 3394.

- Montana, Boulder batholith: Jones, 1731.

- Gold-quartz veins, Libby, southwestern Montana: Gibson, 1239.

- Libby Quadrangle: Gibson, 1240.

- Northwestern: Clapp, 639.

- New Brunswick, southeastern: Flaherty, 1112.

- Newfoundland, Blow-me-down complex, Bay of Islands: Snelgrove, 3143.

- New Mexico: Winchester, 3747.

- Central mining district: Schmitt, 2979.

Igneous and volcanic rocks—Continued

New Mexico—Continued

Cimarron Valley, Union County, clastic plugs and dikes: Parker, 2575.

Nicaragua: Burri, 497.

Tertiary and Quaternary: Burri, 498.

Northwest Territories, Echo Bay district, Great Bear Lake: Robinson, 2783.

Great Bear Lake area: Kidd, 1876.

Nova Scotia, Purcell's Cove, Halifax County: Howse, 1599.

Ontario, Abram Lake conglomerate and its extensions: Pettijohn, 2620.

Heron Bay-White Lake area: Thomson, 3381.

Janes, McNish, Pardo, and Dana Townships: Bruce, 440.

Kakagi Lake area: Burwash, 503.

Long Lake diorite, Sudbury District: Freeman, 1158.

Loon Lake pluton, Bancroft area: Cloos, 668.

Michipicoten River area: Matheson, 2234.

Obonga-Kachishibog area, Thunder Bay: Kidd, 1877.

Quartz-olivine gabbro, Frood mine, Sudbury district: Freeman, 1159.

Rush Lake area, Sudbury district: Bannerman, 159.

Swayze gold area: Rickaby, 2767.

Oregon, Cascade Range: Callaghan, 540.

Roseburg quadrangle: Wells, 3600.

Sparta: Gilluly, 1249.

Pegmatites: Hess, 1487.

Pseudo-cataclastic texture of replacement origin: Anderson, 70.

Puerto Rico: Meyerhoff, 2307.

Quebec, Amulet mine, Noranda district: Wilson, 3731.

Arntfield-Aldermac mines area, Beauchastel Township: Bruce, 439.

Assup River area, Abitibi County: Bell, 247.

Cape Smith area, Hudson Bay: Gunning, 1354.

Chatham-Grenville stock: Osborne, 2541.

Coulouge and Black Rivers, Pontiac County: Retty, 2746.

Foch area, Abitibi County: Bell, 252.

Mount Johnson dike rocks: Osborne, 2540.

Northern: Wilson, 3729.

Palmarolle and Taschereau map areas: Lang, 1994.

Rivière à Pierre area, plutonic massifs: Osborne, 2542.

Tabletop area, Gaspé Peninsula: Jones, 1725.

Igneous and volcanic rocks—Continued

Quebec—Continued

Thetford and Disraeli quadrangles: Cooke, 738.

Waswanipi Lake area: Lang, 1995.

Saint Pierre and Miquelon Islands: Aubert de la Rue, 104, 105, 106.

Santa Monica Mountains: Kelly, 1773.

Saskatchewan, Amisk Lake area: Wright, 3798.

Amisk Lake area, western half: Wright, 3799.

South Dakota, Nemo district, Black Hills: Runner, 2882.

Vermont, quartz-bearing plutonites: Maynard, 2263.

Virginia, Cambrian and pre-Cambrian, granites: Pegau, 2599.

Hydrothermal metamorphism, Schuyler: Hess, 1490.

Shenandoah National Park area: Furcron, 1193.

Valley: Dennis, 896.

Washington, Camas Land sill: Chapell, 634.

Columbia River lavas: Fuller, 1189.

Columbia River lavas, structure: Hoffman, 1547.

Gneisses and ore formations, Cascades: Richarz, 2764.

Wyoming, Deer Creek, Park County: Rouse, 2851.

Valley region, Park County: Rouse, 2852.

Yukon, Carmacks map area: Bostock, 354.

Igneous intrusions. See Intrusions.

Illinois.

Chicago and vicinity, engineering geology: Ekblaw, 997.

Publications on geology, mineral resources and mineral industries of Illinois: Ill. G. S., 1628.

Economic Geology.

Anna, kaolin: Piersol, 2625.

Coal, No. 6: McCabe, 2136.

Eastern interior coal basin, oil and gas reservoirs: Bell, 248.

Fuller's earth, Olmstead: Grim, 1328.

Jersey, Greene and Madison Counties, oil and gas possibilities: Collingwood, 704.

Kaolin deposits, Anna: Grim, 1330.

Kaolinite in coal: Ball, 151.

Mineral industry, 1932: Voskuil, 3522.

Mineral industry, 1933: Voskuil, 3523.

Ore deposition, Wisconsin-Illinois lead-zinc district: Scott, 3008.

Pennsylvanian cycle and its significance: McGehee, 2161.

Rock wool: Lamar, 1961.

Sand and gravel resources, Buda quadrangle: Ekblaw, 996.

Illinois—Continued.

Economic Geology—Continued.

Springfield (No. 5) coal, depositional basin: Wanless, 3545.

Historical geology.

Baltimore & Ohio route: Grimsley, 1331.

Boring, Morris: Lamar, 1960.

Clay veins, Springfield (No. 5) coal: Roe, 2787.

Decatur region: Workman, 3785.

Devonian, western Illinois: Workman, 3786.

East St. Louis region: Ekblaw, 998.

Galena and Platteville faunas: Scott, 3010.

Glenwood shales, affinities: Sardeson, 2952.

General: Twenhofel, 3436.

Golconda limestone: Keyes, 1813.

Hoing sand, stratigraphic position: Workman, 3784.

Jersey, Greene and Madison Counties, oil and gas possibilities: Collingwood, 704.

Louisiana limestone, correlation: Williams, 3710.

Okaw formation, southwestern Illinois: Sutton, 3283.

Pennsylvanian cycle and its significance: McGehee, 2161.

Limestones, Carlinville quadrangle: Ball, 153.

Rocks, Madison and St. Clair Counties: Wanless, 3546.

Western Illinois: Fuller, 1185.

Port Byron limestone and its fauna: Savage, 2955.

Shale series, Bedford: Branson, 391.

Shoal Creek and Carlinville limestones, correlation: Ekblaw, 999.

Warsaw formation: Weller, 3594.

Mineralogy.

Geodes, Hamilton: McKinley, 2188.

Pyrite, fibrous, lead-zinc district: Born, 352.

Paleontology.

Chaetetes milleporaceous: Heritsch, 1472.

Coal balls: Noé, 2500, 2501.

Coal no. 6: Henbest, 1454.

Cordaites, flowers and fruit: White, 3654.

Dipnoans, Carboniferous: Romer, 2805.

Flora in coal balls, Pennsylvanian: Graham, 1293.

Forests, Pleistocene: Voss, 3524.

Lesleya Lesquereux and Megalopteris Dawson: Florin, 1121.

Mammoth, Pleistocene, Paris, Edgar County: Baker, 143.

Mesolobus mesolobus, typical form and range: Weller, 3592.

Plants, morphology of Pennsylvanian: Noé, 2499.

Pennsylvanian, in coal balls: Noé, 2504.

Illinois—Continued.

Paleontology—Continued.

Polygyra profunda Say, Pleistocene: Baker, 142.

Pomatiopsis, relationship of recent and fossil: Baker, 140.

Psaronius illinoensis, McLeansboro formation: Hoskins, 1562.

Ptychocarpus unitus, Carboniferous, Danville: Hoskins, 1561.

Scolecodonts and conodonts, Niagaran: Croneis, 794.

Scolecodonts, Edgewood formation: Dunn, 951.

Upper Richmond: Potter, 2654.

Starfish, Mississippian: Croneis, 796.

Trilobite, Devonian, Grand Tower, Jackson County: Roy, 2858.

Petrology.

Chert, Niagaran series, Chicago area: Schuirz, 3003.

Kaolin deposits, Anna: Grim, 1330.

Physical geology.

Faults, location, by earth-resistivity method, Hardin County: Hubbert, 1602.

Physiographic geology.

Chicago: Bretz, 403.

Decatur region, glaciology: Leighton, 2040.

Glacial till, variations: Krumbein, 1946.

Glaciated areas, boundaries and mapping: Leighton, 2038.

Lake, disappearing, Hardin County: Bonnell, 345.

Ohio River, evolution: Fowke, 1141.

Pre-Illinoian drifts, correlation: MacClintock, 2141.

Underground water.

Lake County: Gerber, 1226.

Location of wells: Imbt, 1629.

Index fossils.

Foraminifera, fusuline, Permian and Pennsylvanian: Dunbar, 946.

Index liquids, standardization: Glass, 1261.

Indiana.

Glacial copper nugget, Saint Joseph County: Mabin, 2205.

Tyner: Vaughan, 3491.

Report of Division of Geology: Logan, 2077, 2078, 2079, 2081.

Economic geology.

Clay resources: Whitlatch, 3671.

Eastern interior coal basin, oil and gas reservoirs: Bell, 248.

Oil field, Lima-Indiana: Carman, 581.

Underclays: Whitlatch, 3672.

Unionville gas field, Monroe County: Freed, 1156.

Historical geology.

Baltimore & Ohio route: Grimsley, 1331.

Kentland area, Ordovician: Shrock, 3077.

Indiana—Continued.

Historical geology—Continued.

- New Albany shale, top layers: Huddle, 1605.
- Union oil and gas field, Pike and Gibson Counties: Logan, 2080.
- West Franklin formation, southwestern Indiana: Shrock, 3077-a.

Mineralogy.

- Geodes, Stouts Creek Canyon: Von Osinski, 3521.

Paleontology.

- Conodonts, New Albany shale: Huddle, 1606.
- Corynecrinus, Devonian, Clark County: Kirk, 1896.
- Mammals, origin: Lyon, 2133.
- Marine fossils from top of New Albany shale: Huddle, 1605.
- Mastodon, Garrett: Simpson, 3100.
- Pollen in peat bogs: Houdek, 1565.

Physical geology.

- Mud stalagmites: Malott, 2206.

Physiographic geology.

- Glacial till, variations: Krumbein, 1946.
- Island hills, Wabash valley, Knox County: Fidler, 1073.
- Ohio River, evolution: Fowke, 1141.
- Pine Hills Nature Study Park: Smith, 3113.

Insecta.

- Carboniferous insects, Pennsylvania: Carpenter, 587.
- Cephaleia caplani (sawfly), Colorado: Cockerell, 681.
- Chrysopidae, Miocene, Colorado: Carpenter, 588.
- Forest insects, changes: Brues, 445.
- Geological history: Carpenter, 582.
- Holcorpa maculosa, Tertiary, Colorado: Carpenter, 584.
- Kansas, insects, Permian: Carpenter, 585.
- Larval chambers of mining bees, Florida and Wyoming: Brown, 430.
- Megasecopteran, Pennsylvanian, Kansas: Carpenter, 586.
- Moth, Eocene, Colorado: Forbes, 1133.
- Palaeogyrlinus: Darlington, 843.
- Permian, Kansas: Carpenter, 583.
- Syrphus (?) hendersoni, Eocene syrphid (Diptera): James, 1648.
- Termites, Miocene, Colorado: Snyder, 3146.
- Termopsinae (Isoptera): Emerson, 1022.

Inselberge, Lappland, Newfoundland: Schrepfer, 2990.

Interglacial diversity: Keyes, 1815.

Interglacial periods. See Glacial geology.

Intrusions. See also Dikes; Igneous and volcanic rocks; Laccoliths; Batholiths; Magmas.

Intrusions—Continued.

- California, intra-septum intrusion, Sierra Nevada: Mayo, 2266.
- Contamination of acid magmas: Nockolds, 2498.
- Fractures, ore-bearing, origin: Emmons, 1028.
- Kansas, Silver City area: Weldman, 3588.
- Minnesota, Snowbank stock: Balk, 150.
- Missouri, post-Devonian: Tarr, 3314.
- Newfoundland, Blow-me-down complex, Bay of Islands: Snelgrove, 3143.
- Ontario, Sudbury nickel irruptive: Collins, 710.
- Quebec, Waite-Ackerman-Montgomery mine, Noranda district: Wilson, 3733.
- Spavinaw granite, age, Oklahoma: Ireland, 1634.
- Vermont, Athens, Brookline and Westminster: Richardson, 2761.
- Putney area: Richardson, 2762.

Invertebrates (general). See also the classes of the invertebrates.

- Baffin Island: Wilson, 3718.
- Cambrian, Libby, Montana: Gale, 1198.
- Greenland, east, Lower Cambrian: Poulsen, 2656.
- Jameson Land, Jurassic: Spath, 3154.
- Silurian faunas: Poulsen, 2657.
- Upper Jurassic: Frebold, 1155.
- New Hampshire, Littleton area, Silurian and Devonian: Billings, 304.
- New York, Trenton Falls: Delo, 887.

Iowa.

- Des Moines River: Keyes, 1854.
- Limestone boulders, quarry at Winter-set: Goshorn, 1283.

Economic geology.

- Clarinda oil prospect: Lees, 2026.
- Road material: Morris, 2419; Wood, 3767.

Historical geology.

- Burlington limestone: Keyes, 1874.
- Carboniferous nomenclature: Keyes, 1851.
- Cedar Valley limestone: Tester, 3339.
- Deformation: Tester, 3337.
- Glory and Waterloo, Devonian: Wood, 3768.
- Channel sandstone, Coal Measures, Redfield, Gwynne, 1363.
- Chemung formation, Iowa and western New York: Tester, 3335.
- Chouteau limestone: Keyes, 1856.
- Cretaceous in northwestern Iowa: Tester, 3336.
- Stratigraphy: Keyes, 1857.
- Des Moines series, Redfield: Gwynne, 1362.
- Devil's Backbone region, Madison County: Goshorn, 1285.
- Devonian beds, Middle Amana: Stookey, 3258.

Iowa—Continued.

Historical geology—Continued.

Devonian (Upper) of Iowa, correlations: Stookey, 3257.

Fort Dodge, Carboniferous: Wood, 3770.

Galena limestone: Keyes, 1794.

General: Twenhofel, 3436.

Geological classification: Keyes, 1814.

Gilmore City formation, Humboldt and Pocahontas Counties: Laudon, 2010.

Glenwood shales, affinities: Sardeson, 2952.

Grassy shale: Keyes, 1866.

Greenhorn and Niobrara formations: Georgesen, 1225.

Hopkinton formation: Wood, 3771.

Index to stratigraphy, Kansas and adjoining areas: Ver Wiebe, 3502.

"Iowa marble": Keyes, 1853.

Kansas City formation, Madison County: Goshorn, 1284.

The Ledges State Park and Pennsylvanian problems: Smith, 1323.

Louisiana limestone, correlation: Williams, 3710.

Loveland gumbo-loess: Keyes, 1839.

Middle River traverse: Condra, 718.

Mississippi Valley, upper: Trowbridge, 3413.

Structure: Trowbridge, 3414.

Mississippian: Laudon, 2009.

Missouri River traverse: Condra, 716.

Missouri series, Madison County: Wood, 3769.

Red Oak-Stennett-Lewis traverse, Nishnabotna Valley: Condra, 717.

Richmond sandstone, Cambrian: Keyes, 1847.

Rockford series: Keyes, 1820.

Ste. Genevieve limestone (?): Keyes, 1862.

Sheffield formation: Laudon, 2008.

Spergen limestone: Keyes, 1812.

Yorkic system: Keyes, 1796.

Paleontology.

Cephalopods, Silurian cyrtoconic: Foerste, 1123.

Crinoidea: Thomas, 3360.

Mississippian, Legrand: Barbour, 172.

Echinodermata, Carboniferous: Beane, 231.

Echinoderms from Kinderhook limestone, Le Grand: Laudon, 2012.

Elk head: Cable, 530.

Foraminifera, Devonian, Rockford: Miller, 2324.

Fusulinids, Des Moines series: Thompson, 3375.

Gilmore City formation, Humboldt and Pocahontas Counties: Laudon, 2010.

Mastodon tusk, near Hampton: Cable, 531.

Iowa—Continued.

Paleontology—Continued.

Mixochoanitic cephalopod: Miller, 2321.

Nautiloids, Cherokee, Mid-Continent region: Miller, 2328.

Proboscidian remains, Glenwood: Rowe, 2855.

Spirifer disjunctus fauna: Laudon, 2008.

Starfishes and crinoids, Carboniferous, Le Grand: Keyes, 1860.

Physiographic geology.

Ashawa till sheet: Keyes, 1808.

Drainage changes: Keyes, 1861.

Iowan gravels: Miller, 2350.

Loveland loess, diversity: Keyes, 1859.

Pebble band, Iowan till, origin: Kay, 1750.

Pleistocene: Smith, 1321.

Duration: Kay, 1749.

Gravels: Kay, 1751.

Pre-Wisconsin glacial valley, Hancock County: Wood, 3772.

Underground water.

Fluorine in well waters: Gwynne, 1364.

Story-Hamilton artesian area: Smith, 3120.

Iron.

Alabama, Birmingham District: Blair, 326.

Red Mountain formation: Burchard, 487.

Alteration, pyrite to pyrrhotite: Stevens, 3215.

British Columbia, Slocan mining camp area: Cairnes, 537.

Colorado, Orient mine: Stone, 3253.

Ferric-ferrous ratio, contact-metamorphic deposits: Lasky, 2005.

Lake Superior: Royce, 2860.

Region: Broderick, 410; Hotchkiss, 1563.

Magnetite, hematite, pyrite and chalcopyrite, microscopic relations: Guild, 1351.

Massachusetts, Hawley mineral belt: Perry, 2606.

Michigan, magnetic data use in iron ranges: Swanson, 3285.

Marquette District, formation of martite: Wienert, 3688.

Minnesota, Lake Superior region: Zapffe, 3814.

Mesabi Range, magnetite cementing ore conglomerates: Gruner, 1348.

Miquelon and Saint-Pierre Islands: Aubert de la Rue, 107.

New Jersey, Highlands, magnetite: Smith, 3124.

New Mexico, Santa Rita and Hanover region: Ransome, 2697.

New York, Adirondacks, magnetite: Osborne, 2543.

Iron—Continued.

- Ontario: Miller, 2319.
 Block Creek area, Thunder Bay: Joeliffe, 1716.
 Michipicoten River area: Matheson, 2234.
 Moose Mountain-Wanapitei area: Kindle, 1883.
 Pashkokogan-Mishekw area: Dyer, 961.
 Rush Lake area, Sudbury district: Bannerman, 159.
 Sioux Lookout, area, Kenora district: Hurst, 1624.
 Pennsylvania, Cornwall: Hickok, 1503.
 Saint-Pierre and Miquelon Islands: Aubert de la Rue, 107.
 Tennessee, brown iron ores, Western Highland Rim region: Burchard, 490.
 Wisconsin, Mayville: Hawley, 1427.
 Isostasy and the eruptive crust: Willis, 3715.
 Isostasy: Bowie, 362; Lambert, 1964; Nádai, 2449.
 Canada, Eparchean peneplain: Lawson, 2018.
 Deformation of earth's crust: Bucher, 461.

Jamaica.

Paleontology.

- Corals, Cretaceous and Eocene: Wells, 3603.
 Echini: Arnold, 80.
 Strombus dominator delabechei, Miocene: Rutsch, 2910.

Jasper.

- Pennsylvania, Lehigh and Northampton Counties: Myers, 2448.

Joints.

- Cleating in coal: Dapples, 842.
 Minnesota, Snowbank stock: Balk, 150.
 Wyoming, Five Springs Creek area: Wilson, 3721.

Jurassic. See also Paleontology, Jurassic.

- Alberta, Canadian Rockies: Telfer, 3332.
 Central: Allan, 36.
 Crowsnest Pass area: Warren, 3558.
 Fernie shale: Warren, 3560.
 Arizona, Grand Canyon, south rim, Moencopie formation: McKee, 2183.
 British Columbia, Barkerville, Cariboo District: Johnston, 1706.
 Canadian Rockies: Telfer, 3332.
 California Reed, 2714.
 Coast Ranges: Anderson, 68.
 Granitoid intrusives, Klamath Mountains and Sierra Nevada: Hinds, 1517.
 Knoxville-Shasta succession: Anderson, 66, 67.

Jurassic—Continued.

- Mount Jura: Crickmay, 782.
 Northern Sierra Nevada: Jenkins, 1653.
 Redding-Weaverville district: Hinds, 1516.
 Sacramento River basin dam sites: Forbes, 1131.
 Weaverville district: Hinds, 1518.
 Colorado: Kansas Geol. Soc., 1747.
 Breckenridge mining district: Lovering, 2111.
 Central: Lovering, 2110.
 Cuba: Sánchez Roig, 2935.
 Greenland, east: Rosenkrantz, 2815.
 Fleming Inlet area: Noe-Nygaard, 2506.
 Portlandian, Scoresby Sound: Parat, 2569.
 Manitoba, well sections: Wickenden, 3682.
 Mexico, Tehuacan region: Müllerried, 2431.
 Montana, Cinnabar Mountain, Park County: Wilson, 3720.
 Medicine Bow Mountains: Neely, 2459.
 New Mexico: Kansas Geol. Soc., 1747; Winchester, 3747.
 Cerro Tucumcari: Keyes, 1816.
 Oklahoma: Kansas Geol. Soc., 1747.
 Rocky Mountain region: Heaton, 1437.
 Texas: Adkins, 13.
 Unconformities, North America: Crickmay, 784.
 Utah, Moab District: Baker, 131.
 Wasatch Mountains, southern: Eardley, 966.
 Wyoming: Crickmay, 787.
 Owl Creek Mountains: Love, 2107.
 Southwestern, Uinta County: Veatch, 3497.
 Yukon, Laberge area: Lees, 2024.
 Zones: Crickmay, 786.

Kansas.

- Meteorite crater near Brenham: Ninger, 2496.

Economic geology.

- Bartlesville shoestring sands, Greenwood and Butler Counties: Bass, 215; Tarr, 3311.
 Burbank sand, Pennsylvanian: Welrick, 3590.
 Miami-Picher zinc-lead district: Fowler, 1145; Tarr, 3318.
 No gold in Kansas: Kinney, 1892.
 Oil and gas resources: Folger, 1130; Hall, 1373; Koester, 1933.
 Oil and oil structures, Oklahoma-Kansas zinc-lead mining field: Fowler, 1143.
 Oil pools, distribution: Rich, 2748.
 Oklahoma-Kansas mining field, deformation sequence: Fowler, 1146.
 Tri-State district, lead and zinc ores: Fowler, 1142.

Kansas—Continued.

Economic geology—Continued.

Tri-State mining district, chertification: Fowler, 1144.

Voshell field, McPherson County: Hiestand, 1504.

Historical geology.

Bartlesville shoestring sands, Greenwood and Butler Counties: Bass, 215; Tarr, 3311.

Big Blue series, Permian, sedimentation cycles: Elias, 1004.

Bronson group, Pennsylvanian: Jewett, 1673, 1674.

Chert gravels, Lyon County: Wooster, 3780.

Coal fragments, angular, Pennsylvanian, Ottawa: Rich, 2749.

Cross section, geologic, Pennsylvanian and Permian: Kellett, 1763.

Domes in Lincoln and Mitchell Counties, origin: Landes, 1977.

General: Kansas Geol. Soc., 1745, 1747.

Gerlane formation: Knight, 1909.

Grenola formation, east-central Kansas, Pennsylvanian: Condra, 715.

Hunton limestone, McPherson and Harvey Counties: Hall, 1374.

Index to stratigraphy, Kansas and adjoining areas: Ver Wiebe, 3502.

Ness and Hodgeman Counties: Moss, 2424.

Ogallala formation, High Plains: Elias, 1002.

Oil and oil structures, Oklahoma-Kansas zinc-lead mining field: Fowler, 1143.

Oil pools, distribution: Rich, 2748.

Oklahoma-Kansas mining field, deformation sequence: Fowler, 1146.

Pennsylvanian: Moore, 2405.

Reclassification, Mid-Continent region, northern: Moore, 2408.

Permian-Pennsylvanian boundary, Mid-Continent region: Moore, 2414.

Sedimentation cycles, lower Permian: Moore, 2415.

Triassic, limits: Roth, 2840.

Paleontology.

Capromeryx altidens, possible ancestor of Antilocapra americana: Hesse, 1494.

Cephalopods, Pierre formation, Wallace County: Elias, 1001.

Charophyta, Paleozoic and Mesozoic: Peck, 2596.

Cœlacanthus, Pennsylvanian, Anderson County: Hibbard, 1499.

Conodonts and fish remains, Pennsylvanian: Gunnell, 1352.

Cordaitean wood, Pennsylvanian: Steidtmann, 3194.

Crocodylian remains, Dakota sandstone: Mehl, 2273.

Kansas—Continued.

Paleontology—Continued.

Felidae, Pliocene, Sherman County: Hibbard, 1500.

Foraminifera and Ostracoda, Upper Cretaceous: Morrow, 2420.

Fossil "nests", Admire Junction: Schoewe, 2985.

Graptolites, Ordovician: Ver Wiebe, 3503.

Grus nannodes, crane, Pliocene, Sherman County: Wetmore, 3624.

Insects, Permian: Carpenter, 583.

Insects, lower Permian: Carpenter, 585.

Invertebrates, Pennsylvanian: Newell, 2471.

Megasecopterion, Pennsylvanian, Garnett: Carpenter, 586.

Nautiloids, Cherokee, Mid-Continent region: Miller, 2328.

Ostracodes, Pennsylvanian and Permian: Kellett, 1764, 1765.

Portheus molossus Cope: Thorpe, 3387.

Vertebrates, Pleistocene, McPherson County: Harnly, 1407.

Petrology.

Igneous intrusives, Silver City area: Weidman, 3588.

Physical geology.

Fracture patterns in horizontal strata: Melton, 2283.

Physiographic geology.

Caves in loess, Mitchell County: Landes, 1975.

Excavation, meteorite crater, Haviland, Kiowa County: Nining, 2492.

Glacial striae, Doniphan County: Schoewe, 2984.

Marais des Cygne River: Landes, 1978.

Underground water.

Scott and Finney Counties: Moss, 2423.

Subsurface water, characteristics: Case, 596.

Kaolin.

Halloysite and allophane: Ross, 2819.

Idaho, Inland Empire: Wilson, 3726.

Illinois, Anna: Piersol, 2625; Grim, 1330.

Saskatchewan, southern Whitemud beds: Fraser, 1150.

Washington, Inland Empire: Wilson, 3726.

Kentucky.

Magnetic vector study: Jenny, 1668.

Economic geology.

Asphalt deposits, origin: Russell, 2900.

Big Sinking pool, Lee County: Jones, 1723.

Borings: Meacham, 2269.

Eastern interior coal basin, oil and gas reservoirs: Bell, 248.

Janet gas field, Powell County: Russell, 2904.

Oil and gas: Billingsley, 305; St. Clair, 2925.

Kentucky—Continued.

Economic geology—Continued.

Oil and gas north of Sebree, Henderson and Webster Counties: Russell, 2902.

Oil and gas pools, Hart County: Russell, 2903.

Oolitic limestone, Bowling Green: Roberts, 2776.

Owensboro oil field, western Kentucky: Shlarella, 3066.

Petroleum, origin: Russell, 2906.

Historical geology.

Asphalt region: Russell, 2900.

Maysville-Richmond boundary: Shideler, 3068.

Mill Springs, area: Knapp, 1906.

Paleontology.

Archaeopteryx eastmanii, Carboniferous: Scott, 3007.

Crinoidea: Bassler, 217.

Pteridosperms, Carboniferous: Seward, 3036.

Xyloides rugosus, Niagaran coral: Smith, 3133.

Physical geology.

Cumberland thrust block: Rich, 2754.

Physiographic geology.

Cincinnati region, Pleistocene: Brand, 385.

Cumberland Gap: Rich, 2750.

Ohio River, evolution: Fowke, 1141.

Pre-Illinoian glaciation, Cincinnati region: Desjardins, 899.

Koyukuk valley region, Alaska: Marshall, 2219.

Kyanite.

North Carolina: Dunn, 950.

Wyoming, Encampment district: Beckwith, 237.

Labrador.

Petrology.

Diabase dikes: Wheeler, 3645.

Physiographic geology.

Mountains: Odell, 2516.

Laccoliths. See also Intrusions.

Wyoming, Deer Creek, Park County: Rouse, 2851.

Lakes.

Atitlan, Guatemala: Atwood, 98.

California: Davis, 857.

Massachusetts, rounded lakes and lagoons in coastal plain: Raisz, 2688.

Virginia, Mountain Lake, origin: Sharp, 3038.

Lakes, extinct. See also Glacial lakes.

California, Lake Manly, Death Valley: Blackwelder, 319.

Long Valley Pleistocene lake: Mayo, 2268.

6022°—35—21

Lakes, extinct—Continued.

Lake San Augustin, New Mexico: Powers, 2658.

New York, Cayuga Valley, lake history: Fairchild, 1043.

Utah, Lake Bonneville, Ogden Valley: Leggette, 2033.

Lakes, glacial. See Glacial lakes.

Lamellibranchiata. See Pelecypoda.

Landslides.

Colorado, rockslide, Durango, La Plata County: Vanderwilt, 3473.

Lavas. See also Intrusions.

Arizona, San Francisco Mountains, peripheral lava flows: Colton, 713.

Block lava: Finch, 1094.

Colorado and New Mexico, San Juan region, viscosity: Ross, 2824.

Hawaii, crystal cavities in lava: Dunham, 948.

New Mexico, Malpais, Carrizozo: Just, 1739.

Slump scarps: Finch, 1093.

Viscosity: Ross, 2824.

Washington, Columbia River lavas: Fuller, 1189.

Lead: Jackson, 1639.

Arizona, Yuma County, southern: Wilson, 3723.

British Columbia, Brisco-Dogtooth area: Evans, 1032.

Cranbrook area: Cairnes, 536.

Slocan mining camp area: Cairnes, 537.

California, Panamint Range: Sampson, 2929.

Colorado, Breckenridge mining district: Lovering, 2111.

Idaho, Coeur d'Alene district: Hershey, 1478; Warren, 3556.

Dome mining district, Butte County: Ross, 2833.

Mesothermal deposits: McKnight, 2189.

Mexico, El Limon, Balsas, Guerrero: Santillán, 2944.

Fresnillo mines: Landenberger, 1973.

Los Lamentos mine, Chihuahua: Fosbarg, 1136.

Mississippi Valley, temperature of formation: Newhouse, 2474.

Missouri, Silver Mine area, Madison County: Tolman, 3394.

Montana, metalliferous deposits, Helena region: Pardee, 2570.

Nevada, Tybo District: Ferguson, 1064.

New Mexico, Sierra County: Harley, 1404.

Oklahoma-Kansas mining field: Fowler, 1146.

Oklahoma, Miami-Picher zinc-lead district: Tarr, 3313.

Lead—Continued.

Quebec, Gaspé Bay and Marsui River: Jones, 1726.

Texas, central mineral region: Baker, 135.

Tri-State district: Fowler, 1142, 1145; Tarr, 3318.

Tri-State mining district, certification: Fowler, 1144.

Zinc and lead, Upper Mississippi Valley, micography: Banfield, 158.

Life processes: Staley, 3167.

Lignite. See also Coal.

Ontario: Miller, 2319.

Lignite and refractory clay, Onakawana region: Dyer, 958.

Northern: Ontario Research Foundation, 2529.

Limestone.

California, San Francisco region: Eckel, 980.

Canada: Goudge, 1286.

Maritime provinces: Goudge, 1287.

Kentucky, oolitic limestone, Bowling Green: Roberts, 2776.

Minnesota: Stauffer, 3175.

Pennsylvania: Miller, 2331.

Lindgren volume: Am. Inst. Min. and Met. Eng., 52.

Lithium.

Colorado, lepidolite deposit: Eckel, 978.

Lithology. See Petrology.

Loess: Keyes, 1791.

Iowa, Loveland loess, diversity: Keyes, 1859.

Massachusetts: Smith, 3115.

Measure of accumulation: Keyes, 1842.

Missouri, St. Charles: Oefelein, 2518.

Origin: Hobbs, 1531.

Rate of deposition: Keyes, 1833.

Louisiana.

Bibliography: Dunbar, 947.

Guidebook, Southern Pacific Lines, New Orleans to Los Angeles: Darton, 848.

Areas described.

Lafayette and St. Martin Parishes: Howe, 1579.

Economic geology.

Converse oil field, Sabine Parish: Easton, 973.

Gulf coast oil horizons: Deussen, 902.

Gulf coast region: Vanderpool, 3468.

Mineral resources 1930-31: Shaw, 3040.

Oil and gas recent developments, Gulf coast: Eby, 977.

Oil and salt, Lafayette and St. Martin Parishes: Howe, 1579.

Report of division of minerals: Shaw, 3039, 3041.

Salt-dome possibilities: Steinmayer, 3195.

Louisiana—Continued.

Economic geology—Continued.

Salt, overhanging, on salt domes: Judson, 1737.

Valentine (LaRose) dome, Lafourche Parish: Buchanan, 460.

Historical geology.

Caldwell and Catahoula Parishes: Shreveport Geol. Soc., 3075.

Gulf coast oil horizons: Deussen, 902.

Gulf coast syncline: Barton, 210.

Iberian structural axis: Barton, 206.

Life and climate, primeval Louisiana: Glenk, 1262.

Salt domes, mechanics: Barton, 208.

Tertiary: Howe, 1578.

Mineralogy.

Anhydrite cap rock, minerals, Winfield salt dome: Barnes, 194.

Salt dome cap rock minerals: Hanna, 1389.

Paleontology.

Bitubulogenerina, Eocene: Howe, 1583.

Caldwell and Catahoula Parishes: Shreveport Geol. Soc., 3075.

Cytherelloidea, Tertiary ostracode genus: Howe, 1580.

Foraminifera: Cushman, 819.

Jackson Eocene: Howe, 1577.

Moody Branch marl, Jackson Eocene: Gravell, 1306.

Ostracoda, Sabine Eocene, northwest Louisiana: Howe, 1582.

Physical geology.

Log jams, Red River: Guardia, 1350.

Sedimentation in Red River below mouth of Ouachita: Jones, 1733.

Lower Silurian. See Ordovician.

Magnetite. See Iron.

Magmas and magmatic differentiation. See also Igneous and volcanic rocks; Intrusions; Laccoliths; Lavas: Daly, 836; Fenner, 1054; Lindgren, 2061.

Basaltic magmas, differentiation: Kennedy, 1779.

British Columbia, Shuswap terrane: Brock, 408.

Colorado, Iron Hill alkaline rocks: Larsen, 2002.

Contamination of acid magmas: Nockolds, 2498.

Differentiation in lava flows: Broderick, 411.

Granitic batholiths, basal regions: Emmons, 1027.

Granitic rocks, derivations: Collins, 709.

Magmatic segregations: Singewald, 3103.

Magmatic wedge: Delury, 891.

Montana, Boulder batholith: Jones, 1731.

Reactions in molten magmas: Howe, 1587.

Magma and magmatic differentiation—Con.
 Spillite and average metabasalt: Fairbairn, 1041.
 Viscosity of liquids: Gibson, 1238.
 Viscosity, silicate melts: Bowen, 361.
 Waves: Lay, 2020.
 Western States: Bowen, 357.

Magnetite.

British Columbia, Clinton, Cariboo District: Cockfield, 687.
 Cranbrook area: Cairnes, 536.
 Canada: Wilson, 3732.
 Nevada, Paradise Range, Nye County, Brucite area: Callaghan, 539.

Maine.

Historical geology.

Fitchburg granite, age: Lane, 1987.
 Geologic map: Keith, 1757.
 Granites: Keith, 1758.

Mineralogy.

Graphite in pegmatite: Fisher, 1106.
 Mount Apatite: Fisher, 1105.
 Paris area: Cloud, 674.
 Pleasant Mountain, heavy minerals in seyenites: Jenks, 1662.
 Ragged Jack Mountain: Fisher, 1104.
 Stalactites, growth, near Lewiston: Fisher, 1107.
 Topaz and herderite, Topsham: Burbank, 482.
 Topaz deposit, Topsham: Palache, 2556.

Paleontology.

Crinoid, *Rhodocrinus mortoni*, Devonian (Oriskany): Goldring, 1269.

Petrology.

Graphite in pegmatite: Fisher, 1106.
 Pleasant Mountain, alkaline stock: Jenks, 1663.
 Ragged Jack Mountain: Fisher, 1104.
 Rhyolite: Smith, 3112.

Physical geology.

Slip faulting: Squires, 3161.

Physiographic geology.

Damariscotta shell heaps and coastal stability: Goldthwait, 1272.
 Eskers, origin: Perkins, 2604.
 Wisconsin glaciation: Perkins, 2603.

Mammalia.

Amblypoda, relationships: Patterson, 2590.
 Amblyrhiza, Pleistocene, St. Martin: Schreuder, 2991.
 Amebelodon fricki, Nebraska: Barbour, 164.
 Tusks, Nebraska: Barbour, 163.
 Amebelodon sinclairi, Freedom, Nebraska: Barbour, 166.
 Amynodont skull, Sespe beds, Simi Valley, California: Stock, 3236.
 Antilocaprine, Pleistocene, Arizona: Roosevelt, 2806.
 Apternodus brevirostris, Oligocene, Wyoming: Schlaikjer, 2975.

Mammalia—Continued.

Apternodus gregoryi, insectivore, Oligocene, Wyoming: Schlaikjer, 2974.
 Artiodactyls, Tertiary, Nebraska: Barbour, 187.
 Bassariscus, Pliocene, Nebraska: Hibbard, 1498.
 Bat, Pleistocene, Florida: Allen, 42.
 Blarina gidleyi, Pliocene, Idaho: Gazin, 1212.
 Brain casts, Tertiary: Tilney, 3390.
 British Columbia, Eocene: Russell, 2894.
 California, mammalian fauna, Carpinteria asphalt deposits: Wilson, 3736.
 North Coalinga district, anchitheriine horses: Bode, 338.
 Merychippine horses: Bode, 337.
 Northern Tehama fauna: Vander Hoof, 3463.
 Pleistocene: Vander Hoof, 3467.
 Rodent fauna, Carpinteria asphalt deposits: Wilson, 3735.
 Tertiary auriferous gravels: Merriam, 2293.
 Camel, giant, Pleistocene, Nebraska: Barbour, 183.
 Miocene, Nebraska: Brown, 415.
 Canidae, dentition: Wood, 3753.
 Capromeryx altidens, possible ancestor of Antilocapra americana: Hesse, 1494.
 Carnivora, Sespe Oligocene, California: Stock, 3238.
 Castoroides ohioensis: Cahn, 535.
 Cats of Rancho La Brea: Merriam, 2292.
 Sabre-tooth, Oligocene, South Dakota and Wyoming: Jepsen, 1672.
 Cetothere, Miocene, California: Kellogg, 1767.
 Miocene, Oregon: Packard, 2549.
 Classification, new: Simpson, 3090.
 Colorado, Titanoides: Patterson, 2589.
 Cosomys, Pleistocene, California: Hinton, 1522; Wilson, 3734.
 Creodontia, Sespe, upper Eocene, California: Stock, 3245.
 Dental evolution: Simpson, 3096.
 Diceratherium armatum, Gallatin County, Montana: Wood, 3764.
 Edentates, Pleistocene, Florida: Holmes, 1558.
 Elephant, Pleistocene, Nevada: Stock, 3229.
 Pleistocene, Texas: Shuler, 3081.
 Pliocene, Mexico: Müllerried, 2432.
 Elephas imperator, Oklahoma: Stovall, 3267.
 Fremont: Pontier, 2646.
 Elephas primigenius, Pleistocene, Utah: Hansen, 1390.
 Elk head, Iowa: Cable, 530.

Mammalia—Continued.

- Entelodonts, Miocene, South Dakota and Nebraska: Loomis, 2092.
- Eomellivora, Kern River Pliocene, California: Stock, 3231.
- Eohippus, Merychippus and Hesperosiren, mounted skeletons: Simpson, 3093.
- Eporeodon thurstoni, California: Stock, 3246.
- Equidae, Miocene and Pliocene, phylogeny: Stirton, 3226.
- Eubelodon morrilli, Brown County, Nebraska: Barbour, 176.
- Felidae, Pliocene, Idaho: Gazin, 1214. Pliocene, Kansas: Hibbard, 1500.
- Florida, Pleistocene: Simpson, 3088. Tertiary: Simpson, 3089.
- Giant beaver, Pleistocene, Nebraska: Barbour, 169.
- Glossary and correlation of formations: Simpson, 3094.
- Grand View, Owyhee, Idaho: Furlong, 1194.
- Hares, Pliocene, Idaho: Gazin, 1216.
- Heptodon, Muddy Creek, Tertiary, Wyoming: Seton, 3034.
- Heteromyid rodent, Oligocene, Montana: Wood, 3754.
- Phylogeny: Wood, 3752.
- Horse skull from Rancho La Brea, California: Antonius, 76.
- Hyaenodontidae, Sespe beds, Simi Valley, California: Stock, 3234.
- Hyaenognathus, Pleistocene, California: Stock, 3230.
- Hyracops socialis Marsh: Thorpe, 3386.
- Indiana: Lyon, 2133.
- Lagomorphs, Oligocene, Wyoming: Walker, 3540.
- Mammoth, Pleistocene, Illinois: Baker, 143.
- Maryland, Cumberland Cave, Pleistocene fauna: Gidley, 1241.
- Mastodon, American, with mandibular tusks: Barbour, 168.
- Garrett, Indiana: Simpson, 3100.
- Pleistocene, Nebraska: Barbour, 173.
- Point Marion, Pennsylvania: Price, 2665.
- Tusk, Iowa: Cable, 531.
- Trilophodont-tetrabelodont: Frick, 1164.
- Mastodon grangeri, Pleistocene, Nebraska: Barbour, 182.
- Mastodon moodiei, Pleistocene, Nebraska: Barbour, 177.
- Mastodonts, shovel-tusked: Gregory, 1320.
- Megabelodon hulli, Nebraska: Barbour, 186.
- Meniscotherium robustum, Wyoming: Thorpe, 3386.
- Merychippine horses, tooth characters: Bode, 336.

Mammalia—Continued.

- Merychippus, Miocene, Saskatchewan: Russell, 2888.
- Metacheiromys and Edentata, Wyoming: Simpson, 3091.
- Microsyopsinae and Hyopsodontidae, Sespe, California: Stock, 3244.
- Mimmomys primus, Pliocene, California: Hesse, 1492.
- Mint Canyon, Pliocene, California: Stirton, 3225.
- Miocene and Pliocene, North America and Asia: Teilhard de Chardin, 3331.
- Montana, Deep River beds: Matthew, 2254.
- Musk ox, Pleistocene, Mississippi: Hay, 1430.
- Pleistocene, Nebraska: Barbour, 174.
- Mustelid, Tertiary, Oregon: Hall, 1363.
- Pliocene, Idaho: Gazin, 1218.
- Myloodon harlani, Mexico: Muellerried, 2435.
- Pleistocene, Arizona: Brady, 374.
- Mytonolagus petersoni, Eocene, Utah: Burke, 496.
- Nevada, Clark County: Simpson, 3098.
- Nothotherium, Pleistocene, California: Moodle, 2382.
- Oreodonts, Miocene, Nebraska: Barbour, 179.
- South Dakota: Loomis, 2095.
- Wyoming: Schlaikjer, 2976.
- Ornithomimus edmonticus, Alberta: Sternberg, 3209.
- Osteoborus, Texas: Stirton, 3224.
- Ovibovine, Pleistocene, Nebraska: Barbour, 184.
- Palaeolagus haydeni Douglas, Wyoming: Dice, 904.
- Paleocene, Alberta: Russell, 2886.
- Pelurocyon, Sespe Eocene, Simi Valley, California: Stock, 3235.
- Perissodactyla, Sespe, Las Posas Hills, California: Stock, 3237.
- Platybelodon barnumbrowni, Nebraska: Barbour, 178.
- Pleistocene, Nebraska: Schultz, 3002.
- Pliohippus tantalus, California: Vanderhoof, 3462.
- Prairie-dog, Pleistocene, Oklahoma: Wood, 3755.
- Primate, Eocene, Ventura County, California: Stock, 3239, 3242.
- California: Stock, 3241.
- Proboscidea, evolution: Osborn, 2532, 2537.
- Evolution and geographic distribution: Osborn, 2556.
- Proboscidian remains, Glenwood, Iowa: Rowe, 2855.
- Procaenopus, Oligocene, Colorado: Figgins, 1087.
- Protostrix, n. g., for Aquila lydekkeri: Wetmore, 3638.

Mammalia—Continued.

- Pseudaelurus*, Miocene, Nevada: Stock, 3248.
Rhinoceros, Oligocene, Colorado: Barbour, 185; Figgins, 1089; Wood, 3763.
 Rodent fauna, Grand View and Hagerman, Idaho: Wilson, 3737.
 Rodents, Eocene, Utah: Burke, 495.
 Sabre-tooth tiger, Pleistocene, California: Moodie, 2391.
 Saskatchewan, Cypress Hills, Oligocene: Russell, 2896.
 Mammalian fauna, upper Eocene, Swift Current: Russell, 2889.
Schizodelphis bobengi (dolphin), Florida: Case, 591.
Serbelodon burnhami, Pliocene, California: Osborn, 2533.
Simimeryx hudsoni, Eocene, California: Stock, 3247.
Sirenia, Tertiary, Florida: Simpson, 3092.
Smilodon californicus, Pleistocene, California: Moodie, 2380.
 Snake Creek quarries, Tertiary, Nebraska: Matthew, 2253.
 South Dakota, camel: Bump, 480.
Nannotrachelus: Loomis, 2094.
Tapirus haysii, Oklahoma: Stovall, 3266.
Taurotragus americanus, Maryland, Pleistocene, renamed *Euceratherium* (?) *americanum*: Gazin, 1213.
 Texas, Hemphill County: Reed, 2713.
Titanoides, Colorado: Patterson, 2590.
Titanotheres, growth: Hersh, 1477.
 Uinta Eocene, Utah: Peterson, 2618.
Titanotherium, Oligocene, Nebraska: Barbour, 175.
Torynabelodon barnumbrowni Pliocene, Nebraska: Barbour, 171.
Torynabelodon loomisi, Nebraska: Barbour, 165.
 Trituberculy: Gregory, 1321.
 Types of *Aquila antiqua* and *Aquila ferox*: Wetmore, 3644.
 Uinta Basin, Oligocene, Utah: Peterson, 2617.
 Utah, Eocene *Lagomorpha*: Burke, 494.
 Vertebrates, Pleistocene, Kansas: Harnly, 1407.
 West Virginia, Pliocene: Brooks, 413.
Zarhachis flagellator, porpoise, Eocene, Maryland: Kellogg, 1766.
 Man, fossil: Bishop, 310; Gregory, 1322.
 Antiquity of man in America: Nelson, 2462.
 In New World: Smith, 3125.
 In North America: Merriam, 2294.
 In Southwest: Stock, 3240.
 Arrow points with *Bison occidentalis*, Nebraska: Barbour, 180; Meserve, 2301.
 Early man: Bullitt, 479.

Man, fossil—Continued.

- Evolution: Romer, 2800.
 Folsom culture evidence, Nebraska: Figgins, 1088.
 New Mexico: Brown, 421.
 Indian, La Jolla Shores, California: Moodie, 2378, 2379.
 Minnesota, Pleistocene homo: Jenks, 1660, 1661; Thiel, 3355.
 Nebraska localities: Schultz, 3001.
 Scottsbluff bison quarry: Barbour, 181.
 New Mexico, artifacts associated with mammoth and bison: Howard, 1569.
 Oklahoma, Frederick, artifacts: Cook, 724.
 Piro Indians, New Mexico: Moodie, 2392.
 Pleistocene: Romer, 2802.
 Pre-Pueblo Indians, New Mexico: Moodie, 2385.
 Wild County, Colorado: Figgins, 1086.
 Mangnese.
 Colorado, Sunnyside veins, Eureka Gulch: Burbank, 486.
 Oriskany ore: Holden, 1530.
 St. Pierre and Miquelon Islands: Albert de la Rue, 109.
 Western States: Hewett, 1495.
 Hydrothermal deposits: Hewett, 1496.
 Manitoba.
 Granville Lake area, northern Manitoba: Norman, 2508.
 Economic geology.
 Flinlon district, gold: Wright, 3797.
 Gold: McLaren, 2190.
 Mineral prospecting: Goodwin, 1278.
 Oil and gas: Hume, 1615.
 Historical geology.
 Jurassic in borings: Wickenden, 3680.
 Oxford House sheet: Can. G. S., 570.
 Paleozoic and Jurassic formations in well sections: Wickenden, 3682.
 Pas sheet: Can. G. S., 572.
 Petrology.
 Genesis of pegmatites: Stockwell, 3251.
 Lithium pegmatite, Bear mineral claim: Stockwell, 3250.
 Physical geology.
 Glaciation: Antevs, 74.
 Underground water.
 Winnipeg area: Johnston, 1710.
 Maps. See Geologic maps; Relief maps.
 Map making. See Cartography.
 Marble.
 Marble belt, Vermont: Bain, 124.
 North Carolina: Stuckey, 3281.
 Tennessee, Asbury, Holston marble: Walls, 3543.
 Vermont: Perkins, 2605.
 Virginia, Giles County: Mathews, 2235.

Markings on rocks.

- Arthraia-like markings: Fenton, 1060.
 Hail prints and mud cracks, Proterozoic: Fenton, 1058.
 Mud cracks and hail prints, Proterozoic: Fenton, 1058.

Marls.

- Minnesota: Stauffer, 3175.

Marshes.

- New York, Long Island, salt marshes, formation: Knight, 1916.

Martinique.

Physical geology.

- Mt. Pelée, dome: Arsandaux, 88.
 Eruption 1929: Arsandaux, 90.
 Secondary dome: Arsandaux, 89.

Maryland.

Historical geology.

- Appalachian region: Stose, 3260.
 Atlantic Coastal Plain and Piedmont province: Jonas, 1717.
 Baltimore & Ohio route: Grimsley, 1331.
 Blue Ridge: Stose, 3262.
 Chesapeake Bay region: Stephenson, 3203.
 Ellicott City granite: Cloos, 665.
 Geological map: Mathews, 2238.
 Miocene formations: Dryden, 939.
 Southern Appalachian region: Butts, 513.
 Southern Maryland: Cooke, 729.
 Tertiary formations: Dryden, 937.

Mineralogy.

- Ankerite, Bethesda: Ulke, 3440.

Paleontology.

- Archaeomonas, Tertiary diatoms: DeLandre, 878.
 Birds, Miocene: Wetmore, 3618.
 Bonasa umbellus, ruffed grouse Pleistocene: Wetmore, 3620.
 Cypress swamp, Talbot, Greenbury Point: Berry, 268.
 Mammalia, Pleistocene, Cumberland Cave: Gidley, 1241.
 Marine mammals, Calvert Cliffs: Kellogg, 1766.
 Miocene foraminifera, Coastal Plain: Cushman, 818.
 Ophiura, Miocene and Recent, Calvert County: Berry, 267.
 Taurotragus americanus, Pleistocene, Cumberland Cave: Gazin, 1213.
 Walnut, Miocene: Berry, 279.
 Xenohelix, Miocene: Dryden, 936.

Petrology.

- Ellicott City granite: Cloos, 665.

Physiographic geology.

- Chambersburg (Harrisburg) peneplain, Piedmont: Campbell, 554.

Massachusetts.

Areas described.

- Cape Cod region: Woodworth, 3779.

Massachusetts—Continued.

Historical geology.

- Connecticut Valley: Kitson, 1900.
 Triassic belt: Longwell, 2085.
 Wachusett-Coldbrook tunnel: Larsen, 1998.

Mineralogy.

- Hawley mineral belt: Perry, 2606.

Paleontology.

- Gay Head, Miocene: Sanford, 2942.

Physical geology.

- Changes in level, glacial: Brown, 432.
 Medford diabase, weathering: Lane, 1985.

- Pre- or post glacial?: Billings, 302.
 Pebbles, wind-faceted, Nantucket glacial drift: Matthes, 2249.

Physiographic geology.

- Connecticut Valley, Pleistocene: Flint, 1116.
 Drumlins and glacial clay, Boston Basin: Crosby, 804.
 Ice-sheet, retreat: Brown, 433.
 Lakes and lagoons, rounded, coastal plain: Raisz, 2688.
 Lakes Hadley and Montague, glacial, Connecticut Valley: Brown, 435.
 Loess near Boston: Smith, 3115.
 Millers River valley: Brown, 431.
 Nashua and Millers Rivers valleys: Brown, 434.
 Shore lines, glacial: Crosby, 807.

Meetings. See Associations.

- International Geological Congress, 16th Meeting, Washington, 1933: Armand, 2738.

Mercury. See Quicksilver.

Mesozoic (undifferentiated).

- Geologic formations: Alcock, 21.
 North America geologic formations: Shimer, 3071.

Mesozoic systems, distribution and thickness: Ver Wiebe, 3504.

Metacheiromys and the Edentata: Simpson, 3091.

Metamorphic rocks.

- Classification: Van Amringe, 3458.
 New England, southern, age correlation: Foye, 1147.

Metamorphism.

- British Columbia, Shuswap terrane: Brock, 408.
 Shuswap terrane, mineral orientation: Gilluly, 1251.
 California, Lassen Volcanic National Park lavas, alteration: Anderson, 64.
 Colorado, Leadville district: Loughlin, 2106.
 Connecticut, diorite, Brookfield: Agar, 18.
 Cuba, serpentinization: Chawner, 636.
 Deseritization: Landon, 1980.

Metamorphism—Continued.

- Ferric-ferrous ratio, contact-metamorphic deposits: Lasky, 2005.
 Galena, alteration to anglesite and to cerussite: Swartzlow, 3289.
 Georgia, mylonites: Crickmay, 790.
 Idaho, Cassia batholith, contact phenomena: Anderson, 56.
 Massachusetts, Wachusett-Coldbrook tunnel: Larsen, 1998.
 Michigan, Republic granite, metamorphic effects: Lamey, 1968.
 Minnesota, slates: Grout, 1339.
 Oregon, Sparta: Gilluly, 1249.
 Pennsylvania, Lower Kittanning coal bed: Stadnichenko, 3163.
 Pyroclastics, zeolitic alteration: Bramlette, 382.
 Replacement of dikes and sills: Goodspeed, 1275.
 South Dakota, Homestake gold formation: Gustafson, 1358.
 Tectonic metamorphism, southern Appalachians: Becker, 235.
 Ultrabasic intrusions, alteration: Hess, 1491.
 Ultrametamorphism and anatexis: Sed-erholm, 3025.
 Vermont, calcite marble, origin: Bain, 124.
 Rutland area: Foyles, 1148.
 Virginia, ultrabasic intrusives, Schuyler: Hess, 1490.

Meteor craters.

Meteor Crater, Arizona: Spencer, 3156.

Meteorite scars (?), South Carolina: Johnson, 1687.

Meteorites: Chapman, 633; Leonard, 2046; Nininger, 2487; Reeds, 2720.

Age: Fisher, 1110; Öpik, 2519.

Arizona, Meteor Crater: Russell, 2885.
 Formation: Wylie, 3859.

Athens, Alabama: Wylie, 3808.

Bacteria in meteorites (?): Farrell, 1049; Lipman, 2066.

None: Nininger, 2489.

Brenham, Kansas: Nininger, 2496.

Cape York meteorites: Figgins, 1085.

Cherokee Springs, South Carolina: Perry, 2613, 2614.

Clarion County, Pennsylvania: Stone, 3255.

Collections, Philadelphia Academy of Sciences: Gordon, 1281.

Cotesfield, Nebraska: Nininger, 2488.

Distribution: Penniston, 2000.

Formation of meteor craters: Wylie, 3809.

Frequency of meteoric falls: Fisher, 1109.

Grant and Santa Fe, New Mexico: Henderson, 1460.

Harding County, New Mexico: Wylie, 3805.

Meteorites—Continued.

Haviland, Kansas: Nininger, 2492.

Kansas, excavation meteorite crater, Haviland, Kiowa County: Nininger, 2492.

Lanton, Howell County, Missouri: Culison, 811.

Maxapil, Mexico, 3806.

Melrose, New Mexico: Nininger, 2495.

Meteor craters: Nininger, 2493.

Meteorite scars, (?) North and South Carolina: Melton, 2281; Wylie, 3807; Cooke, 734, 735.

Nature and significance: Palmer, 2560.

Nininger collection: Anonymous, 3826.

Odessa, Texas: Nininger, 2494.

Pennsylvania: Stone, 3256.

Pinon, Melrose, and Pojoaque, New Mexico: Nininger, 2491.

Pojoaque, New Mexico: Nininger, 2490.

San Francisco Mountains, Arizona: Perry, 2615.

Sioux County, Nebraska, August 8, 1933: Barbour, 188.

Texas, north: King, 1888.

Mexico.

Geological Survey, annual report: Santillán, 2943.

Sierra Madre de Chiapas: Walbel, 3532.

Areas described.

Salazar district, Michoacan: Nuñez, 2511.

Economic geology.

Asphalt, Tampico oil field, Chapopote, Cretaceous: Müllerried, 2429.

Beryl and beryllium: Santillán, 2946.

Cupriferous pyrite ore bodies, Campo Morado: Flores, 1120.

El Limon, Balsas, Guerrero: Santillán, 2944.

Geophysical prospecting: Waitz, 3535.

Limestone reservoir rocks in oil fields: Muir, 2439.

Los Lamentos mine, Chihuahua: Foshag, 1136.

Mineral deposits: Flores, 1119.

Mining geology at Sonora: Perry, 2616.

Petroleum: Brunet, 446.

Petroleum and natural gas: Ordóñez, 2530.

Platinum: Santillán, 2945.

Poza Rica district, Veracruz: Villatoro, 3509.

Providence district, Guanajuato: Villafañá, 3507.

Silver-lead mines, Fresnillo: Landenberger, 1973.

Historical geology.

Acatita and Las Delicias areas, Coahuila: Kelly, 1776.

Baja California, coastal plain: Vivar, 3512.

Mexico—Continued.

Historical geology—Continued.

Coahuila and Durango, Laguna district, mountains west of: Kellum, 1768.

Southwestern, Permian: King, 1890.

Comales, Ozuama, Veracruz: Villatoro, 3508.

Correlation of lower Oligocene, South and Central America and Mexico: Dorr, 923.

Julian region: Donnelly, 917.

San Quintin Bay, Lower California: Manger, 2207.

Sonora, central, reconnaissance: King, 1891.

Northern, Upper Cretaceous sediments: Taliaferro, 3301.

Tampico, district, middle Oligocene: Thalmann, 3351.

Tecocomulco Valley, State of Hidalgo: Vivar, 3511.

Tehuacan region, Puebla: Müllerried, 2431.

Mineralogy.

Mazapil meteorite, temperature: Wylie, 3806.

Garnets, Sierra Tlayacac, Morelos: McConnell, 2143.

Strontianite, Sierra Mojada: Krieger, 1945.

Paleontology.

Ammonite fauna, Turonian: Adkins, 12.

Cardium ochoterenai, Tlaxiaco, Oaxaca, Cretaceous: Müllerried, 2433.

Echinoid, Eocene, Tamaulipas: Israel-sky, 1637.

Elephant, Pliocene, Valley of Mexico: Müllerried, 2432.

Gastropods, Tertiary, Isthmus of Tehuantepec: Gardner, 1210.

Hantkenina, Eocene: Thalmann, 3343.

Lepidocyclus, Vaughan, 3495.

Lepidocyclus cancelli, Oligocene, Toba-sco: Thalmann, 3348.

Miogypsina, Oligocene: Nuttall, 2512.

Tertiary: Thalmann, 3342.

Mollusks, Pleistocene, Tres Marias Is-lands, Cedros Island, and San Ig-nacio Lagoon: Hertlein, 1483.

Mylodon harlani, Valley of Mexico: Müllerried, 2435.

Pachydonts, American, relation to European: Müllerried, 2428.

Pelecypods, gigantic, from Chiapas, Cretaceous: Müllerried, 2434.

Plagioptychus, Cretaceous, Chiapas: Müllerried, 2430.

Pliocene fauna and Miocene diato-mite, Turtle Bay, Lower Califor-nia: Hertlein, 1481.

Psammomulus mexicanus, Miocene, Santa Rosa, Vera Cruz: Collins, 707.

Mexico—Continued.

Paleontology—Continued.

San Quintin Bay, Lower California: Manger, 2207.

Tehuacan region, Puebla: Müllerried, 2431.

Petrology.

Lower California: Hirschi, 1525.

Pilares Pipe, Sonora, origin: Smithe, 3139.

Sierra Madre de Chiapas: Waibel, 3532.

Teschenite sills at El Mulato: Watson, 3574.

Physical geology.

Bay of Acapulco, relation to earth-quakes: Sánchez, 2931.

Earthquakes: Salazar Salinas, 2926.

El Bernal de Horcasitas, Tampico: Heim, 1449.

El Chicon, Yucatan, eruption: Mül-lerried, 2427.

Seismic activity, June 1932: Ordóñez, 2531.

Physiographic geology.

General: Baker, 139.

Underground water.

Baja California, coastal plain: Vivar, 3512.

Mica.

New Hampshire, Grafton, Ruggles mine: Burbank, 481.

Nova Scotia: Messervey, 2304.

Michigan.

Magnetic vector study: Jenny, 1668.

Economic geology.

Geothermal measurements, copper dis-trict: Fisher, 1103.

Lake Superior region: Hotchkiss, 1563.

Iron: Broderick, 410.

Magnetic data, use in iron ranges: Swanson, 3285.

Martite, formation, Marquette District: Wienert, 3688.

Mineral products: Osgood, 2544.

Oil and gas fields: Newcombe, 2469.

Petroleum in Michigan basin: New-combe, 2470.

Historical geology.

Dundee limestone, southeastern Michi-gan: Bassett, 216.

Oil and gas fields: Newcombe, 2469.

Palmer gneiss, Huronian: Lamey, 1969.

Pennsylvanian, Grande Ledge: Kelly, 1774.

Republic granite, intrusive relations: Lamey, 1967.

Upper Huronian, Marquette and Cryst-al Falls districts, correlation: Zinn, 3818.

Upper Peninsula, Cambrian in bor-ings: Thwaites, 3389.

Mineralogy.

Marshall formation: Stearns, 3186.

Radium content of. Keweenawan ba-salts: Urry, 3451.

Michigan—Continued.

Mineralogy—Continued.

Sussexite, Iron County: Slawson, 3109.
 Tourmaline, authigenic, Lower Devonian: Alty, 48, 50.

Paleontology.

Antrim shale, plants, Alpena County: Clark, 653.

Brachiopods, Grand Traverse region, Middle Devonian; revision: Ehlers, 991.

Flora, coal basin: Arnold, 85.

Ostracoda, Transverse group: Warthin, 3564.

Bell shale, Devonian: Van Pelt, 3481.

Pennsylvanian mollusca: Kelly, 1775.

Sphenopterid fructification, Pennsylvanian: Arnold, 83.

Petrology.

Devonian: Eddy, 983.

Grünerite, Mt. Humboldt: Sundius, 3282.

Marshall formation: Stearns, 3186.

Radium content of Keweenaw basalts: Urry, 3451.

Sylvania rocks in oil wells: Alty, 49.

Physical geology.

Republic granite, metamorphic effects: Lamey, 1968.

Physiographic geology.

Crystal Falls-Iron River district: Bergquist, 260.

Glacial till, variations: Krumbein, 1946.

Microhardness of minerals comprising Mohs scale: Hodge, 1542.

Middletown quadrangle, Pennsylvania: Stose, 3261.

Military geology in time of war: Cron, 791.

Mineral deposits: Lindgren, 2060.

Mineral resources (general). See also Economic geology under the names of the States; Leith, 2041.

Alaska: Smith, 3126, 3129, 3130.

Boulder dam region: U. S. Geol. Survey, 3450.

British Columbia, Peace River area: Williams, 3712.

California, Madera County, northeastern: Erwin, 1030.

Canadian Shield: Bruce, 438.

Civilization, mineral: Read, 2710.

Colorado, San Juan region: Seaman, 3015.

Florida, mineral production, 1930–1932: Gunter, 1356.

Idaho, mining industry, 1932: Campbell, 556.

1933: Simons, 3087.

Illinois, mineral industry, 1932: Voskuil, 3522.

1933: Voskuil, 3523.

Louisiana: Shaw, 3039, 3040, 3041.

Mexico: Flores, 1119.

Michigan: Osgood, 2544.

Mineral resources (general)—Continued.

Miquelon and Saint Pierre Islands: Aubert de la Rue, 110.

Mississippi: Adams, 7; Lowe, 2116.

Nevada, nonmetallic minerals: Fulton, 1192.

Newfoundland: Rothery, 2844.

New Jersey, mineral industry 1931: Johnson, 1702.

1932: Johnson, 1703.

New Mexico: Lasky, 2004.

Pennsylvania, eastern: Berkey, 262.

Puerto Rico: Britton, 406.

Saint Pierre and Miquelon Islands: Aubert de la Rue, 110.

Tennessee Valley Authority region: Eckel, 982.

Tennessee Valley region: Prouty, 2675.

Texas, Maverick County: Getzender, 1231.

Uvalde County: Getzender, 1229.

Zavala County: Getzender, 1230.

United States: Nat. Res. Board, 2454.

Utah: Coffman, 692.

Vermont, 1933–34: Jacobs, 1643.

Virginia: Bevan, 293.

West Virginia: Sisler, 3106.

Mineralogy (general). For areal see names of States. See also Crystallography; Meteorites; Technique: Frondel, 1173.

Age of minerals, pleochroic haloes: Henderson, 1461.

Andalusite, cyanite, and sillimanite: Insley, 1633.

Bentonite and related clays: Ross, 2822.

Calcite, classification: Anonymous, 3823.

California, San Diego County, gem minerals: Van Amringe, 3454.

Chalcopyrite, unmixing from sphalerite: Buerger, 477.

Clay minerals: Ross, 2818.

Copper ores, oxidized, paragenesis: Schwartz, 3005.

Coronadite redivivus: Lindgren, 2063.

Dendrites, two-dimensional, origin: Swartzlow, 3292.

Development: Graham, 1291.

Fluid inclusions in pyrite: Buerger, 475.

Fluorescence in minerals: Barrett, 199.

Garnet: Randolph, 2692.

Halloysite and allophane: Ross, 2819.

Incrustations, edges and corners of crystals: Frondel, 1176.

Index liquids, standardization: Glass, 1261.

Magnetite, hematite, pyrite and chalcopyrite, microscopic relations: Guild, 1351.

Marcasite, transformation into pyrite: Anderson, 72.

Microhardness of minerals comprising Mohs scale: Hodge, 1542.

Mineralogy (general)—Continued.

- Microscopic determination of non-opaque minerals: Larsen, 2001.
 Microscopic mineralogic analysis: Ratz, 2701.
 Millerite collection, Milwaukee: Wisniewski, 3749.
 Mineral suites, heavy, statistical correlation: Dryden, 940.
 Minerals, microscopic determination: Martindale, 2224.
 Minerals in volcanic regions, or deposited by hot springs: Grieger, 1324.
 Mottramite, nomenclature: Schaller, 2963.
 New mineralogy: Winchell, 3746.
 Octahedrite, alteration product of titanite: Pough, 2055.
 Optical mineralogy, elements of: Winchell, 3745.
 Ore deposits, origin and nature: Adams, 5.
 Ore textures, pseudo-eutectic: Anderson, 59.
 Oregon, spherulites in Clarno formation: Wilkinson, 3693.
 Orientation of minerals in rocks: Pabst, 2548.
 Photo-phorescence in minerals: Brown, 437.
 Plagioclases: Meen, 2271.
 Pyrite, in limestone concretion: Mathias, 2240.
 Pyrite-marcasite relation: Buerger, 474.
 Quartz, amethyst and smoky, coloration origin: Frondel, 1175.
 Minerals: Randolph, 2695.
 Selective incrustation of crystal forms: Frondel, 1174.
 Silicate minerals, alkalinity: Stevens, 3216.
 Specific gravity determination by index liquids: Meen, 2272.
 Spectroscopic analysis, galenas, sphalerites and pyrites: Claussen, 657.
 Spherulites: Colony, 711.
 Structural crystallography: Rogers, 2791.
 Sulphides, linnæite group: Tarr, 3317.
 Uranium: Lane, 1991.
 Thin-section mineralogy: Rogers, 2788.
 Uranium oxides, crystallography: Palache, 2559.
 Vanadium, molybdenum, tungsten and chromium in oxidized lead deposits: Newhouse, 2475.
 Vermiculites, structure: Gruner, 1349.
 Virginia, Potomac River sediments: Hoffman, 1546.
 West Virginia, Potomac River sediments: Hoffman, 1546.

Minnesota.

- Buried river gorges, detection: Wilcox, 3689.
Economic geology.
 Iron-bearing formations, Lake Superior region: Zapffe, 3814.
 Lake Superior region: Hotchkiss, 1563.
 Lake Superior region, iron: Broderick, 410.
 Limestones, dolomites and marls: Stauffer, 3175.
 Magnetite cementing conglomerates, Mesabi Range: Gruner, 1348.
 Rove formation, northeastern Minnesota: Grout, 1335.
Historical geology.
 Bentonite zones, Ordovician: Sardeson, 2948.
 Cambrian-Ordovician contact: Graham, 1295.
 General: Couser, 763.
 Glenwood shales, affinities: Sardeson, 2952.
 Hinckley sandstone: Atwater, 96.
 Igneous rocks, origin: Grout, 1336.
 Jordan-Oneota contact along Minnesota River: Stauffer, 3178.
 Jordan sandstone: Keyes, 1845.
 Mississippi Valley, upper: Trowbridge, 3413.
 Structure: Trowbridge, 3414.
 Paleozoic sections, type, Minnesota Valley: Stauffer, 3177.
 Pleistocene sediments, containing Minnesota Man: Thiel, 3355.
 Rove formation, northeastern Minnesota: Grout, 1335.
 St. Croix River: Clement, 660.
 Seine-Couchiching problem, Rainy Lake: Merritt, 2298.
 Shakopee formation: Sardeson, 2954.
 Snowbank stock: Balk, 150.

Mineralogy.

- Magnetite cementing conglomerates, Mesabi Range: Gruner, 1348.

Paleontology.

- Annelid jaw, middle Ordovician: Stauffer, 3176.
 Gonioceras, Ordovician: Sardeson, 2953.
 Graptolitoidea, Cambrian: Ruedemann, 2872.
 Late-Pleistocene biotic community, Minneapolis: Cooper, 753.
 Pleistocene Homo: Jenks, 1660.
 Pleistocene man: Jenks, 1661.
 Trilobita, Cambrian: Ulrich, 3441.

Petrology.

- Anorthosites, coast of Lake Superior: Schwartz, 3006.
 Authigenic feldspar in sandstones of southeastern Minnesota: Goldich, 1266.

Minnesota—Continued.

Petrology—Continued.

Cambrian-Ordovician contact: Graham, 1295.

Igneous rocks, origin: Grout, 1336.

Metamorphism of slates: Grout, 1339.

Rove formation, northeastern Minnesota: Grout, 1335.

Physical geology.

Metamorphism of slates: Grout, 1339.

Saganaga granite, batholith, structure: Grout, 1338.

Snowbank stock: Balk, 150.

Physiographic geology.

Cannon River, glacial diversion: Sardeson, 2950.

Glacial chronometer: Sardeson, 2951.

Mississippi River, glacial diversion: Sardeson, 2949.

Miocene. See Tertiary.

Miquelon and Saint Pierre Islands: Aubert de la Rue, 104, 105, 107, 110.

Miquelon.

Historical geology.

General: Aubert de la Rue, 104, 110.

Mineralogy.

Manganese mineral, Langlade: Aubert de la Rue, 109.

Physiographic geology.

General: Aubert de la Rue, 108.

Miscellaneous. See also Addresses.

American doctorates in geology: Wentworth, 3610.

Earth as an engineering structure: Lambert, 1964.

Geology and archeology, border sciences: de Terra, 901.

Riddle of the earth: Ehrenfeld, 994.

Serial literature used by American Geologists: Gross, 1333.

United States Geological Survey: Mendenhall, 2286.

Mississippi.

Economic geology.

Jackson gas field, Hines and Rankin Counties: Monroe, 2373.

Mineral resources: Adams, 7; Lowe, 2116.

Historical geology.

Clarke and Wayne Counties, Tertiary: Shreveport Geol. Soc., 3076.

Eocene: Lowe, 2115.

General: Shreveport Geol. Soc., 3074.

Paleontology.

Bitubulogenerina, Oligocene, Vicksburg: Howe, 1583.

Clarke and Wayne Counties, Tertiary: Shreveport Geol. Soc., 3076.

Combretum petraflumensis, Eocene, Jackson: Berry, 274.

Cytherelloidea, Tertiary ostracode genus: Howe, 1580.

Mississippi—Continued.

Paleontology—Continued.

Foraminifera: Cushman, 819.

Moody Branch marl, Jackson Eocene: Gravell, 1306.

Musk ox, Natchez, Pleistocene: Hay, 1430.

Nautiloids, Midway Group: Miller, 2322.

Petrology.

Tombigbee sands, Cretaceous, eastern Mississippi: Needham, 2457.

Physical geology.

Erosion: Tharp, 3352.

Mississippian. See Carboniferous.

Missouri.

Earth resistivities: Keller, 1761.

Report of State Geologist: Buehler, 472.

Economic geology.

Blue Springs gas field, Jackson County: Bartle, 203, 204.

Fuller's earth, southeastern Missouri: Allen, 44.

Hydrothermal deposit, Wayne County: Tarr, 3315.

Magnetic surveys: Grohskopf, 1332.

Magnetometer results and siliceous residues: Buehler, 471.

Miami-Picher zinc-lead district: Fowler, 1145; Tarr, 3318.

Oil and gas pools, western Missouri: Greene, 1310.

Silver Mine area, Madison County: Tolman, 3394.

Silver Mine, silver-lead tungsten mineralization: Tolman, 3395.

Tri-State district, lead and zinc ores: Fowler, 1142.

Tri-State mining district, chertification: Fowler, 1144.

Historical geology.

Aux Vases sandstone: Keyes, 1864.

Baltimore & Ohio route: Grimsley, 1331.

Blue Springs gas field, Jackson County: Bartle, 203.

Cross section, geologic, Pennsylvanian and Permian: Kellett, 1763.

Crowleys Ridge, Cretaceous, southeastern Missouri: Matthes, 2247.

East St. Louis region: Ekblaw, 998.

General: Kansas Geol. Soc., 1745, 1746.

Index to stratigraphy, Kansas and adjoining areas: Ver Wiebe, 3502.

Kinderhookian stratigraphy and paleontology: Branson, 397.

Mississippian: Laudon, 2009.

Osage beds, Ozark region: Moore, 2410.

Ozark region: Cline, 664.

Mississippian type locality: Keyes, 1824.

Ozark region, Paleozoics: Kansas G. S., 1741.

Missouri—Continued.

Historical geology—Continued.

Pennsylvanian outlier, St. Louis:
Knight, 1910.

Silver Mine area, Madison County:
Tolman, 3394.

Western Missouri: Greene, 1310.

Mineralogy.

Alteration of galena: Swartzlow, 3289.

Meteorite, Lanton, Howell County: Cul-
lison, 811.

Paleontology.

Annularia, seed-bearing, Pennsylvani-
an: Elias, 1000.

Bainbridgia, Silurian coral: Ball, 152.

Bonnetterre formation, basal: Loch-
man, 2072.

Charophyta, Paleozoic and Mesozoic:
Peck, 2596.

Conodonts: Branson, 393, 394, 395,
396, 400.

Conodonts and fish remains, Pennsylv-
anian: Gunnell, 1352.

Cordaites missouriense: Cribbs, 778.

Gastropods, St. Louis, Pennsylvanian:
Knight, 1911, 1912, 1913, 1914.

Goniatite, Pennsylvanian, Henry Coun-
ty: Bisat, 309.

Griffithides olsoni, Pennsylvanian trilo-
bite: Williams, 3709.

Mammals, Deep River beds: Matthew,
2254.

Mesolobus mesolobus, typical form and
range: Weller, 3592.

Nautiloids, Cherokee, Mid-Continent re-
gion: Miller, 2328.

Pleistocene Mollusca: Greger, 1311.

Rhynchonelloid (?), Silurian, south-
eastern Missouri: Ball, 155.

Scolecodonts, Decorah formation: Cro-
neis, 795.

Strophalosia, Mississippian: Hinchey,
1514.

Throopella typa, Devonian scaphopod:
Greger, 1312.

Petrology.

Chouteau limestone, dolomitization and
granularity: Swartzlow, 3290.

Fuller's earth, southeastern Missouri:
Allen, 44.

Loess, St. Charles: Oefelein, 2518.

Mount Devon diabase porphyry, Madi-
son County: Mullenburg, 2437.

Porters Creek formation, southeastern
Missouri: Allen, 43.

Physical geology.

Cherts, relation to styeolites, Carthage:
Bastin, 223.

Igneous intrusion, post-Devonian,
Farmington: Tarr, 3314.

Physiographic geology.

Blue Springs gas field, Jackson County:
Bartle, 203.

Glacial striae, Kansas City: Jewett,
1675.

Mississippi River, Crowley's Ridge di-
version: Matthes, 2245.

Molding sand. See Sand.

Mollusca. See also Cephalopoda; Gastro-
poda; Invertebrates (general);
Pelecypoda.

Atlantic coast Pectinidae, Tertiary:
Tucker, 3418.

Barbados coral rock: Trechmann, 3411.

Blakeley fauna, Oligocene, Washington:
Tegland, 3326.

California, Cretaceous and Tertiary:
Wiedey, 3683.

Imperial formation, San Gorgonia
Pass: Bramkamp, 381.

Mount Jura: Crickmay, 782.

Santa Barbara, Pliocene and Pleisto-
cene: Grant, 1301.

Canada, postglacial: Mozley, 2426.

Coloradoan fauna, upper Peace River,
British Columbia: Warren, 3557.

Cuba, Cretaceous: Sánchez Roig, 2934.

Dentalium neohexagonum, Fernando
formation, California: Greger,
1314.

Exogyra cancellata zone: Stephenson,
3204.

Fauna, Cretaceous, Cuba: Douvillé,
933.

Pleistocene and post-Pleistocene, Sas-
katchewan: Russell, 2891.

Florida, Tertiary: Tucker, 3417.

Greenland, northeast, invertebrata:
Frebold, 1152.

Hyatt's unfigured types, Jurassic, Cal-
ifornia: Crickmay, 779.

Land shells, Eocene, California: Hanna,
1386.

Pliocene, Bermuda: Kutchka, 1953.

Littorina irrorata, post-Pleistocene,
Connecticut: Knight, 1915.

Mesozoic, Rocky Mountain region and
Arizona: Henderson, 1464.

Mexico, Pleistocene, San Quintin Bay,
Lower California: Manger, 2207.

Tehuacan region: Müllerried, 2431.

Missouri, Pleistocene: Greger, 1311.

Montana, Cretaceous and Paleocene,
fresh-water: Russell, 2892.

Cretaceous, Gas City Dome: Coryell,
760.

Mytilus edulis, East Greenland: Noe-
Nygaard, 2505.

New Jersey, marine fossils: Richards,
2755.

Southern, Miocene: Pilsbry, 2631.

Non-marine shells, Carboniferous:
Davies, 856.

Oregon, Pliocene: Henderson, 1465.

Oysters and pecten, Miocene, Califor-
nia: Hertlein, 1482.

Paleozoic plankton: Ruedemann, 2878.

Pectinidae, preoccupied names: Hert-
lein, 1480.

Pleistocene mollusks, Carpinteria, Cal-
ifornia: Grant, 1300.

Mexico: Hertlein, 1483.

Mollusca—Continued.

Timms Point, cool-water Pleistocene,
California: Clark, 643.

Utah, Lake Bonneville: Berry, 269.

Wollaston area, Greenland: Frebald,
1153.

Yukon, Laberge area: Lees, 2024.

Molybdenum.

Colorado, Chaffee County: Landes,
1979.

Colorado, Climax district: Butler, 507;
Kissock, 1899.

Deposits, western States: Vanderwilt,
3472.

New Brunswick, Square Lake, Queens
County: Poitevin, 2644.

Nova Scotia: Messervey, 2305.

Montana.

Coopers Lake quadrangle: Clapp, 642.

Areas described.

North Moccasin Mountains, Fergus
County: Blixt, 334.

Tobacco Root Mountains: Tansley,
3308.

Economic geology.

Badger Pass mining district, Beaver-
head County: Sahinen, 2923.

Big Horn basin oil fields: Field,
1077.

Boulder batholith, temperature rela-
tions: Jones, 1731.

Butte mining district: Perry, 2607.

Cut Bank oil field: Perry, 2611.

Gas and coal prospects: Pierce, 2624.

Gold, Broadwater, Beaverhead, Phillips,
and Fergus Counties: Corry, 756.

Gold Creek placer gold, microscopic
characteristics: Crawford, 776.

Gold placer, Gold Creek: Crawford,
772.

Gold-quartz veins, Libby, southwestern
Montana: Gibson, 1239.

Helena region, metalliferous deposits:
Pardee, 2570.

Mining geology at Butte: Linforth,
2064.

Natural gas and oil development:
Rowe, 2854.

Oil and gas: Dobbin, 907.

Ornamental stone: Mansfield, 2209.

Placer mining: Dingman, 906.

Spring Hill gold mine, Helena: Jones,
1732.

Tobacco Root Mountains: Tansley,
3308.

Historical geology.

Algal reefs, bioherms, in Belt series:
Fenton, 1059.

Beartooth-Big Horn region: Bucher,
464, 466.

Big Horn Basin: Sandidge, 2940.

Black Hills-Big Horn-Beartooth region,
gravity anomalies: Chamberlin,
620.

Montana—Continued.

Historical geology—Continued.

Cambrian-Algonkian unconformity:
Deiss, 885.

Choteau, Hill and Liberty Counties,
Montana: Pierce, 2624.

Grano-diorite rocks, Libby Quadrangle:
Gibson, 1240.

Medicine Bow Mountains: Neely,
2459.

Mid-Phosphoria unconformity:
Thomas, 3363.

Paleozoic formations, northwestern
Montana: Deiss, 884.

Pre-Cambrian structure, Beartooth,
Big Horn and Black Hills uplifts:
Cloos, 669.

Pryor Mountains: Blackstone, 314.

Red Lodge, geologic investigations:
Thom, 3356.

Rocky Mountains, northwestern Mon-
tana: Clapp, 639, 640.

Section, Cinnabar Mountain, Park
County: Wilson, 3720.

Structural type, space and time rela-
tionships, Yellowstone-Beartooth-
Big Horn region: Thom, 3359.

Yellowstone-Beartooth-Big Horn re-
gion: Field, 1077.

Mineralogy.

Colusite, sphalerite group: Landon,
1982.

Paleontology.

Algal reefs, bioherms, in Belt series:
Fenton, 1059.

Ammonites, Upper Devonian, Madison
County: Schindewolf, 2973.

Cambrian, Libby: Gale, 1198.

Conodonts, zoological relationships,
Quadrant shales: Scott, 3011.

Diceratherium armatum (rhinoceros),
Gallatin County: Wood, 3764.

Dinosaur, Hell Creek beds, Cretaceous:
Brown, 419.

Foraminifera, Jurassic: Sandidge,
2940.

Mesozoic: Sandidge, 2939.

Heteromyid rodent, Oligocene: Wood,
3754.

Mollusca, Cretaceous: Henderson,
1464.

Fresh-water, Cretaceous and Paleo-
cene: Russell, 2892.

Upper Cretaceous, Gas City Dome:
Coryell, 760.

Oboloid brachiopods, Belt Series: Fen-
ton, 1057.

Shelf fungus, Lower Cretaceous: Wie-
land, 3686.

Teleorhinus browni, skull characters,
Pryor, Cretaceous: Mook, 2394.

Teleorhinus robustus, Cretaceous, Ben-
ton: Mook, 2397.

Triceratops elatus, Montana and Wyo-
ming: Osborn, 2534.

Montana—Continued.

Physical geology.

Boulder batholith, internal structure: Grout, 1340.

Stillwater complex, gravity stratification: Peoples, 2601.

Thrust fault near Gardiner: Wilson, 3722.

Physiographic geology.

Beartooth Mountains, peneplanation: Hughes, 1610.

Big Horn Basin: Perry, 2612.

Tunnels, natural, Dinwoody Creek, Wyoming, and Boulder River, Montana: Wentworth, 3611.

Underground water.

Big Horn Basin: Perry, 2612.

Choteau, Hill and Liberty Counties, Montana: Pierce, 2624.

Frenchtown and Camas Prairie valleys: Perry, 2610.

Ground water supply: Perry, 2609.

Judith Basin: Perry, 2608.

Monterey cherts, formation, California: Taliaferro, 3305.

Moose Pass-Hope district, Kenai Peninsula, Alaska: Tuck, 3415.

Moraines.

Alberta, Toby glacier, Purcell Range: McCoubrey, 2144.

New Hampshire, Bethlehem: Crosby, 805.

Ontario, Toronto region: Taylor, 3319.

Oregon, exceptional morainelike deposits: Hodge, 1537.

Valparaiso moraine: Krumbein, 1946.

Mosses, fossil, Utah: Flowers, 1122.

Mounds.

Soil hillocks, Texas, California: Melton, 2282.

Mountains. See Orogeny.

Mud cracks and hail prints, Proterozoic: Fenton, 1058.

Mud volcanoes.

Trinidad, sedimentary volcanism: Kugler, 1951.

Museums.

Buffalo Society of Natural Sciences, Annual Report: Reimann, 2732.

Natural bridges.

Tunnels, natural, Dinwoody Creek, Wyoming, and Boulder River, Montana: Wentworth, 3611.

Natural gas: Young, 3812.

Accumulation in limestone: Howard, 1576.

Alberta: Hume, 1615.

Aldersyde area, potentialities: Owen, 2547.

Central: Allan, 36.

Turner Valley gas and oil field: Link, 2065.

Natural gas—Continued.

British Columbia: Hume, 1615.

California, Kettleman North and Middle Dome fields: Dodd, 908.

Marysville Buttes, Sutter County: Stalder, 3166.

San Joaquin Valley: Beebe, 240.

Colorado, oil and gas possibilities: Van Tuyl, 3484.

Eastern interior coal basin, reservoirs: Bell, 248.

Geophysical prospecting: Weaver, 3580.

Gulf Coast region: Vanderpool, 3468.

Illinois, Jersey, Greene and Madison Counties: Collingwood, 704.

Indiana, Unionville gas field, Monroe County: Freed, 1156.

Kansas: Folger, 1130; Hall, 1373; Koester, 1933.

Voshell field, McPherson County: Hiestand, 1504.

Kentucky: St. Clair, 2925.

Janet gas field: Russell, 2904.

Oil and gas north of Sebree, Henderson and Webster Counties: Russell, 2902.

Oil and gas pools, Hart County: Russell, 2903.

Louisiana, Gulf coast: Eby, 977.

Manitoba: Hume, 1615.

Mexico: Ordonez, 2530.

Michigan, oil and gas fields: Newcombe, 2469.

Mid-Continent region, relation of pools to unconformities: Levorsen, 2051.

Structure and accumulation: Tomlinson, 3398.

Migration and accumulation, structural theory: McCoy, 2145.

Mississippi, Jackson gas field, Hines and Rankin Counties: Monroe, 2373.

Missouri, Blue Springs gas field, Jackson County: Bartle, 203, 204.

Western pools: Greene, 1310.

Montana: Dobbin, 907; Rowe, 2854.

New Mexico: Winchester, 3747.

New York, Alleghany State Park: Brewer, 404.

Northwest Territories: Hume, 1615.

Occurrence: Lahee, 1958.

Oil and gas accumulation theory, history: Howell, 1598.

Oklahoma, gas reserves, Oklahoma City oil field: Hill, 1508.

Oil and gas fields: Wrather, 3787.

Ontario: Harkness, 1401, 1402.

Origin: Berl, 266; Hume, 1615; Van Tuyl, 3487.

Ouachita Paleozoics, southern Midcontinent: Miser, 2364.

Pennsylvania: Torrey, 3401.

Elk County, possibility: Cathcart, 607.

Freeport quadrangle: Hughes, 1608.

McKean County, possibility: Cathcart, 608.

Natural gas—Continued.

Pennsylvania—Continued.

- Northern: Cathcart, 605.
- Potter County: Cathcart, 602, 603.
- Somerset-Windber quadrangles: Richardson, 2763.
- Tioga County: Cathcart, 604.
- Western: Sisler, 3107.
- Permeability of porous media, measurement: Wyckoff, 3803.
- Reservoirs, classification: Wilson, 3741, 3742.
- Rocky Mountain district: Davies, 855.
- Rocky Mountain States, underground waters: Coffin, 691.
- Saskatchewan: Hume, 1615.
- Tennessee: St. Clair, 2925.
- Texas, Amarillo district: Cotner, 762.
- Anderson and Leon Counties: Tarr, 3310.
- Gulf coast: Eby, 977.
- Oil and gas fields: Wrather, 3787.
- Raccoon Bend oil field, Austin County: Teas, 3325.
- Virginia: McGill, 2162.
- Washington, Rattlesnake Hills field: Hammar, 1379.
- West Virginia, eastern Ohio and eastern Kentucky: Billingsley, 305.
- Liverpool oil and gas pool: Heck, 1438.
- Wyoming, Colorado and northwestern New Mexico fields: Krampert, 1942.

Nebraska.

Economic geology.

- Potash industry: Condra, 714.

Historical geology.

- General: Kansas Geol. Soc., 1745.
- Grenola formation, southeastern Nebraska, Pennsylvanian: Condra, 715.
- Index to stratigraphy, Kansas and adjoining areas: Ver Wiebe, 3502.
- Northwestern Nebraska: Kansas Geol. Soc., 1742.
- Pleistocene: Lugn, 2122.
- Pre-Pennsylvanian stratigraphy: Lugn, 2123.
- Zones of fossil herbs: Elias, 1003.

Mineralogy.

- Meteorite, Cotesfield: Nininger, 2488.
- Sioux County meteorite, August 8, 1933: Barbour, 188.

Paleontology.

- Amebelodon fricki, mandible: Barbour, 164.
- Tusks: Barbour, 163.
- Amebelodon sinclairi, Freedom: Barbour, 166.
- Artiodactyls, Oligocene and Miocene: Cook, 728.
- Tertiary: Barbour, 187.
- Bassariscus, Pliocene, Ogallala: Hibbard, 1498.

Nebraska—Continued.

Paleontology—Continued.

- Bird, gallinaceous, lower Miocene, Agate: Wetmore, 3634.
- Oligocene, Bathornis veredus Wetmore, Crawford: Wetmore, 3635.
- Miocene, Sioux County: Wetmore, 3626.
- Camel, giant, Pleistocene, Red Cloud: Barbour, 183.
- Miocene, Agate Spring: Brown, 415.
- Cyrtonyx cooki, quail, Miocene, Agate: Wetmore, 3641.
- Entelodonts, Miocene: Loomis, 2092.
- Eubelodon morrilli, Brown County: Barbour, 176.
- Giant beaver, Pleistocene: Barbour, 169.
- Hawk, Buteo typholus, Miocene, Agate: Wetmore, 3622.
- Mammals, Pleistocene: Schultz, 3002.
- Snake Creek quarries, Sioux County: Matthew, 2253.
- Mastodon grangeri, Pleistocene, Thurston County: Barbour, 182.
- Mastodon moodiei, Pleistocene: Barbour, 177.
- Mastodon, Pleistocene, Milford: Barbour, 173.
- Megabelodon lulli, Burge, Cherry County: Barbour, 186.
- Mollusk, Chadron formation (Oligocene): Cook, 727.
- Musk oxen, Pleistocene: Barbour, 174.
- Nautiloid cephalopods, Pennsylvanian, Mid-Continent region: Miller, 2320.
- Ogallala formation, vertebrate fauna: Hesse, 1493.
- Oreodonts, Miocene, Birdcage Gap: Barbour, 179.
- Ovibovine, Pleistocene, Mullen: Barbour, 184.
- Platybelodon barnumbrowni, mandible: Barbour, 178.
- Titanotherium, Oligocene: Barbour, 175.
- Torynobelodon barnumbrowni, Pliocene, Cherry County: Barbour, 171.
- Torynobelodon loomisi, Republican City: Barbour, 165.
- Trachodon, Cretaceous, Decatur: Barbour, 170.
- Vertebrates, collecting: Gilmore, 1253.
- Vertebrata, Tertiary lists: Cook, 725.
- Woodpecker, unknown, lower Pliocene, Devil's Gulch beds: Wetmore, 3631.

Physiographic geology.

- Erosion: Condra, 719.

Nevada.

Areas described.

- Brucite area, Paradise Range: Callaghan, 539.

Economic geology.

- Brucite, Paradise Range: Callaghan, 539.

Nevada—Continued.

Economic geology—Continued.

Comstock lode: Gianella, 1236; Lyman, 2129.

Gold Circle mining district, Elko County: Rott, 2849.

Gold, Goldfield: Tolman, 3397.

McCoy mining district and Horse Canyon, Lander County: Schrader, 2989.

Minerals, nonmetallic: Fulton, 1192.

Quicksilver, Lahontan: Schuette, 2999.

Rio Tinto copper deposit: Crawford, 770.

Silver City region: Smith, 3111.

Tungsten deposits, Mill City: Kerr, 1785.

Tybo District: Ferguson, 1064.

Historical geology.

Comstock lode: Gianella, 1236.

Devonian, east-central: Merriam, 2290.

Eureka quartzite, Great Basin: Kirk, 1894.

Rhaetic, marine: Muller, 2441.

Tybo District: Ferguson, 1064.

Western Nevada: Jenkins, 1654.

Mineralogy.

General: Melhase, 2280.

Goldfield: Tolman, 3397.

Opals, Virgin Valley: Dake, 829.

Searlesite, Esmeralda County: Foshag, 1135.

Zircon: Randolph, 2693.

Paleontology.

Antiquity, in Southwest: Stock, 3240.

Elephant, Pleistocene, Fallon: Stock, 3229.

Flora, Miocene, from 49 Camp: La-Motte, 1971.

Petrified tree: Boak, 335.

Plants in Nothrotherium dung, Gypsum Cave: Laudermilk, 2006.

Pleistocene, Clark County: Simpson, 3098.

Pseudaelurus, Miocene cat, Tonopah: Stock, 3248.

Petrology.

Tonopah mining district: Campbell, 550.

Physical geology.

Desert Range, rotated faults: Longwell, 2086.

Earthquake, Cedar Mountain: Gianella, 1232, 1234, 1235, 1237.

Earthquakes, 1769-1933: Wood, 3762.

Geyser area, Beowawe, Eureka County: Nolan, 2507.

Great Basin, erosion: Keyes, 1821.

Thrust faults: Longwell, 2087.

Physiographic geology.

Colorado River, origin: Blackwelder, 325.

Fault scarps of 1915, Pleasant Valley: Page, 2550.

Pleistocene glaciation: Blackwelder, 323

Nevada—Continued.

Underground water.

Geyser area, Beowawe, Eureka County: Nolan, 2507.

New Brunswick.

Economic geology.

Limestones: Goudge, 1287.

Square Lake, Queens County: Poitevin, 2644.

Historical geology.

Granite ridge, buried, Moncton: Miller, 2318.

St. John area: Hayes, 1433.

Petrology.

Spillitic rocks, southeastern New Brunswick: Flaherty, 1112.

Physical geology.

Slip faulting: Squires, 3161.

New England.

Microseisms, analysis: Leet, 2029.

Newfoundland.

Economic geology.

Chromite: Snelgrove, 3142.

Historical geology.

Blow-me-down intrusive complex, Bay of Islands: Snelgrove, 3143.

Thrust faulting in western Newfoundland, Ordovician: Dunbar, 944.

Western Newfoundland: Schuchert, 2996.

Mineralogy.

Blow-me-down intrusive complex, Bay of Islands: Snelgrove, 3143.

Physiographic geology.

General: Rothery, 2844.

Inselberge: Schrepfer, 2990.

Western Newfoundland: Schuchert, 2996.

New Hampshire.

Economic geology.

Ruggles mica mine, Grafton: Burbank, 481.

Historical geology.

Central New Hampshire, Paleozoic: Billings, 303.

Franconia region, White Mountains: Williams, 3703.

Littleton area: Billings, 304.

Littleton quadrangle, Silurian and Devonian strata: Billings, 301.

Paleontology.

Littleton area: Billings, 304.

Physical geology.

Bethlehem moraine, extension: Crosby, 805.

Ice readvance at Littleton: Lougee, 2100.

White Mountains, date of glaciation: Johnson, 1682.

New Jersey.

Economic geology.

Magnetite ores, New Jersey Highlands: Smith, 3124.

Mineral deposits: Berkey, 262.

New Jersey—Continued.

Economic geology—Continued.

Mineral industry, 1931 : Johnson, 1702 ; 1932 : Johnson, 1703.

Mineral zoning, Triassic : Newhouse, 2473.

Historical geology.

Baltimore & Ohio routes : Grimsley, 1331.

General : Berkey, 262.

Hamilton group : Willard, 3698.

Pensauken formation, Pleistocene : Berry, 280.

Pensauken gravel, origin and structure : Campbell, 555.

Pine Barrens area : Lutz, 2128.

Quaternary coastal region : Richards, 2755.

Mineralogy.

Barium-muscovite, Franklin : Bauer, 229.

Copper, native crystallized, Franklin : Hafl, 1367.

Franklin Furnace, Sussex County : Olpp, 2525.

Glauberite crystals, West Paterson : Hawkins, 1423.

Microscopic minerals in clays, Middlesex County : Hawkins, 1422.

Tephroite crystal, Franklin Furnace : Schaller, 2961.

Paleontology.

Birds, Eocene age : Wetmore, 3625.

Bryozoa, Vincentown : Canu, 575.

Hydrocorallinae, Pleistocene : Richards, 2756.

Mollusca, Miocene, southern New Jersey : Pilsbry, 2631.

Physical geology.

Barnegat Inlet : Lucke, 2119.

Lagoon deposits, evolution, Barnegat Inlet : Lucke, 2121.

Tidal inlets, evolution, Barnegat Inlet : Hitchcock, 1526.

Physiographic geology.

Gaps in trap ridges : Hubbert, 1604.

Lagoon deposits, evolution, Barnegat Inlet : Lucke, 2121.

Pensauken gravel, origin and structure : Campbell, 555.

Tidal inlets, evolution, Barnegat Inlet : Hitchcock, 1526.

Wisconsin glacier, Delaware Valley : Ward, 3548.

Underground water.

Water-table fluctuations, Runyon area : Barksdale, 192.

New Mexico.

Carlsbad Caverns : Darton, 847.

Guidebook, Southern Pacific Lines, New Orleans to Los Angeles : Darton, 848.

White Sands National Monument : Botkin, 355.

6022°—35—22

New Mexico—Continued.

Areas described.

Roswell artesian basin : Fiedler, 1074.

Economic geology.

Central mining district : Schmitt, 2979.

Mineral resources : Lasky, 2004.

Oil and gas fields : Krampert, 1942.

Oil and gas resources : Winchester, 3747.

Potash : Delacote, 886.

Potash field, Permian : Mansfield, 2211.

Potash industry, development : Smith, 3117.

Santa Rita and Hanover region : Ransome, 2697.

Sierra County : Harley, 1404.

Historical geology.

Central mining district : Schmitt, 2979.

Cerro Tucumcari, Jurassic : Keyes, 1816.

Cimarron Valley, Union County, clastic plugs and dikes : Parker, 2575.

El Paso limestone, Ordovician, correlations : Kirk, 1897.

General : Kansas Geol. Soc., 1747 ; Winchester, 3747.

Hueco vs. Magdalena : Keyes, 1804.

Magdalena district : Koschmann, 1934.

Percha shales : Keyes, 1804.

Raton Basin, Rocky Mountains, Great Plains, northeastern New Mexico : Kansas Geol. Soc., 1743.

San Juan basin, Tertiary : Hunt, 1620.

Sierra County : Harley, 1404.

Stratigraphy, Ordovician : Keyes, 1835.

Mineralogy.

Grant and Santa Fe meteorites : Henderson, 1460.

Harding County meteorite : Wylie, 3805.

Melrose, New Mexico, gold-bearing meteorite : Nininger, 2495.

Pinon, Melrose, and Pojoaque meteorites : Nininger, 2491.

Pojoaque meteorite : Nininger, 2490.

Sierra County : Harley, 1404.

Paleontology.

Antiquity, in Southwest : Stock, 3240.

Artifacts, association with mammoth and bison : Howard, 1569.

Birds from cavern deposits : Wetmore, 3632 ; Howard, 1574.

Cryptoglaux funerea, Shelter Cave, Dona County : Howard, 1572.

Great horned owl bones, Carlsbad Caverns : Wetmore, 3630.

Hyracops, socialis Marsh : Thorpe, 3386.

Pyelorbamphus molothroides, ictericid, Shelter Cave, Dona Ana County : Miller, 2316.

Road-runner, Quarternary, Dona Ana County : Howard, 1571.

Turtles, Upper Cretaceous : Wiman, 3743.

New Mexico—Continued.

Physical geology.

- Malpais, lava flow, Carrizozo: Just, 1739.
 Pisolites in spring deposit: Northrop, 2510.
 Postbolson faulting: Dake, 826.
 Viscosity of lavas, San Juan region: Ross, 2824.

Physiographic geology.

- Earth patterns in eastern New Mexico: Turley, 3423.
 Magdalena district, dissected pediments: Koschmann, 1935.
 San Jose Valley, Quaternary: Nichols, 2484.
 Scarps, Tularosa Valley: Talmage, 3307.
 Sink-hole patterns: Melton, 2284.
 Zuni Mountains: Keyes, 1799.
 Zuni Salt Lake, Cretaceous: Darton, 850.

Underground water.

- Roswell artesian basin: Fielder, 1074.
 Underground-water, investigations: Piper, 2634.

New York.

Areas described.

- John Boyd Thacher Park (Indian Ladder region): Goldring, 1268.
 New York City and vicinity: Berkey, 263.

Economic geology.

- Adirondack magnetite deposits: Osborne, 2543.
 Gold, prospects: Newland, 2477.
 Oil and gas, Allegany State Park: Brewer, 404.

Historical geology.

- Adirondack Mountains: Longwell, 2085.
 Baltimore & Ohio route: Grimsley, 1331.
 Catskill delta: Chadwick, 613.
 Formation: Chadwick, 614.
 Region: Chadwick, 610.
 Cayuga Valley lake history: Fairchild, 1043.
 Chemung formation: Curry, 816.
 Iowa and western New York: Tester, 3335.
 Clinton formation: Sanford, 2941.
 Devonian and Silurian sections: Fettke, 1070.
 Devonian, Upper: Chadwick, 612.
 Eastern New York: Cooper, 746.
 Hamilton Group: Cooper, 749; Willard, 3698.
 Eastern New York: Cooper, 751.
 Hamilton red beds, eastern New York: Chadwick, 611.
 Ithaca, Upper Devonian: Caster, 598.
 Metamorphic rocks, structure: Balk, 149.
 Paleozoic: Newland, 2476.

New York—Continued.

Historical geology—Continued.

- Rensselaer graywacke, Lower Cambrian: Vaughan, 3490.
 Taconic and Appalachian orogenies, Hudson River region: Pepper, 2602.
 Trenton group: Kay, 1753.
 Tully formation: Cooper, 752.

Mineralogy.

- Chloritoid, Dutchess County: Barth, 202.
 White Plains, Lake Street quarry: Zodac, 3820.

Palaeontology.

- Annelid jaws, Devonian: Eller, 1007.
 Articulated annelid jaw, Devonian: Eller, 1006.
 Conodonts: Branson, 394.
 Crinoids, Hamilton: Goldring, 1270.
 Erie County: Reimann, 2734.
 Eurypterid, Moscow shales: Kjellesvig, 1901.
 Eurypterids in graptolite shales, Ordovician: Ruedemann, 2875.
 Fauna, Chemung formation: Curry, 816.
 Foraminifera, Trenton formation: Kjellesvig, 1902.
 Western Long Island and New York harbor: Shupack, 3083.
 Fossil exhibits, New York State Museum: Ruedemann, 2867.
 Rust Quarry, Trenton Falls: Delo, 887.
 Vertebrates: Moodie, 2393.

Petrology.

- Dustfall, November 13, 1933, Buffalo: Alexander, 24.
 Nodular granite, Saint Lawrence County: Brögger, 412.

Physical geology.

- Adirondacks, gravity stratification: Buddington, 470.
 Earthquakes: Newland, 2478.
 Faults, Lake Champlain region: Quinn, 2681.
 Lagoon deposits, evolution, Long Island: Lucke, 2121.
 Niagara, rock slide: Anonymous, 3836.
 Seneca Lake, "guns": Fairchild, 1042; Ingalls, 1631.
 Cayuga Valley lake history: Fairchild, 1043.
 Extinct Lake San Augustin: Powers, 2658.
 Glacial lake stages, east end of Lake Ontario: Baker, 145.
 Hudson-Delaware-Susquehanna drainage: Mackin, 2185.
 Lagoon deposits, evolution, Long Island: Lucke, 2121.
 Long Island, salt marshes: Knight, 1916.
 Proglacial waterfalls in valley development: Von Engel, 3518.
 Seneca Valley: Fairchild, 1045.

New York—Continued.

Physical geology—Continued.

Susquehanna River, North Branch:
Burroughs, 499.

Underground water.

Brine from Potsdam: Trainer, 3404.
Long Island: New York (State) Dept.
Conservation, 2479; Thompson,
3370, 3371.

Nicaragua.

Petrology.

Volcanic rocks: Burri, 497.

Physical geology.

Fumaroles of Masaya: Schönberg,
2983.

Volcanic rocks, Tertiary and Quater-
nary: Burri, 498.

Nickel.

British Columbia, Choate, Yale district:
Cockfield, 689.

Ontario, Frood mine, Sudbury: Free-
man, 1157.

Sudbury nickel irruptive: Collins,
710.

Nomenclature.

Arizona, Modoc limestone: Keyes, 1804.

Bethany limestone: Keyes, 1831.

Buffalo River epoch: Keyes, 1798.

Burlington limestone, Iowa: Keyes,
1787.

Cambrian fossils: Resser, 2743.

Cartographic terminology in geology:
Kleinpell, 1905.

Chambersburg (Harrisburg) peneplain,
Piedmont Maryland, Pennsylvania:
Campbell, 554.

Coastal Plain stratigraphic nomencla-
ture: Israelsky, 1638.

Cognathus for Xenognathus (pre-
occupied): Case, 593.

Epitonium fallaciosum, Pleistocene,
California: Woodring, 3777.

Euzeische Schichtfolge: Schaffer, 2958.

Faults: Straley, 3271.

Fenstreams: Holden, 1549.

Fish, preoccupied names: Whitley,
3674.

Geologic formations: Alcock, 21;
Keyes, 1803.

Geology, earliest use of term: Adams,
1.

Geosynclines: Keyes, 1792.

Greenhorn limestone: Keyes, 1869.

Hackberry: Keyes, 1870.

Hydraulic terms, standardization:
Straub, 3273.

Illinois, Warsaw formation: Weller,
3594.

Interbed, stratigraphic term: Crick-
may, 789.

Iowan: Keyes, 1802.

Juvenarium, youthful stage of foram-
iniferal shells: Henbest, 1451.

"Lillis formation": Hanna, 1383.

Magmatism: Ellis, 1011.

Nomenclature—Continued.

Manticoceras versus Gephyroceras:
Chadwick, 615.

Mappable terranes: Keyes, 1855.

Methods of presenting synonymy and
references in paleontologic litera-
ture: Grant, 1298.

Mottramite or psittacinite: Schaller,
2963.

Neospirifer dunbári: King, 1889.

New Mexico, Hueco vs. Magdalena:
Keyes, 1804.

Orbitoides and Gallowayina synony-
mous: Vaughan, 3496.

Osage group, Mississippian, type local-
ity: Keyes, 1824.

Pectinidae, preoccupied names: Hert-
lein, 1480.

Pleurotomaria pseudostrigillata and
Chonetes acanthophorus: Girty, 1259.

Protostrix, n. g., for Aquila lydekkeri:
Wetmore, 3638.

Protosuchus for Archaesuchus: Brown,
422.

Richmond sandstone, Cambrian: Keyes,
1847.

Roches moutonnées: Longwell, 2089.

Rock units: Ashley, 92.

Schizothaerus nuttallii bighopenensis,
Big Hope Island, Puget Sound,
Washington: Henderson, 1462.

Sedimentation and sedimentology:
Wadell, 3526.

Stratigraphy, United States: Reeside,
2725.

Taurotragus americanus, Maryland,
Pleistocene, renamed Eucerather-
ium (?) americanum: Gazin, 1213.

Types of Aquila antiqua and Aquila
ferox: Wetmore, 3644.

Types, terminology: Frizzell, 1167.

Variation, misuse of term: Clark, 652.

Wisconsin glacial age subdivisions:
Leverett, 2047.

York system: Keyes, 1796.

North Carolina.

Economic geology.

Barite deposits: Stuckey, 3280.

Kyanite: Dunn, 950.

Marble: Stuckey, 3281.

Historical geology.

Hiwassee River Basin, Coleman dam
site, Cherokee County: Money-
maker, 2372.

Mineralogy.

Clay and shales: Fabianic, 1038.

Garnets, flattened, Spruce Pine: Hall,
1369.

Gems: McIntosh, 2175.

Gems and gem minerals: Pratt, 2662.

Monazite crystal, Mars Hill, Madison
County: Schaller, 2962.

Zoisite, Spruce Pine: Hall, 1371.

Paleontology.

Foraminifera: Cushman, 819.

North Carolina—Continued.

Paleontology—Continued.

Miocene foraminifera, Coastal Plain:

Cushman, 818.

Pectinidae, Tertiary: Tucker, 3418.

Petrology.

Gems: McIntosh, 2175.

Sediments, coastal: Tyler, 3438.

Physiographic geology.

Carolina bays: Prouty, 2676.

Dune sands and eolian soils: Cobb, 675.

Iron meteorites and Carolina bays:

Wylie, 3807.

Meteorite scars (?): Melton, 2281.

Underground water.

Elizabeth City area: Lohman, 2082.

North Dakota.

Black Butte and its "Eruption": Leonard, 2045.

Historical geology.

Harney Peak region, Black Hills, concretions: Runner, 2881.

Petrology.

Concretions, calcareous, metamorphosed, Black Hills: Hamilton, 1376.

Northwest Territories.

Echo Bay district, Great Bear Lake: Robinson, 2783.

Leads, isotopic composition, Great Bear Lake: Piggot, 2627.

Maguse River and Ferguson River area: Weeks, 3586.

Economic geology.

Chalcocite, Great Bear Lake: Riley, 2770.

Echo Bay district, Great Bear Lake, pitchblende deposits: Robinson, 2783.

Great Bear Lake area: Kidd, 1876; Riley, 2769.

Oil and gas: Hume, 1615.

Oil prospects, Great Slave Lake: Hume, 1614.

Radium, Echo Bay, Great Bear Lake: Wright, 3795.

Historical geology.

Great Bear Lake area: Kidd, 1876; Riley, 2769.

Great Bear Lake (McTavish Arm), Mackenzie District: Can. G. S., 562.

Great Slave Lake-Coppermine River area: Stockwell, 3249.

Mineralogy.

Cordierite: Rutherford, 2909.

Pitchblende oxidation products, Bear Lake: Palache, 2552.

Nova Scotia.

Amherst area: Roliff, 2797.

Cumberland and Pictou Counties: Imperial Oil Limited, 1630.

Scotsburn anticline: Stewart, 3220.

Nova Scotia—Continued.

Economic geology.

Feldspar: Messervey, 2302.

Gold River area, Lunenburg County: Davison, 869.

Graphite: Messervey, 2303.

Limestones: Goudge, 1287.

Mica: Messervey, 2304.

Middle River gold field: Alcock, 20.

Molybdenum: Messervey, 2305.

Oil shales, New Glasgow: Swinnerton, 3294.

Tin: Messervey, 2306.

Historical geology.

Lake Ainslie sheet, Iverness County: Can. G. S., 563.

Minudie anticline: Moore, 2403.

Nova Scotia, Minudie anticline, Cumberland County: Roundy, 2850.

Purcell's Cove, Halifax County: Howse, 1599.

Paleontology.

Amphibia, Carboniferous, South Joggins: Steen, 3191.

Carboniferous tracks: Sternberg, 3210.

Physical geology.

Slip faulting: Squires, 3161.

Physiographic geology.

Purcell's Cove, Halifax County: Howse, 1599.

Oahu: Stearns, 3184.

Ocean age: Knopf, 1925.

Oceanic basins: Field, 1080.

Oceans, geological misconceptions: Shepard, 3056.

Ohio.

Economic geology.

Brines: Stout, 3263.

Oil and gas: Billingsley, 305.

Oil field, Lima-Indiana: Carman, 581.

Historical geology.

Baltimore & Ohio route: Grimsley, 1331.

Bone beds and crinoidal sands, Delaware limestone: Westgate, 3617.

Sedimentary series: Lamborn, 1965.

Mineralogy.

Cleveland district, pyrite and marcasite concretions: Van Horn, 3477.

Paleontology.

Amphibia, Carboniferous, Linton: Steen, 3190.

Callixylon newberryi (Dawson), Devonian: Berry, 282.

Cephalopods, Silurian cyrtoconic: Foerste, 1123.

Conodonts: Branson, 394.

Dipnoans, Carboniferous: Romer, 2805.

Flora of the Upper Freeport coal, Teegarden: Berry, 285.

Footprints, Pennsylvanian: Mitchell, 2366.

Pelecypod, Silica shale: Stewart, 3218.

Ohio—Continued.

Paleontology—Continued.

Phyllocarid crustacean, Devonian: Stewart, 3219.

Scolecodonts, Upper Ordovician, Cincinnati area: Gries, 1326.

Tetrapods, Pennsylvanian, Linton: Romer, 2799.

Willow, Pleistocene: Berry, 286.

Physical geology.

Cryptovolcanic structure, southern Ohio: Bucher, 463.

Lake Erie shore: Stout, 3264.

Variation series of beach sands, Cedar Point: Pettijohn, 2619.

Physiographic geology.

Buried topography, north-central Ohio: Ver Steeg, 3500.

Cincinnati region, Pleistocene: Brand, 385.

Drainage history, north-central Ohio: White, 3668.

Southeastern Ohio: Happ, 1393.

Erosion surfaces, eastern and southern Ohio: Cole, 700.

Glacial deposits: Ver Steeg, 3499.

Ohio River, evolution: Fowke, 1141.

Pleistocene geology, north central Ohio: White, 3665.

Pre-Illinoian glaciation, Cincinnati region: Desjardins, 899.

Stagnation, last ice sheet, northeast central Ohio: White, 3666.

Wisconsin-Illinoian drift boundary: White, 3667.

Underground water.

General: Stout, 3265.

Oil. See Petroleum.

Oil shale. See also Bituminous rocks; Petroleum.

Colorado: George, 1224.

Nova Scotia, New Glasgow: Swinerton, 3294.

Organic content and origin: Rand, 2690.

Quebec, Port Daniel: Swinerton, 3294.

Oklahoma.

Arbuckle Mountains, geophysical prospecting: Weatherby, 3576.

Deep well temperatures: McCutchin, 2147.

Economic geology.

Base-replacement studies: Case, 595.

Blaine formation, anhydrite-gypsum problem: Muir, 2438.

Burbank sand, Pennsylvanian: Weirick, 3590.

Clays and shales: Sheerar, 3043.

Lucien field: Zavoico, 3815.

Miami-Picher zinc-lead district: Fowler, 1145.

Miami-Picher zinc-lead district: Tarr, 3313, 3318.

Tourmaline: Weidman, 3589.

Oklahoma—Continued.

Economic geology—Continued.

Mid-Continent oil and gas fields: Miser, 2364.

Oil and gas fields: Wrather, 3787.

Oil and oil structures, Oklahoma-Kansas zinc-lead mining field: Fowler, 1143.

Oil southeast of Choctaw fault: Vanderpool, 3471.

Oklahoma City oil field, gas reserves: Hill, 1508.

Oklahoma-Kansas mining field, deformation sequence: Fowler, 1146.

Oolitic hematite, Reagan sandstone: Hayes, 1432.

Petroleum origin, Taylor's theory: Case, 594.

Tri-State district, lead and zinc ores: Fowler, 1142.

Tri-State mining district, chertification: Fowler, 1144.

Union Valley sandstone: Hollingsworth, 1556.

Historical geology.

Arbuckle and Wichita Mountains, early Paleozoic: Decker, 874.

Arbuckle Mountains, overturned beds: Dott, 928.

Structural history: Dott, 927.

Basement rocks and structural trends, western Oklahoma: Becker, 234.

Boone chert: Giles, 1245.

Boulders from Bengalia, Caney shale, Ouachita Mountains: Kramer, 1938.

Cherokee structural history: Lowman, 2118.

Coal fields, Pennsylvanian correlations: Hendricks, 1468.

Garber formation, boundaries: Ross, 2838.

General: Kansas Geol. Soc., 1746, 1747; Oklahoma City Geol. Soc., 2524; Sheerar, 3043.

Graptolite horizon, Silurian: Decker, 876.

Holloman gravel pit, Frederick: Evans, 1033.

Hoxbar formation: Tomlinson, 3400.

Index to stratigraphy, Kansas and adjoining areas: Ver Wiebe, 3502.

Jackfork and Stanley formations of Ouachita geosyncline, age: White, 3663.

Johns Valley shale, Pennsylvanian, Ouachita Mountains: Moore, 2413.

Lake Murray basin and dam site: Tomlinson, 3399.

Lower and middle Pennsylvanian: Lowman, 2117.

Mississippian, western Oklahoma: Dille, 905.

Oil and oil structures, Oklahoma-Kansas zinc-lead mining field: Fowler, 1143.

Oklahoma—Continued.

Historical geology—Continued.

- Oklahoma City anticline: Foley, 1127.
 Oklahoma City oil field, pre-Pennsylvanian detrital zone: Bale, 148.
 Structure: Foley, 1125.
 Oklahoma-Kansas mining field, deformation sequence: Fowler, 1146.
 Osage formations, Ozark region: Cline, 664.
 Ouachita Mountains: Miser, 2360.
 Carboniferous: Miser, 2363.
 Carboniferous stratigraphy, Bendian: Harlton, 1406.
 Salient: Miser, 2361.
 Structural history: Miser, 2362.
 Ouachita Paleozoics, relation to oil and gas fields, Mid-Continent region: Miser, 2364.
 Pennsylvanian-Permian boundary: Dott, 926.
 Western Oklahoma: Ryniker, 2917.
 Permian, Logan and Lincoln Counties: Graham, 1294; Patterson, 2591.
 Permian-Triassic, western Oklahoma: Anderson, 71.
 Permian, western Oklahoma: Greene, 1309.
 Pre-Mississippian Paleozoic, western Oklahoma: Edson, 984.
 Sand barites of Permian, origin: Tarr, 3312.
 Simpson group: Ulrich, 3442.
 Spavinaw granite, age: Ireland, 1634.
 Sylvan shale, characteristics: Thomas, 3361.
 Triassic, limits: Roth, 2840.
 Viola limestone, Arbuckle and Wichita Mountain region: Decker, 875.
 Wapanucka formation, Pennsylvanian: Luman, 2126.
 Wichita, Arbuckle and Ouachita Mountains, Oklahoma, and Ouachita Mountains, Arkansas: Kansas Geol. Soc., 1794.
 Wichita-Arbuckle Mountain region: Van Weelden, 3489.

Mineralogy.

- Leucoxene, Permian: Coil, 693.
 Sphalerite containing rare elements: Hassler, 1420.

Paleontology.

- Basslerina, Ostracoda, Pennsylvanian: Moore, 2404.
 Callixylon whiteanum, Woodford chert: Arnold, 87.
 Cephalopod fauna, Nellie Bly formation: Miller, 2325.
 Conodonts: Bush, 505.
 Elephas imperator, hypertrophied jaw: Stovall, 3267.
 Foraminifera and Ostracoda, upper Trinity, Marietta: Vanderpool, 3470.
 Arenaceous, Lower Paleozoic: Moreman, 2417.

Oklahoma—Continued.

Paleontology—Continued.

- Invertebrates, Pennsylvanian: Newell, 2471.
 Micropaleontology, Johns Valley shale. Ouachita Mountains: Harlton, 1405.
 Ostracoda, McAlister shale, Muskogee County: Wilson, 3719.
 Haragan shale, Murray County: Coryell, 761.
 Pennsylvanian conodonts: Harris, 1411.
 Prairie-dog, Pleistocene, near Frederick: Wood, 3755.
 Tapirus haysii, Pleistocene: Stovall, 3266.

Petrology.

- Dolomites, Stillwater and other formations: Merritt, 2297.

Physical geology.

- Basement rocks and structural trends, western Oklahoma: Becker, 234.
 Faults en échelon: Kramer, 1939.
 Fracture patterns in horizontal strata: Melton, 2283.
 Overthrusting, Arbuckle Mountains: Dott, 929.

Physiographic geology.

- Canadian River, history: Hendricks, 1467.
 Southeastern Oklahoma: Hendricks, 1466.

Underground water.

- Subsurface water, characteristics: Case, 596.

Oligocene. See Tertiary.

Ontario.

Areas described.

- Janes, McNish, Pardo and Dana Townships: Bruce, 440.
 Kakagi Lake area: Burwash, 503.
 Manitou-Stormy Lakes area: Thomson, 3382.
 Michipicoten River area: Matheson, 2234.
 Moose Mountain-Wanapitei area: Kindle, 1883.
 Pashkokogan-Misehkwow area: Dyer, 961.
 Straw-Manitou Lakes area: Thomson, 3383.

Economic geology.

- Atigogama and Dillabough Lakes area: Burwash, 502.
 Clay, refractory, Missinaibi River: Crozier, 810.
 Northern Ontario: Dyer, 962.
 Frood mine, Sudbury: Freeman, 1157.
 Gold deposits: Froberg, 1172.
 Goldquartz veins, tourmaline-bearing, Michipicoten District: Froberg, 1171.
 Heron Bay-White Lake area: Thomson, 3381.

Ontario—Continued.

Economic geology—Continued.

- Kakagi Lake area : Burwash, 503.
 Lake Huron sheet : Can. G. S., 564.
 Lake Superior region : Hotchkiss, 1563.
 Lignite and refractory clay, Onakawana region : Dyer, 958.
 And siderite : Miller, 2319.
 Northern Ontario : Ontario Research Foundation, 2529.
 Manitou-Stormy Lakes area : Thomson, 3382.
 Matachewan gold area : Dyer, 960.
 Michipicoten River area : Matheson, 2234.
 Miller Lake O'Brien mine, Gowganda : Thomson, 3380.
 Mineral prospecting : Goodwin, 1276.
 Moose River Basin, lignite deposits : Hawkins, 1425.
 Natural gas and petroleum in 1931 : Harkness, 1401.
 Natural gas in 1932 : Harkness, 1402.
 Obonga-Kashishibog area, Thunder Bay : Kidd, 1877.
 Pashkokogan-Misehkow area : Dyer, 961.
 Petroleum in 1932 : Harkness, 1403.
 Porcupine district, Hollinger Mine : Graton, 1304.
 Red Lake area : Bruce, 444.
 Rush Lake area, Sudbury district : Bannerman, 159.
 Sandstone at Hawkesbury : Cole, 697.
 Shabumeni-Birch Lakes area : Furse, 1196.
 Silica, hydrous, north of Minaki : Wright, 3800.
 Silver deposits and Keweenawian diabases, genetic relations : Moore, 2402.
 Sioux Lookout area, Kenora district : Hurst, 1624.
 Sudbury nickel irruptive : Collins, 710.
 Swayze gold area : Rickaby, 2767.
 Vipond gold mine, Porcupine district : Dougherty, 930.
- Historical geology.*
 Abram Lake conglomerate and its extensions : Pettijohn, 2620.
 Block Creek area, Thunder Bay : Joliffe, 1716.
 Blue limestone, Hastings County : Wilson, 3727.
 Canadian Shield, pre-Cambrian, Peterborough County : Wilson, 3730.
 Claire River syncline, Hastings County : Wilson, 3728.
 Geologic map, Kenora sheet : Tanton, 3309.
 Heron Bay-White Lake area : Thomson, 3381.
 Lake Huron sheet : Can. G. S., 564.
 Lava flows, north shore of Lake Superior : Sandberg, 2936.

Ontario—Continued.

Historical geology—Continued.

- Little Long Lac area, Thunder Bay district, geologic map : Can. G. S., 568.
 Loon Lake pluton, Bancroft area : Cloos, 668.
 Obonga-Kashishibog area, Thunder Bay : Kidd, 1877.
 Pashkokogan-Misehkow area : Dyer, 959.
 Red Lake area, pre-Cambrian : Bruce, 444.
 Rush Lake area, Sudbury district : Bannerman, 159 ; Can. G. S., 567.
 Seine-Couthiching problem, Rainy Lake : Merritt, 2298.
 Shabumeni-Birch Lakes area : Furse, 1196.
 Siderite, Grand Rapids, Mattagami River : Dyer, 957.
 Sioux Lookout area, Kenora district : Hurst, 1624.
 Sturgeon River area, Thunder Bay district, geologic map : Can. G. S., 573.
 Swayze gold area : Rickaby, 2767.
- Mineralogy.*
 Anthraxolite, Port Arthur : Ellsworth, 1021.
 Cyrtolite, age : Muench, 2436.
 Echellite, nonexistence : Bowen, 358.
 Fluorspar, radioactive, from Wilberforce : Hess, 1484.
 Miller Lake O'Brien mine, Gowganda : Thomson, 3380.
 Tourmaline, Frontenac and Renfrew Counties : Harcourt, 1395.
- Paleontology.*
 Cephalopods, Silurian cyrtoconic : Foerste, 1123.
 Conodonts : Branson, 394.
 Crinoids, Hamilton : Goldring, 1270.
- Petrology.*
 Diorite, Long Lake, Sudbury district : Freeman, 1158.
 Heavy minerals, Ordovician sediments : Derry, 898.
 Pleistocene, Don Valley, Toronto : Derry, 897.
 Nodular granite, Pine Lake : Brøgger, 412.
 Quartz Olivine gabbro, Frood mine, Sudbury district : Freeman, 1159.
 Sudbury nickel irruptive : Collins, 710.
- Physical geology.*
 Cylindrical structures in sandstones, Kingston : Hawley, 1428.
 Fossil quicksands, Potsdam sandstone, near Kingston : Hart, 1419.
 Point Pelee, Lake Erie, erosion and sedimentation : Kindle, 1879.
 Saganag granite, batholith, structure : Grout, 1338.
 Sand fall : Lloyd, 2069.
 Sudbury nickel irruptive : Collins, 710.

Ontario—Continued.

Physiographic geology.

Glacial lake stages, east end of Lake Ontario: Baker, 145.

Moraines north of Toronto: Taylor, 3319.

Pleistocene of Toronto region: Coleman, 701.

Potholes, Pleistocene, Cloche Mountains: Stanley, 3169.

Varved clays: Rittenhouse, 2772.

Watercourses near French River, origin: Quirke, 2684.

Opal: Blank, 332; Shepherd, 3063.

California: Lewis, 2058.

Colorado, Specimen Mountain: Seaman, 3014.

Columbia River basalt: Fernquist, 1065. Geology: Hart, 1416.

Morgan gem collection: Whitlock, 3675.

Nevada, Virgin Valley: Dake, 829.

U. S. National Museum collections: Foshag, 1134.

Optical mineralogy, elements of: Winchell, 3745.

Ordovician. See also Paleontology, Ordovician.

Alabama, northern: Johnston, 1714.

Alberta, central: Allan, 36.

Arkansas: Kansas Geol. Soc., 1746.

British Columbia, Brisco-Dogtooth area: Evans, 1032.

California, Death Valley: Noble, 2497. Canada, Akpatok Island: Cox, 766.

Eastern Arctic: Weeks, 3587.

Colorado, central: Lovering, 2110.

Fish horizons: Behre, 242.

Front Range: Brainerd, 379.

Eastern New York and western New England: Longwell, 2085.

Greenland, east, Caledonian Mountains, Teichert, 3327.

Northwest, Washington Land, south coast: Koch, 1928.

Idaho, south-central: Ross, 2837.

Indiana, Kentland area: Shrock, 3077.

Iowa, upper Mississippi Valley: Trowbridge, 3414.

Kentucky, Mill Springs area: Knapp, 1906.

Manitoba, well sections: Wickenden, 3682.

Marble belt, Vermont: Bain, 124.

Maryland, Appalachian region: Stose, 3260.

Maysville-Richmond boundary: Shideler, 3068.

Mexico, central Sonora: King, 1891.

Minnesota, Bentonite zones: Sardeson, 2948.

Cambrian-Ordovician contact: Graham, 1295.

Shakopee formation: Sardeson, 2954.

Ordovician—Continued.

Minnesota, Bentonite zones—Continued.

Type Paleozoic sections: Stauffer, 3177.

Upper Mississippi Valley: Trowbridge, 3413, 3414.

Missouri: Kansas Geol. Soc., 1746.

Montana, Cinnabar Mountain, Park County: Wilson, 3720.

Nebraska, pre-Pennsylvanian stratigraphy: Lugin, 2123.

Nevada, Eureka quartzite, Great Basin: Kirk, 1894.

Tybo district: Ferguson, 1064.

Newfoundland, western: Schuchert, 2996.

New Hampshire, central: Billings, 303.

New Mexico: Winchester, 3747.

Stratigraphy: Keyes, 1835.

New York, Catskill region: Chadwick, 610.

New York City and vicinity: Berkey, 263.

State: Newland, 2476.

Taconic and Appalachian orogenies, Hudson River region: Pepper, 2602.

Trenton group: Kay, 1753.

Ohio, sedimentary series: Lamborn, 1965.

Serpent Mound structure: Bucher, 463.

Oklahoma: Kansas Geol. Soc., 1746; Shearer, 3043.

Arbuckle and Wichita Mountains, early Paleozoic: Decker, 874.

Lucien field: Zavoico, 3815.

Oil and gas fields: Wrather, 3787.

Simpson group: Ulrich, 3442.

Sylvan shale: Thomas, 3361.

Viola limestone, Arbuckle and Wichita Mountain region: Decker, 875.

Paleozoic, lower, classification: Ulrich, 3444.

Pennsylvania, Atlantic Coastal Plain and Piedmont province: Jonas, 1717.

Central and south-central, bentonite: Rosenkrans, 2811.

Eastern: Berkey, 262.

Hiatus between Carlisle and Lowville limestones: Butts, 517.

Limestones: Miller, 2331.

Middletown quadrangle: Stose, 3261.

Southern: Stose, 3260.

Southwestern: Piper, 2633.

Quebec, Coulonge and Black Rivers, Pontiac County: Retty, 2746.

Southern: Clark, 655.

Tabletop area, Gaspé Peninsula: Jones, 1725.

Thetford and Disraeli quadrangles: Cooke, 738.

Ordovician—Continued.

- Southern Appalachian region: Butts, 513.
 Tennessee, Forked Deer Creek section, Clinch Mountain: Hall, 1372.
 Knox dolomite: Oder, 2517.
 Texas: Sellards, 3029.
 El Paso limestone: Kirk, 1897.
 Trenton limestone: Keyes, 1790.
 Vermont, Athens, Brookline, and Westminster: Richardson, 2761.
 Northwestern, Cambrian, and Ordovician: Schuchert, 2995.
 Putney area: Richardson, 2762.
 Virginia, Appalachian Valley: Butts, 514.
 Blue Ridge: Stose, 3262.
 Northern: Bevan, 288.
 Northern, bentonite: Rosenkrans, 2810.
 Wisconsin, Baraboo area: Wanenmacher, 3544.
 Shakopee formation: Sardeson, 2954.
 Upper Mississippi Valley: Trowbridge, 3413, 3414.
 Wyoming, Owl Creek Mountains: Love, 2107.

Ore deposits, origin. For ore deposits in general see Economic geology (general): Ross, 2821.

- Alaska, Mount Eielson district: Reed, 2711.
 Alteration, pyrite to pyrrhotite: Stevens, 3215.
 Asbestos, chrysotile: Hess, 1491.
 Banding in fissure veins: Schaub, 2904.
 Bauxite deposits, origin: Harder, 1397.
 Bedding plane movements: Behre, 245.
 Beryl-molybdenite deposit, Chaffee County, Colorado: Landes, 1979.
 British Columbia, Copper Mountain mining area, Similkameen district: Dolmage, 911.
 Chalcopyrite, unmixing from sphalerite: Buerger, 477.
 Chemical constituents, minor, igneous rocks: Harcourt, 1396.
 Colorado, Adit tunnel and Columbia mine: Murray, 2446.
 Jamestown ore deposits: Goddard, 1265.
 Leadville district, zoning: Loughlin, 2106.
 Sunnyside veins, Eureka Gulch: Burbank, 486.
 Zoning, Mosquito Range and San Juan Mountains: Loughlin, 2104.
 Copper, chalcocite types: Bastin, 224.
 Deposits, western States: Finch, 1091.
 Disseminated deposits: Locke, 2073.
 Ores, oxidized, paragenesis: Schwartz, 3005.
 Diatomite and pumice, eastern Oregon: Moore, 2400.

Ore deposits, origin—Continued.

- Differentiation: Ross, 2817.
 Differentiation and ore deposits, Cordilleran region, United States: Lindgren, 2061.
 Distribution, primary, of ores: Wernicke, 3615.
 Epithermal base-metal deposits: Burbank, 485.
 Ferric-ferrous ratio, contact-metamorphic deposits: Lasky, 2005.
 Fractures, ore-bearing, origin: Emmons, 1028.
 Gold, Michipicoten District, Ontario: Froberg, 1171.
 Ontario, Vipond mine: Dougherty, 930.
 Transportation by organic solutions: Fetzner, 1072.
 History: Adams, 5.
 Hydrothermal deposits: McLaughlin, 2193.
 Hydrothermal depth-zones: Graton, 1303, 1305.
 Hypogene deposits, western United States: Singewald, 3102.
 Idaho, Meadow Creek mine: Bailey, 121.
 Pearl-Horseshoe Bend gold belt: Anderson, 60.
 Igneous rocks and minerals, correlation: Buddington, 469.
 Iron-bearing formations, Lake Superior region: Zapffe, 3814.
 Iron, Mayville, Wisconsin: Hawley, 1427.
 Pennsylvania, Cornwall district: Hickok, 1503.
 Lead-zinc deposit, Tri-State district: Fowler, 1142.
 Limonite, Colorado, Orient mine: Stone, 3253.
 Limonite derivatives: Blanchard, 331.
 Magmatic differentiation: Bowen, 357.
 Magmatic segregations: Singewald, 3103.
 Manganese, Oriskany ore, Virginia: Holden, 1550.
 Western hydrothermal deposits: Hewett, 1496.
 Mesothermal gold deposits: Connolly, 721.
 Mesothermal silver-lead-zinc deposits: McKnight, 2189.
 Mineral deposits: Lindgren, 2060.
 Mineral zoning, Triassic: Newhouse, 2473.
 Mineralization, primary, changes in: Stoës, 3228.
 Missouri, hydrothermal deposit, W County: Tarr, 3315.
 Magnetometer results and siliceous residues: Buehler, 471.
 Montana, Boulder batholith, temperature relations to ore deposition: Jones, 1731.
 Gold-quartz veins, Libby, southwestern Montana: Gibson, 1239.

Ore deposits, origin—Continued.

Montana—Continued.

Spring Hill gold mine, Helena: Jones, 1732.

Nickel, Sudbury, Ontario: Freeman, 1157.

Oklahoma-Kansas mining field: Fowler, 1146.

Ontario, silver deposits and Keweenaw diabases, genetic relations: Moore, 2402.

Ore deposits, relation to stratigraphy and structure, western States: Butler, 508.

Ore deposits, relation to stratigraphy, structure and igneous activity in Colorado and Wyoming: Burbank, 484.

Ore shoots: Douglas, 931.

Ore, western United States: Locke, 2074.

Paragenesis, in valuing new discoveries: Stoces, 3227.

Pegmatites: Schaller, 2960.

Pneumatic processes: Fenner, 1052.

Physical-chemical factors: Ross, 2816.

Placer deposits, western United States: Pardee, 2571.

Platinum and allied metals, Canada: O'Neill, 2527.

Pyrometamorphic deposits: Knopf, 1924.

Relation of ore deposits and batholiths: Emmons, 1025.

Replacements, in open space: Schouten, 2987.

Rutile, Amherst-Nelson district, Virginia: Ross, 2820.

Serpentinization: Chawner, 636; Hess, 1491.

Silver, Banner district, Idaho: Anderson, 58.

Sulphides, solubility: Gruner, 1344.

Supergene enrichment: Emmons, 1026.

Tectonic position of Rocky Mountain ore districts: Billingsley, 307.

Textures, pseudo-eutectic: Anderson, 59.

Tri-State district: Fowler, 1145; Tarr, 3318.

Uranium, vanadium, radium, gold, silver and molybdenum sedimentary deposits: Hess, 1485.

Vanadium, molybdenum, tungsten and chromium, in oxidized lead deposits: Newhouse, 2475.

Virginia, Austinville mine, Wythe County, zoning of ores: Brown, 436.

Washington, gneisses and ore formations, Cascades: Richarz, 2764.

Western States: Finch, 1090.

Wisconsin-Illinois lead-zinc district: Scott, 3008.

Zinc, lead, Oklahoma-Kansas mining field: Fowler, 1146.

Ore shoots. See Economic geology (general).

Oregon.

Owyhee tunnels: Hines, 1520.

Areas described.

Robertson, Humdinger, and Robert E. gold mines, southwestern Oregon: Shenon, 3046.

Takilma-Waldo and Blue Creek districts: Shenon, 3046.

Economic geology.

Beach placers, coastal: Pardee, 2572.

Chieftain and Continental mines, Douglas County: Wells, 3597.

Copper, Squaw Creek and Silver Peak districts and Alameda mine: Shenon, 3047.

Diatomaceous earth: Eardley-Wilmot, 972; Smith, 3137.

General: Waters, 3569.

Mining districts of eastern Oregon: Gilluly, 1248.

Quicksilver, southwestern Oregon: Wells, 3601.

Robertson, Humdinger, and Robert E. gold mines, southwestern Oregon: Shenon, 3045.

Takilma-Waldo and Blue Creek districts: Shenon, 3046.

Historical geology.

Batholiths: Hodge, 1540.

Cascade Range: Callaghan, 541.

Volcanic sequence: Callaghan, 540.

Central Oregon: Chaney, 623.

Coast line: Smith, 3135.

Eastern Oregon: Gilluly, 1248.

General: Adams, 11.

Geologic history: Waters, 3569.

John Day formation, age: Hodge, 1539.

Keasey formation: Schenck, 2966.

Marine Eocene: Turner, 3424.

Mascall formation, Miocene: Merriam, 2296.

North Santiam section, Oregon Cascade Mountains: Thayer, 3354.

Owyhee valley, diabasic intrusions: Fuller, 1186.

Painted Hills, John Day Valley: Lewellen, 2052.

Roseburg quadrangle, basic igneous rocks: Wells, 3600.

Salem Hills, Willamette valley: Thayer, 3353.

Southwestern Oregon: Jones, 1720, 1721; Wells, 3601.

Triassic, marine, Ochoco Range: Schenck, 2971.

Wallowa Mountains, replacement of dikes and sills: Goodspeed, 1275.

Mineralogy.

Agates, inclusions: Dake, 834.

Chalcedony, opal, Ashwood: Dake, 831.

Cinnabar: Levellen, 2054.

Gem material: Dake, 833.

General: Dake, 832.

Oregon—Continued.

Mineralogy—Continued.

- Livingstonite: Anonymous, 3824.
- Obsidian, iridescent: Anonymous, 3825.
- Opal, Columbia River basalt: Fernquist, 1065.
- Plagioclase in andesite-basalt flow: Fisk, 1111.
- Quartz minerals: Hughes, 1607.
- Rainbow agate: Dake, 830.
- Rhodonite, gem mineral: Randolph, 2691.
- Sagenite agate: Renton, 2739, 2740.
- Schwarzite, Pueblo Mountain: Modell, 2369.
- Star garnet: Kayser, 1756.
- Sunstone: Anonymous, 3335.

Paleontology.

- Cetothera, Miocene, Newport: Packard, 2549.
- Comstock flora: Sanborn, 2930.
- Foraminifera, Eocene, western Oregon: Berthiaume, 287.
- General: Adams, 11.
- Goshen flora, west-central Oregon: Chaney, 625.
- Marine shells, Eocene: Lewellen, 2053.
- Mollusca, Pliocene: Henderson, 1465.
- Mustelid, Tertiary, Malheur County: Hall, 1368.
- Painted Hills, John Day Valley: Lewellen, 2052.
- Plerotomariid, Eocene: Schenck, 2970.
- Trout Creek Miocene flora: MacGinitie, 2170.

Petrology.

- Albite granite, Sparta, replacement origin: Gilluly, 1249.
- Basalt, fractional crystallization: Fuller, 1188.
- Collapsed pumice: Fuller, 1191.
- Endomorphic alteration, basaltic flows: Fuller, 1187.
- Spherulites, Clarno acid lavas: Wilkin-son, 3692, 3693.

Physical geology.

- Owyhee Valley, diabasic intrusions: Fuller, 1190.
- Pumice, nuée ardente origin, Crater Lake region: Moore, 2399.
- Shear-control, dikes and sills, Eugene: Washburne, 3566.

Physiographic geology.

- Beach placers, coastal: Pardee, 2572.
- Coast features: Smith, 3136.
- Coast line: Smith, 3135.
- Columbia River and lower canyon, age: Hodge, 1538.
- Columbia River fault: Hodge, 1536.
- Crater Lake: Kettner, 1786; Rostel, 2839.
- Dunes, Pacific coast: Cooper, 754.
- Glacial erratics, Willamette Valley: Allison, 47.
- Glacial till, Crater Lake: Atwood, 101.
- Moraine-like deposits, exceptional: Hodge, 1537.

Oregon—Continued.

Underground water.

- Investigations: Piper, 2634.
- Walla Walla Basin: Piper, 2637.

Organic content of rocks: Russell, 2905.

Orogeny: Nádai, 2449.

- Appalachian revolution, time: Holden, 1551.
- California, Klamath Mountains, southern: Hinds, 1519.
- Northern Inyo Range: Anderson, 69.
- Tehachapi region: Buwalda, 519.
- Deformation of earth's crust: Bucher, 461.
- Energy sources, of earth's crust: Helm, 1448.
- Great Basin: Keyes, 1806.
- Magnetite, hematite, pyrite and chalcopyrite, microscopic relations: Guild, 1351.
- Mechanics of North American uplifts: Cloos, 672.
- Montana, Beartooth-Big Horn region: Bucher, 464, 466.
- Mountains: Clapp, 641.
- Mountain arcs, three types: Tokuda, 3392.
- Mountain-building, east and west coasts, North America: Seidl, 3027.
- Mountain structure, laboratory studies: Mitchell, 2367.
- Mountains, North American continent: Schottenloher, 2986.
- New Mexico, central mining district: Schmitt, 2979.
- New York, Hudson River region, Taconic and Appalachian: Pepper, 2602.
- Oklahoma, Arbuckle Mountains: Dott, 929.
- Oklahoma City, anticline: Foley, 1127.
- Periodicity: Born, 351; Keyes, 1827.
- Rocky Mountains: Strzygowski, 3279.
- Rotational stress and crustal deformation: Baker, 134.
- Rhythmic nature of mountain-building: Keyes, 1846.
- Sierra Nevada: Cloos, 670.
- Geomorphic structure: Panzer, 2568.
- Tectonic relations between North America and Europe: Stille, 3222.
- Thermal history: Holmes, 1557.
- Virginia, structural pattern: Bevan, 294.
- Wasatch Mountains, southern, Utah: Eardley, 968.
- Wyoming, Beartooth-Big Horn region: Bucher, 464, 466.
- Laramie Basin: Knight, 1922.
- South-central, Rocky Mountains: Knight, 1921.

Oscillation. See Changes of level.

Ostracoda. See also Crustacea.

- Bairdia angulata*: Coryell, 758.
 Pennsylvanian and Permian, Kansas: Kellett, 1765.
Basslerina, Texas and Oklahoma: Moore, 2404.
 Cretaceous, Texas: Alexander, 32.
Cypridella and *Cypridinella*, Kansas-Missouri Pennsylvanian: Rogers, 2796.
Cytherelloidea, Tertiary, Gulf coast: Howe, 1580.
Cytheridea *brightseatensis* for *C. truncata*: Berry, 284.
Cytheridea plummeri, reversed valve and hinge structure, Texas: Alexander, 30.
Cytheropteron, shell structure, Cretaceous, Texas: Alexander, 31.
 Dimorphism and orientation, Kloedenellidae: Swartz, 3286.
Hollinella: Blake, 329.
 Kansas, Upper Cretaceous: Morrow, 2420.
 Louisiana, Sabine Eocene: Howe, 1582.
 McAlester shale, Muskogee County, Oklahoma: Wilson, 3719.
 Michigan, Bell shale: Van Pelt, 3481.
Microcheilinella for *Microcheilus*: Geis, 1221.
 Micropaleontology, Johns Valley shale, Ouachita Mountains, Oklahoma: Harlton, 1405.
 Mississippi, Clarke and Wayne Counties: Shreveport Geol. Soc., 3076.
 Morrison, Black Hills, South Dakota: Roth, 2841.
 Nineveh limestone, Pennsylvania and West Virginia: Holland, 1553.
 Oklahoma, Haragan shale, Murray County: Coryell, 761.
 Orientation, criteria: Warthin, 3563.
 Paleozoic, bibliographic index: Bassler, 220.
 Pennsylvanian and Permian, Kansas: Kellett, 1764.
 Preparation and study: Alexander, 29.
 Texas, Eocene: Alexander, 33.
 Wayland shale, Graham: Coryell, 759.
 Traverse group, Michigan: Warthin, 3564.
 Trinity, upper, microfossils, Oklahoma: Vanderpool, 3470.

Overthrusts, Wyoming: Bucher, 465.

Ozarkian question: Kobayashi, 1927.

Paleobotany. See also Paleontology; Chaney, 628; Seward, 3035.

Age records of Paleozoic plants: White, 3659.

Algae, Jurassic, Utah: Johnson, 1700.
 Algal reef, Permian, South Park, Colorado: Johnson, 1699.

Amber, Eocene, California: Murdoch, 2443.

Paleobotany—Continued.

- Angiosperms, origin: Wieland, 3685.
Annularia, seed-bearing, Pennsylvanian, Missouri: Elias, 1000.
Archaeopteryx eastmanii, Carboniferous, Kentucky: Scott, 3007.
 Asphalt deposits, Carpinteria, Pleistocene, California: Chaney, 631.
 Bahamas, Andros Island, algal flora: Black, 312.
 Barbados, *Peridinites*: Lefèvre, 2030, 2031.
 Beartooth Butte, Devonian, Wyoming: Dorf, 922.
 Bexar County, Eocene, Texas: Parks, 2578.
 Biotic community, Minneapolis, Minnesota: Cooper, 753.
 Boraginaceous plant (*Biorbia*), nomenclature: Cockerell, 679.
 California, auriferous gravels flora: MacGinitie, 2171.
 Carmelo series, Point Lobos, fossil markings: Herold, 1473.
 Eden beds flora: Axelrod, 117.
 Plants in auriferous gravels, Sierra Nevada: Chaney, 624.
 Tertiary, Trinity County: MacGinitie, 2172.
Callixylon erianum and *Bothrodendron antrimense*, Antrim shale, Michigan: Clark, 653.
Callixylon newberryi (Dn) Elkins and Wieland: Arnold, 86.
Callixylon newberryi (Dawson), Ohio: Berry, 282.
Callixylon whiteanum, Mississippian, Oklahoma: Arnold, 87.
 Carboniferous floral succession, eastern States: Jongmans, 1736.
Caytonia thomasi, Lias, east Greenland: Harris, 1415.
 Charophyta, North American Paleozoic: Peck, 2597.
 Paleozoic and Mesozoic: Peck, 2596.
 Climatic change and forest succession: Sears, 3022.
 Coal, role of water in formation and differentiation: White, 3655.
 Colorado, plants, Morrison: Berry, 272.
 Trout Creek flora: Johnson, 1695.
Combretum petraefumensis, cuticle, Eocene, Mississippi: Berry, 274.
 Conifer, Triassic, Pennsylvania: Wherry, 3649.
 Cordaitan wood, Pennsylvanian, Kansas: Steidtmann, 3194.
 Cordaites, flowers and fruit: White, 3654.
Cordaites missouriense, Missouri: Cribbs, 778.
 Cuba, Santa Clara and Matanzas Provinces, Pleistocene: Berry, 278.
 Cypress swamp, Pleistocene, Maryland: Berry, 268.
 District of Columbia, plants, Pleistocene: Berry, 270.

Paleobotany—Continued.

- Ephedra miocenica, Tertiary, correction:
Anonymous, 3832.
- Ephedra miocenica, Colorado: Wodehouse, 3751.
- Flora, coal basin, Michigan: Arnold, 85.
- Flora in coal balls, Pennsylvanian, Illinois: Graham, 1293.
- Forest of coal age: Dahlgren, 825.
- Foxtail pine, Miocene, Colorado: Cockrell, 633.
- Gleicheniopsis, Cretaceous, Greenland: Miner, 2356.
- Gleicheniopsis fecunda, Cretaceous fern, Greenland: Tutin, 3427.
- Greenland, east: Mathiesen, 2243.
- East, Scoresby Sound: Harris, 1413, 1414.
- Microfossils in coal: Arnold, 81.
- Green River, Eocene, Colorado: Brown, 428.
- Illinois, coal balls: Noé, 2500, 2501.
- Coal no. 6: Henbest, 1454; McCabe, 2135.
- Pennsylvanian, coal balls: Noé, 2504.
- Indiana, pollen in peat bogs: Houdek, 1565.
- Introduction to study of fossils: Shimer, 3070.
- Knowltonella maxoni, Cretaceous, Wyoming: Berry, 273.
- Lake balls, Cladophora balls, and coal balls: Kindle, 1882.
- Lesleya Lesquereux and Megalopteris Dawson, Illinois: Florin, 1121.
- Liquidambar, Aspen shale, Wyoming: Brown, 427.
- Lithothamnidae, Eocene, California: Howe, 1586.
- Megalopteris and Cardiocarpon: White, 3653.
- Mexico, Tehuacan region: Müllerried, 2431.
- Micro-technique: Noé, 2503.
- Miocene, Idaho: Berry, 275.
- Montana, algal reefs, bioterms, in Belt series: Fenton, 1059.
- Nevada, flora, Miocene, from 49 Camp: LaMotte, 1971.
- Petrified tree: Boak, 335.
- Plants in Nothrotherium dung: Lauder milk, 2006.
- Ohio, Upper Freeport coal flora: Berry, 285.
- Ohio Valley coal balls: Noé, 2502.
- Oregon, Goshen flora: Chaney, 625.
- Trout Creek flora: MacGinitie, 2170.
- Western, Comstock flora: Sanborn, 2930.
- Peat and fossil pollen, Dismal Swamp, Virginia: Cocke, 677.
- Peat, rate of growth, Erie basin: Sears, 3021.

Paleobotany—Continued.

- Pennsylvania, coal flora, Wilkes-Barre and Pittsburgh region: Darrah, 844.
- Pocono, age: White, 3660.
- Ponoco (Oswayo) sandstone: Arnold, 82.
- Pennsylvanian plants, Illinois, morphology: Noé, 2499.
- Permian plants, Mid-Continent: Elias, 1005.
- Pines, closed-cone, Pliocene, Pleistocene, California: Mason, 2226.
- Pinus lynii, Eocene, Virginia: Berry, 277.
- Plant life and philosophy of geology: Gordon, 1282.
- Pleistocene flora, Tennessee: Berry, 281.
- Forests, Illinois: Voss, 3524.
- Pliocene floras, California: Dorf, 919.
- Pollen and diatoms from Dismal Swamp: Cocke, 676.
- Pollen, oil shales of the Green River formation: Wodehouse, 3750.
- Polyporites browni, Lower Cretaceous shelf fungus, Montana: Wieland, 3686.
- Pottsville flora, Colorado, Mosquito Range: Read, 2708.
- Preparation of paleobotanical sections by peel method: Graham, 1292.
- Protolpidodendron, Devonian, Virginia: Berry, 271.
- Psaronius illinoensis, Carboniferous, Illinois: Hoskins, 1562.
- Pteridosperms, Carboniferous, Kentucky: Seward, 3036.
- Ptychocarpus unitus, Carboniferous, Illinois: Hoskins, 1561.
- San Bruno, San Mateo County, California, Pleistocene: Potbury, 2652.
- Santa Cruz Island, Pleistocene, California: Chaney, 630.
- Schilderia adamanica, Triassic, Arizona: Daugherty, 853.
- Solidago praeconcinna, Creede formation, Colorado: Cockerell, 680.
- South Dakota, Harding County, Lance formation: Berry, 276.
- Sphenopterid fructification, Pennsylvanian, Michigan: Arnold, 83.
- Sporangites, Devonian, redeposited in Lake Michigan: Hough, 1566.
- Spores, American coals: Sprunk, 3160.
- Strobilus, Pocono, Pennsylvania: Arnold, 84.
- Supai seeds in Grand Canyon Permian: White, 3661.
- Tempskya, western North America: Read, 2709.
- Tertiary floras, Washington: Beck, 233.
- Forests of Western North America: Chaney, 629.

Paleobotany—Continued.

- Texas, fern from Clear Fork limestone: Adams, 8.
 Lytle, Bexar County: Kirn, 1898.
 Tomales formation, Pleistocene, California: Mason, 2227.
 Trichopitys, Colorado: Read, 2707.
 Utah, fossil mosses: Flowers, 1122.
 Walnut, Miocene, Maryland and Virginia: Berry, 279.
 Washington, upper Miocene florules: LaMotte, 1972.
 West Virginia, Greene formation: Haught, 1421.
 Whittlesseyinae, group to include genera with spore-bearing organs: Halle, 1375.
 Willow, Pleistocene, Ohio: Berry, 286.
 Wood anatomy and angiosperm origin: Wieland, 3687.
 Opalization: Wieland, 3684.
 California, Last Chance Gulch, Pliocene: Webber, 3583.
 Miocene, California: Mitchell, 2365.
 Wyoming, Aspen shale: Brown, 426.
 Beartooth Butte, Devonian: Dorf, 921.
 Beartooth Butte flora: Dorf, 920.
 Zones, Tertiary: Elias, 1003.

Paleoclimatology. See also Geologic history.

- Bermuda, Pleistocene climate: Bryan, 456.
 Climatic change and forest succession: Sears, 3022.
 Grand Canyon climates: McKee, 2180.
 Inland Empire: Freeman, 1160.
 Postglacial: Bryan, 453.
 Utah Lake sediments, interpretation: Hansen, 1391.
 Volcanic dust, relation to climate: Humphreys, 1619.

Paleoecology.

- Agnostian trilobites, habitats: Howell, 1597.
 Black mud shales, eastern New York: Ruedemann, 2876.
 Conodonts: Branson, 398.
 Foraminifera, Paleozoic: Cushman, 822.
 Iron ores, sedimentary: Hayes, 1434.
 Viewpoints and objectives: Fenton, 1061.
 Worms: Cronels, 799.

Paleogeographic maps.

- Texas: Sellards, 3028.

Paleogeography. See also Geologic history; Paleoclimatology; Paleogeographic maps: Levorsen, 2050.

- California: Reed, 2714.
 Los Angeles Basin: Edwards, 985.
 Pacific coast: Reed, 2718.
 Canada, Canadian Shield: Cooke, 737.
 Florida: Staub, 3174.

Paleogeography—Continued.

- Land and sea connections, Central America and West Indies: Rutten, 2914.
 Oklahoma, Ouachita Mountains, salient: Miser, 2361.
 Pleistocene: Daly, 838.
 Rocky Mountain region: Heaton, 1437.
 Schuchert's tectonic ideas: Strahov, 3270.
 Texas: Sellards, 3028.
 Catahoula formation, Fayette County: Bowling, 364.
 Merkle dolomite: Patton, 2592.
 Upper Cretaceous: Sears, 3019.

Paleogeology: Levorsen, 2050.

- United States, Carboniferous: Levorsen, 2050.

Paleometeorology. See Paleoclimatology.

Paleontology. For areal see names of

- States. See also the classes of animals and Invertebrates (general); Evolution; Paleobotany; Problematic organisms; Restorations: Fenton, 1056; Merriam, 2291, 2295.
 Aristogenesis: Osborn, 2535.
 Chronology: Crickmay, 783.
 Eublastoidea, bibliographic index: Greger, 1313.
 Eurypterid influence on vertebrate history: Romer, 2803.
 Facies in stratigraphic paleontology: Kindle, 1881.
 Imbedding fossils in paraffine for cleaning: Cooper, 748.
 Insects, geological history: Carpenter, 582.
 Introduction to study of fossils: Shimer, 3070.
 Invertebrate paleontology, development in America: Bassler, 219.
 Leiorhynchus as a guide fossil: Chadwick, 616.
 Report on invertebrate paleontology, Museum Comparative Zoology: Raymond, 2704, 2706.
 Serial sectioning of fossils: Simpson, 3095.
 Text-book: Zittel, 3819.
 Trituberculy: Gregory, 1321.
 Type specimens, preservation: Stephenson, 3205.
 Variation, misuse of term: Clark, 652.
Cambrian.
 California, Mojave Desert: Crickmay, 780.
 Foraminifera, Upper Cambrian: Howell, 1589.
 Graptolites: Ruedemann, 2877.
 Upper Mississippi Valley: Ruedemann, 2872.
 Greenland, east, Lower Cambrian faunas: Poulsen, 2656.

Paleontology—Continued.

Cambrian—Continued.

- Montana, Libby: Gale, 1198.
Paleozoic plankton: Ruedmann, 2878.
Pennsylvania, Campostroma: Ruedmann, 2870.
Scolithus: Cloud, 873.
South Dakota, Crepicephalus horizon in Deadwood formation: Meyerhoff, 2311.
Trilobita, upper Mississippi Valley: Ulrich, 3441.
Vermont, Bovicornellum vermontense, Parker's Hill, Franklin County: Howell, 1591.
Wisconsin, Baraboo area: Wanenmacher, 3544.

Carboniferous.

- Ammonoids, triangular nepionic coiling: Croneis, 792.
Arizona, Coconino sandstone: McKee, 2182.
Supala seeds in Grand Canyon, Permian: White, 3661.
British Columbia, Propinoceras americanum, Permian: Miller, 2323.
Charophyta, Paleozoic, North America: Peck, 2597.
Colorado, Pennsylvanian coprolites, Chaffee and Park Counties: Johnson, 1701.
Pottsville flora, Mosquito Range: Read, 2708.
South Park, phyllopod crustaceans: Johnson, 1698.
Trichopitys: Read, 2707.
Greenland, east, fishes: Nielsen, 2486.
Kap Stosch formation: Frebold, 1154.
Lower Permian: Frebold, 1151.
Permian sharks: Branson, 390.
Wollaston area, fauna: Frebold, 1153.
Illinois, coal balls: Noé, 2500, 2501.
Coal ball flora, Pennsylvanian: Graham, 1293.
Dipnoans: Romer, 2805.
Lesleya Lesquereux and Megalopteris Dawson: Florin, 1121.
Mesolobus mesolobus, typical form and range: Weller, 3592.
Pennsylvanian, plants, in coal balls: Noé, 2504.
Pennsylvanian plants, morphology: Noé, 2499.
Peoria County, Chaetetes milleporaceus: Heritsch, 1472.
Psaronius illinoensis, McLeansboro formation: Hoskins, 1562.
Ptychocarpus unitus, Danville: Hoskins, 1561.
Invertebrates: Girty, 1258.
Iowa, Cherokee nautiloids: Miller, 2328.
Crinoidea: Thomas, 3360.
Crinoids, Mississippian, Legrand: Barbour, 172.

Paleontology—Continued.

Carboniferous—Continued.

Iowa—Continued.

- Echinodermata: Beane, 231.
Fusulinids, Des Moines area: Thompson, 3375.
Gilmore City formation: Laudon, 2010.
Starfishes and crinoids, Legrand: Keyes, 1860.
Kansas, Anderson County, Pennsylvanian Cœlacanthus: Hibbard, 1499.
Charophyta: Peck, 2596.
Cherokee nautiloids: Miller, 2328.
Conodonts and fish remains: Gunnell, 1352.
Fossil "nests", Admire Junction: Schoewe, 2985.
Insects: Carpenter, 585.
Ostracodes, Pennsylvanian and Permian: Kellett, 1764, 1765.
Pennsylvanian cordaitan wood: Steidtmann, 3194.
Pennsylvanian invertebrates: Newell, 2471.
Pennsylvanian Megasecopterion, Garrett: Carpenter, 586.
Permian insects: Carpenter, 583.
Kentucky, Archaeopitys eastmanii: Scott, 3007.
Pteridosperms: Seward, 3036.
Michigan, flora, coal basin: Arnold, 85.
Sphenopterid fructification: Arnold, 83.
Mississippian brachiopods, coloration: Rowley, 2857.
Missouri, Charophyta: Peck, 2596.
Cherokee nautiloids: Miller, 2328.
Conodonts and fish remains: Gunnell, 1352.
Busberg sandstone: Branson, 396.
Hannibal formation: Branson, 400.
Cordaites missouriense: Cribbs, 778.
Gastropods, St. Louis, Pennsylvanian: Knight, 1911, 1912, 1913, 1914.
Goniatite, Pennsylvanian, Henry County: Bisat, 309.
Griffithides olsoni, trilobite: Williams, 3709.
Mesolobus mesolobus, typical form and range: Weller, 3592.
Seed-bearing Annularia, Pennsylvanian: Elias, 1000.
Montana, Quadrant shales, conodonts: Scott, 3011.
Nebraska, nautiloid cephalopods, Mid-Continent region: Miller, 2320.
Nova Scotia, Amphibia, South Joggins: Steen, 3191.
Ohio, Amphibia, Linton: Steen, 3190.
Dipnoans: Romer, 2805.
Footprints, Pennsylvanian: Mitchell, 2366.
Pennsylvanian tetrapods: Romer, 2799.

Paleontology—Continued.

Carboniferous—Continued.

Ohio—Continued.

Upper Freeport coal flora: Berry, 285.

Oklahoma, Callixylon whiteanum, Woodford chert: Arnold, 87.

Cephalopod fauna, Nellie Bly formation: Miller, 2325.

Micropaleontology, Johns Valley shale, Ouachita Mountains: Harton, 1405.

Pennsylvanian conodonts: Harris, 1411.

Pennsylvanian invertebrates: Newell, 2471.

Ostracoda, McAlester shale, Muscogee County: Wilson, 3719.

Paleozoic plankton: Ruedemann, 2878.

Pennsylvania, brachiopods, Greenbrier limestone, Uniontown: Benson, 257.

Coal flora, Wilkes-Barre and Pittsburgh, region: Darrah, 844.

Insects: Carpenter, 587.

Northwestern: Caster, 601.

Ostracods, Nineveh limestone: Holland, 1553.

Plants, Antrim shale, Alpena County: Clark, 653.

Pterotocrinus, evolution in eastern interior basin, Chester epoch: Sutton, 3284.

Texas, Conocardium, Pennsylvanian, Hood County: Harris, 1409.

Fern from Clear Fork limestone: Adams, 8.

Permian dipnoans: Romer, 2805.

Wayland shale, Graham, ostracoda: Coryell, 759.

Virginia, arachnid, Allegheny: Ewing, 1036.

West Virginia, flora, Greene formation: Haught, 1421.

Ostracods, Nineveh limestone: Holland, 1553.

Point Lick, Kanawha County: Fieldner, 1084.

Whittleseyinae, group to include genera with spore-bearing organs: Halle, 1375.

Wyoming, middle Phosphoria formation fauna: Branson, 389.

Permian sharks: Branson, 390.

Southwestern, Uinta County: Veatch, 3497.

Yukon, Laberge area: Lees, 2024.

Cretaceous.

Alabama, Diploschiza: Stephenson, 3206.

Marine reptiles: Renger, 2737.

Alberta, Champsosaurus, Belly River formation: Parks, 2583.

Dinosaurs and turtles, Upper Cretaceous: Parks, 2580.

Gastrolites and Neogastrolites: McLearn, 2196.

Paleontology—Continued.

Cretaceous—Continued.

Alberta—Continued.

Ornithomimus: Sternberg, 3209.

Pelecypods, Clearwater formation: McLearn, 2197.

Troödon, occurrence and relationships: Russell, 2887.

Bonaire, Danish West Indies: Pijpers, 2628.

British Columbia, Coloradoan fauna, upper Peace River: Warren, 3557.

California, Carmelo series, Point Lobos, fossil markings: Herold, 1473.

Cretaceous and Tertiary mollusks, Mount Hamilton Range: Wiedey, 3683.

Canada, dinosaur tracks, Peace River: Sternberg, 3208.

Western, reclassification of Unionidae: Russell, 2890.

Ceratopsia, revision: Lull, 2124.

Colorado, plants, Morrison: Berry, 272.

Corals, United States: Wells, 3602.

Cuba: Sánchez Roig, 2935.

Central, fauna: Sánchez Roig, 2934.

Echinoids: Lambert, 1963; Sánchez Roig, 2933; Weisbord, 3591.

Foraminifera: Palmer, 2564.

Gallowayina: Palmer, 2561.

Radiolaria: Palmer, 2563.

Rudistae: Palmer, 2565.

Pinar del Rio: Boissevain, 343.

Exogyra cancellata zone: Stephenson, 3204.

Florida, Albulia antiqua: Cockerell, 682.

Foraminifera, orbitoid, biogeographic relations: Vaughan, 3494.

Greenland, east: Bøggvad, 342; Rosenkrantz, 2813.

Gleicheniopsis: Miner, 2356.

Gleicheniopsis fecunda, fern: Tutin, 3427.

Microfossils in coal: Arnold, 81.

Northeast, invertebrata: Frebold, 1152.

Guatemala, Rudistae, Alta Verapaz: Mac Gillavry, 2169.

Jamaica, corals: Wells, 3603.

Kansas, cephalopods, Pierre formation, Wallace County: Elias, 1001.

Foraminifera and Ostracoda: Morrow, 2420.

Portheus molossus Cope: Thorpe, 3387.

Massachusetts, Cape Cod region: Woodworth, 3779.

Mexico, Cardium ochoterenai, Tlaxiaco, Oaxaca: Müllerried, 2433.

Gigantic Cretaceous pelecypods, Chiapas: Müllerried, 2434.

Plagiptychus, Chiapas: Müllerried, 2430.

Tehuacan region: Müllerried, 2431.

Paleontology—Continued.

Cretaceous—Continued.

- Montana, dinosaur, Hell Creek beds: Brown, 419.
 Mollusca, fresh-water: Russell, 2892.
 Mollusca, Gas City Dome: Coryell, 760.
 Shelf fungus: Wieland, 3686.
 Teleorhinus browni, skull characters, Pryor: Mook, 2394.
 Teleorhinus robustus, Benton: Mook, 2397.
 Nebraska, Trachedon, Decatur: Barbour, 170.
 New Jersey, Bryozoa, Vincentown: Canu, 575.
 New Mexico, turtles: Wiman, 3743.
 Oklahoma, Foraminifera and Ostracoda, upper Trinity: Vanderpool, 3470.
 Rocky Mountain region, Mollusca: Henderson, 1464.
 Saskatchewan, Bearpaw formation: Warren, 3561.
 Turtles: Russell, 2893.
 South Dakota, Harding County, lower Lance florule: Berry, 276.
 Micro-fossiliferous Upper Cretaceous: Applin, 78.
 Tennessee, Midway group turtle, Hornsby: Whitlach, 3673.
 Texas, calcsponge: Wells, 3604.
 Cytheridea plummeri, reversed valve and hinge structure: Alexander, 30.
 Cytheropteron, shell structure: Alexander, 31.
 Diploschiza: Stephenson, 3206.
 Echinoids: Smiser, 3110.
 Footprints, Comanchean limestone, Bandera County: Houston, 1567.
 Orbitulina, Glen Rose formation: Silvestri, 3084.
 Orbitolina walnutensis: Lynch, 2131.
 Ostracoda: Alexander, 32.
 Wyoming, flora, Aspen shale: Brown, 426.
 Knowltonella maxoni, Aladdin: Berry, 273.
 Liquidambar, Aspen shale: Brown, 427.
 Southwestern, Uinta County: Veatch, 3497.

Devonian.

- Catalogue, card, North American fossils: Howell, 1590.
 Charophyta, Paleozoic, North America: Peck, 2597.
 Conodonts: Branson, 394.
 Greenland, Diplopterax: Säve-Söderbergh, 2920.
 East: Kulling, 1952; Säve-Söderbergh, 2918.
 Phyllolepidia and Arthrodira: Sten-sjö, 3197.

6022°—35—23

Paleontology—Continued.

Devonian—Continued.

- Greenland—Continued.
 Stegocephalians: Säve-Söderbergh, 2919.
 Illinois, trilobite, Grand Tower, Jackson County: Roy, 2858.
 Indiana, conodonts, New Albany shale: Huddle, 1606.
 Corynecrinus, Clark County: Kirk, 1896.
 Top of New Albany shale: Huddle, 1605.
 Iowa, Foraminifera, Rockford: Miller, 2324.
 Maine, Rhodocrinus mortoni, crinoid: Goldring, 1269.
 Michigan, brachiopods, Grand Traverse region, revision: Ehlers, 991.
 Ostracoda, Bell shale: Van Pelt, 3481.
 Traverse group: Warthin, 3564.
 Missouri, conodonts: Branson, 394.
 Grassy Creek shale: Branson, 395.
 Throopella typa, Devonian scaphopod: Greger, 1312.
 Montana, ammonites, Madison County: Schindewolf, 2973.
 New Hampshire, Littleton area: Billings, 304.
 New York, Erie County: Reimann, 2734.
 Eurypterid, Moscow shales: Kjellesvig, 1901.
 Hamilton crinoids: Goldring, 1270.
 John Boyd Thacher (Indian Ladder region): Goldring, 1268.
 Southwestern, Chemung formation: Curry, 816.
 Tiptop, Allegany County, annelid jaws: Eller, 1007.
 Ohio, Callixylon newberryi (Dawson): Berry, 282.
 Pelecypod, Silica shale: Stewart, 3218.
 Rhinocaris ehlersi (crustacean): Stewart, 3219.
 Oklahoma, ostracodes, Haragan shale, Murray County: Coryell, 761.
 Ontario, Hamilton crinoids: Goldring, 1270.
 Paleozoic plankton: Ruedemann, 2878.
 Pennsylvania: Willard, 3694.
 Northwestern: Caster, 601.
 Pocono strobilus, Port Allegany: Arnold, 84.
 Styronurus shaffneri, Chemung eurypterid: Willard, 3696.
 Virginia, Protolepidodendron, Devonian: Berry, 271.
 Wyoming, Beartooth Butte: Dorf, 922.
 Flora: Dorf, 920, 921.
 Eurypterid, Pterygotus princetonii: Ruedemann, 2874.
 Fish fauna: Bryant, 458.

Paleontology—Continued.

Jurassic.

- Alberta, foraminifera: Wickenden, 3681.
 Brachiopoda: Crickmay, 786.
 California, Hyatt's unfigured types: Crickmay, 779.
 Mount Jura: Crickmay, 782.
 Cuba: Sánchez Roig, 2935.
 Greenland, east: Rosenkrantz, 2815.
 Caytonia thomasi, Lias: Harris, 1415.
 Decapods: Van Straelen, 3482.
 Invertebrate faunas, Jameson Land: Spath, 3154.
 Scoresby Sound, Caturus groenlandicus: Aldinger, 23.
 Scoresby Sound, plants: Harris, 1414.
 Upper Jurassic: Frebold, 1155.
 Mexico, Tehuacan region: Müllerried, 2431.
 Montana, foraminifera, Jurassic: Sandidge, 2940.
 Saskatchewan, foraminifera: Wickenden, 3681.
 South Dakota, Ostracoda, Black Hills: Roth, 2841.
 Utah, algae, Washington County: Johnson, 1700.
 Wyoming, southwestern, Uinta County: Veatch, 3497.

Ordovician.

- Alabama: Poor, 2647.
 Baffin Island: Wilson, 3718.
 California, Inyo Mountains faunas, Ordovician: Phleger, 2623.
 Canada, northern, Climacograptus inuiti, Ungava Bay: Cox, 765.
 Colorado, Ordovician: Branson, 393.
 Conodonts: Branson, 394.
 Greenland, north, actineroïd Cephalopoda: Teichert, 3329.
 Iowa, Schuchertoceras thomasi: Miller, 2321.
 Minnesota, Gonioceras: Sardeson, 2953.
 Middle Ordovician, annelida: Stauffer, 3176.
 Missouri, conodonts: Branson, 394.
 Ordovician and Silurian: Branson, 393.
 New Hampshire, Littleton area: Billings, 304.
 New York, eurypterids in graptolite shales: Ruedemann, 2875.
 John Boyd Thacher Park (Indian Ladder region): Goldring, 1268.
 Trenton Falls, Rust Quarry: Delo, 887.
 Oklahoma, Viola limestone, Arbuckle and Wichita Mountain region: Decker, 875.
 Paleozoic plankton: Ruedemann, 2878.
 Pennsylvania, Salonia magnaplicata, Salona, Clinton County, brachiopod: Cooper, 750.

Paleontology—Continued.

Ordovician—Continued.

- Quebec, Akpatok Island, trilobites, Richmond formation: Cox, 767.
 Wisconsin, Baraboo area: Wanenmacher, 3544.

Pre-Cambrian.

- Arizona, Fucoides, Grand Canyon: McKee, 2181.
 Montana, algal reefs, bioherms, in Belt series: Fenton, 1059.

Quaternary.

- Arizona, Pleistocene antilocaprine: Roosevelt, 2806.
 Pleistocene, Mylodon harlani, Apache County: Brady, 374.
 Bahamas, land and fresh-water mollusks, Money and Great Stirrup Cays: Pilsbry, 2629.
 Barbados coral rock: Trechmann, 3411.
 Bonaire, Danish West Indies: Pijpers, 2628.
 California, Branta dickeyi, Pleistocene, McKittrick: Miller, 2338.
 Chendytes, extinct goose, Ventura County: Miller, 2349.
 Closed-cone pines: Mason, 2226.
 Cosomys, Pleistocene vole: Hinton, 1522; Wilson, 3734.
 Dentalium neohexagonum, Fernando formation: Greger, 1314.
 Eomellivora, Kern River Pliocene: Stock, 3231.
 Falcons, Pleistocene, McKittrick: Miller, 2340.
 Foraminifera, distribution, living and fossil: Natland, 2456.
 Horse skull from Rancho La Brea: Antonius, 76.
 Lithothamnidae: Howe, 1586.
 Mammalian fauna, Carpinteria asphalt deposits: Wilson, 3736.
 Nothotherium, Pleistocene, Rancho La Brea: Moodie, 2382.
 Pleistocene avifauna, McKittrick: Miller, 2339.
 Birds: Miller, 2343.
 Flora, asphalt deposits, Carpinteria: Chaney, 631.
 Mollusks, Carpinteria: Grant, 1300.
 Otus flammeolus, Samwel Cave: Miller, 2348.
 Road-runner: Larson, 2003.
 Sabre-tooth tiger, sacralization: Moodie, 2391.
 Rancho La Brea avifauna: Miller, 2315.
 Ricardo, Serbelodon burnhami: Osborn, 2533.
 San Bruno, San Mateo County, Pleistocene flora: Potbury, 2652.
 Santa Cruz Island, Pleistocene flora: Chaney, 630.
 Smilodon californicus, Pleistocene, Rancho la Brea: Moodie, 2380.

Paleontology—Continued.

Quaternary—Continued.

California—Continued.

Timms Point, cool-water Pleistocene,
San Pedro: Clark, 643.

Tomales formation, Pleistocene flora:
Mason, 2227.

Canada, postglacial mollusca: Mozley,
2426.

Western, reclassification of Unioni-
dae: Russell, 2890.

Castoroides ohioensis: Cahn, 535.

Connecticut, Littorina irrorata, post-
Pleistocene: Knight, 1915.

Cuba, Foraminifera: Thalmann, 3347.
Guantanamo Bay region: Vaughan,
3492.

Pleistocene birds from Ciego Mon-
tero: Wetmore, 3621.

District of Columbia, plants, Pleisto-
cene: Berry, 270.

Florida, diatoms in peat deposits:
Hanna, 1382.

Bat, Pleistocene: Allen, 42.

Edentates, Pleistocene: Holmes,
1558.

Mammals, Pleistocene: Simpson,
3088.

Greenland, East, Mytilus edulis in
raised beaches: Noe-Nygaard, 2505.

Gulls, Pleistocene, distribution: Mil-
ler, 2337.

Hyrachyidae, Eocene, revision:
Wood, 3766.

Idaho, rodent fauna, Grand View and
Hagerman: Wilson, 3737.

Illinois, mammoth, Pleistocene, Paris,
Edgar County: Baker, 143.

Pleistocene forests: Voss, 3524.

Polygyra profunda Say, Pleistocene:
Baker, 142.

Pomatiopsis, relationship of recent
and fossil: Baker, 140.

Indiana, pollen in peat bogs: Houdek,
1565.

Iowa, mastodon tusk, near Hampton:
Cable, 531.

Kansas, vertebrates, Pleistocene, Mc-
Pherson County: Harnly, 1407.

Maryland, Mammalia, Pleistocene,
Cumberland Cave: Gidley, 1241.

Talbot cypress swamp, Greenbury
Point: Berry, 268.

Taurotragus americanus, Cumber-
land Cave: Gazin, 1213.

Massachusetts, Cape Cod region:
Woodworth, 3779.

Mastodons, trilophodont-tetrabelodont:
Frick, 1164.

Mexico, mollusks, Pleistocene, Tres
Marias Islands, Cedros Island and
San Ignacio Lagoon: Hertlein,
1483.

San Quintin Bay, Lower California,
Pleistocene: Manger, 2207.

Paleontology—Continued.

Quaternary—Continued.

Minnesota, late-Pleistocene biotic com-
munity: Cooper, 753.

Mississippi, Pleistocene musk ox,
Natchez: Hay, 1430.

Missouri, Pleistocene, Mollusca: Gre-
ger, 1311.

Montana, mollusca, fresh-water: Rus-
sell, 2892.

Nebraska, giant beaver, Pleistocene:
Barbour, 169.

Camel, giant Pleistocene, Red
Cloud: Barbour, 183.

Mastodon grangeri, Thurston
County: Barbour, 182.

Mastodon moodiei, Pleistocene:
Barbour, 177.

Musk oxen, Pleistocene: Barbour,
174.

Ovibovine, Pleistocene, Mullen: Bar-
bour, 184.

Pleistocene mammals; Schultz, 3002.

Pleistocene mastodon, Milford: Bar-
bour, 173.

Nevada, Clark County: Simpson, 3098.
Pleistocene elephant, Fallon: Stock,
3229.

New Jersey, Hydrocorallinae: Rich-
ards, 2756.

Marine fossils: Richards, 2755.

New Mexico, bird remains from cave
deposits: Howard, 1574; Wetmore,
3632.

Cryptoglaux funera, Shelter Cave,
Dona Ana County: Howard, 1572.

Pyelorchampus molothroides, icterid,
Dona Ana County, Shelter Cave:
Miller, 2316.

Road-runner, Dona Ana County:
Howard, 1571.

New York, western Long Island and
New York Harbor, Foraminifera:
Shupack, 3083.

Ohio, Pleistocene willow: Berry, 286.
Oklahoma, Elephas imperator: Stovall,
3267.

Tapirus haysii, Pleistocene: Stovall,
3266.

Pennsylvania, mastodon, Point Marion:
Price, 2665.

Saskatchewan, Gyraulus cyclostomus,
Rosetown, Interglacial: Baker,
141.

Molluscan fauna, Pleistocene and
post-Pleistocene: Russell, 2891.

Texas, Daemonehelix, Pleistocene, Bris-
coe County: Wood, 3765.

Elephants, Connor sand pits, Dallas:
Shuler, 3081.

Osteoborus, Hemphill County: Stir-
ton, 3224.

Utah, Elephas primigenius, Pleistocene,
Payson: Hansen, 1390.

Paleontology—Continued.

Quaternary—Continued.

Utah—Continued.

Mollusca, Lake Bonneville: Berry, 269.

Stagnicola kingi: Chamberlain, 617.

Vertebrates, Pleistocene, North America: Romer, 2802.

Virginia, Dismal Swamp peat and fossil pollen: Cocke, 677.

Washington, *Schizothaerus nuttallii* bighopensis, Big Hope Island, Puget Sound: Henderson, 1462.

West Indies, *Amblyrhiza*, Pleistocene, St. Martin: Schreuder, 2991.

Silurian.

Baffin Island: Wilson, 3718.

Greenland, north: Poulsen, 2657.

Iowa, cyrtoconic cephalopods: Foerste, 1123.

Kentucky, *Xylodes rugosus*: Smith, 3133.

Missouri, Ordovician and Silurian: Branson, 393.

New Hampshire, Littleton area: Billings, 304.

New York, John Boyd Thacher Park (Indian Ladder region): Goldring, 1268.

Ohio, cyrtoconic cephalopods: Foerste, 1123.

Ontario, cyrtoconic cephalopods: Foerste, 1123.

Paleozoic plankton: Ruedemann, 2873.

Pennsylvania, ostracodes, Kloedenellidae: Swartz, 3286.

Quebec, Baie des Chaleurs: Parks, 2579.

Eurypterus remipes: Kindle, 1880.

Syndetocrinus, Port Daniel: Kirk, 1895.

Wisconsin, *Dicranopeltis*, Wauwatosa: Mason, 2225.

Tertiary.

Alabama, Hantkenina, apertural characteristics: Howe, 1581.

Hantkenina, Eocene: Thalmann, 3343.

Nautiloid cephalopods: Miller, 2322.

Alberta, mammals: Russell, 2886.

American pteropod mollusks: Collins, 706.

Atlantic coast Pectinidae: Tucker, 3418.

Barbados, diatoms: Robinson, 2784.

Eocene corals: Wells, 3603.

Bermuda, land shells, Government Quarry, Hamilton Parish, Pliocene: Kutchka, 1953.

Bonaire, Danish West Indies: Pijpers, 2628.

Brain casts, mammals: Tilney, 3390.

California, *amynodont* skull, Simi Valley: Stock, 3236.

Auk, Pliocene, San Diego: Miller, 2374.

Paleontology—Continued.

Tertiary—Continued.

California—Continued.

Bird, *Phalacrocorax*, upper Pliocene, Santa Barbara: Howard, 1570.

Carnivora Sespe Oligocene, Las Posas Hills: Stock, 3238.

Cetothere, Modelo formation, Los Angeles: Kellogg, 1767.

Closed-cone pines: Mason, 2226.

Coral, Eocene, Simi Peak, Ventura County: Faustino, 1050.

Cormorant, Pliocene, Santa Barbara: Howard, 1573.

Credontia, Sespe, upper Eocene: Stock, 3245.

Cretaceous and Tertiary mollusks, Mount Hamilton Range: Wiedey, 3683.

Diatoms: Hendy, 1470.

Discocyclina, Meganos formation: Schenck, 2969.

Eden beds flora, Pliocene: Axelrod, 117.

Eocene: Murdoch, 2443.

Lithothamnidae from Sierra Blanca limestone: Howe, 1586.

Primates: Stock, 3241.

Eporeodon thurstoni, oreodont, Sespe, South Mountain: Stock, 3246.

Foraminifera, Merced series, San Mateo County: Stewart, 3221.

Miocene, San Joaquin Valley: Barbat, 160.

Gryphaeoid oyster, Eocene: Hertlein, 1479.

Hyaeodontidae, Simi Valley: Stock, 3234.

Hyaeognathus, Coso Mountains, Pleistocene: Stock, 3230.

Kettleman Hills, Pliocene freshwater fossils: Pilsbry, 2632.

Lamellibranchiata, middle Eocene: Clark, 649.

Land shells, Sespe north of Simi Valley: Hanna, 1386.

Last Chance Gulch, Pliocene woods: Webber, 3583.

Lepidocyclina, Miocene: Talliaferro, 3300.

Miacid, Simi Valley: Stock, 3225.

Microsopsinae and Hyopsodontidae, Sespe, upper Eocene: Stock, 3244.

Mimmomys primus, Pliocene vole: Hesse, 1492.

Mint Canyon fauna, Pliocene, Los Angeles County: Stirtton, 3225.

Miocene cormorant, Calabasas: Miller, 2342.

Foraminifera in diatomite: DeLandre, 879.

Merychippine horses, tooth characters: Bode, 336.

Woods in auriferous gravels: Mitchell, 2365.

Paleontology—Continued.

Tertiary—Continued.

California—Continued.

- Neptunaea, Miocene, Caliente Range: Grant, 1299.
 North Coalinga district, anchitheriine horses: Bode, 338.
 Northern Tehama fauna: Vander Hoof, 3463.
 Oysters and pecten, Miocene, Kern County: Hertlein, 1482.
 Perissodactyla, Sespe, Las Posas Hills: Stock, 3237.
 Plants in auriferous gravels: Chaney, 624.
 Pliocene floras: Dorf, 919.
 Goose footprints, Contra Costa County: Miller, 2317.
 Goose, Mohave Desert: Miller, 2344.
 Pliohippus tantalus, skull: Vander Hoof 3462.
 Primate, upper Eocene, Ventura County: Stock, 3239.
 Reef Ridge shale, Foraminifera: Barbat, 161.
 San Miguel Island, Santa Barbara County: Bremner, 401.
 Simimeryx hudsoni, Sespe Valley: Stock, 3247.
 Storks, Pleistocene, Rancho La Brea and McKittrick: Miller, 2346.
 Strix brea, Pleistocene, Rancho La Brea: Howard, 1575.
 Tertiary mamals, in auriferous gravels near Columbia: Merriam, 2293.
 Type, Epitonium fallaciosum, Pleistocene: Woodring, 3777.
 Upper Eocene primate, Ventura County; Stock, 3243.
 Vulture and hawk, Pliocene, Pozo Creek, Kern County: Miller, 2345.
 Colorado, Cephaloleia caplani (sawfly), Miocene, Creede: Cockerell, 681.
 Diatryma, supposed plumage, Eocene: Wetmore, 3627.
 Eocene moth: Forbes, 1133.
 Ephedra miocenican, Florissant: Wodehouse, 3751.
 Goldenrod, Creede formation: Cockerell, 680.
 Green River flora, Eocene: Brown, 428.
 Green River shales, pollen: Wodehouse, 3750.
 Holcorpa maculosa, Florissant: Carpenter, 584.
 Miocene foxtail pine, Creede: Cockerell, 683.
 Miocene termites, Florissant: Snyder, 3146.
 Oligocene rhinoceros, Weld County: Barbour, 185; Figgins, 1089; Wood, 3763.
 Rails, Eocene: Wetmore, 3629.

Paleontology—Continued.

Tertiary—Continued.

Colorado—Continued.

- Syrphus (?) hendersoni, Eocene syrphid (Diptera): James, 1648.
 Titanoides: Patterson, 2590.
 Cuba: Sánchez Roig, 2935.
 Anaya River, Santa Clara Province, Foraminifera: Ellis, 1009.
 Cepolis: Clench, 663.
 Echinodermata: Lambert, 1962.
 Echinoids: Lambert, 1963; Sánchez Roig, 2933; Weisbord, 3591.
 Eocene corals: Wells, 3605.
 Foraminifera: Palmer, 2564.
 Guantanamo Bay region: Vaughan, 3492, 3493.
 Gümbelina, Eocene and Oligocene: Palmer, 2562.
 Lepidocyclina: Vaughan, 3495.
 North coast, Foraminifera: Hadley, 1366.
 Oligocene echinoids, revision: Sánchez Roig, 2932.
 Pleistocene plants, Santa Clara and Matanzas Provinces: Berry, 278.
 Radiolaria: Palmer, 2563.
 Florida, birds, Pleistocene: Wetmore, 3628.
 Foraminifera, Eocene: Cole, 698.
 Land mammals: Simpson, 3089.
 Larval chambers of mining bees: Brown, 430.
 Mollusca: Tucker, 3417.
 Oligocene orbitoids, Duncan Church, Washington County: Cole, 699.
 Oligocene pecten, Duncan Church, Washington County: Mansfield, 2213.
 Sirenia, Miocene and Pliocene: Simpson, 3092.
 Vulsella, Ocala limestone: MacNeil, 2202.
 Foraminifera, orbitoid, biogeographic relations: Vaughan, 3494.
 Glossary, Tertiary mammal-bearing formations: Simpson, 3094.
 Greenland, east, Cape Dalton: Havn, 2702.
 Plants: Mathiesen, 2243.
 Idaho, birds, Pliocene, aquatic: Wetmore, 3640.
 Blarina gidleyi, shrew, Pliocene, Hagerman: Gazin, 1212.
 Felids, Pliocene, Hagerman: Gazin, 1214.
 Miocene plants: Berry, 275.
 Mustelids, upper Pliocene, Snake River Basin: Gazin, 1218.
 Pliocene hares: Gazin, 1216.
 Pseudomys idahoensis (turtle), Twin Falls County: Gilmore, 1254.
 Jamaica, Eocene corals: Wells, 3603.
 Strombus dominator delabechei, Eocene: Rutsch, 2910.

Paleontology—Continued.

Tertiary—Continued.

- Kansas, Felidae, Pliocene, Sherman County: Hibbard, 1500.
 Grus nannodes, cranes, Pliocene, Sherman County: Wetmore, 3624.
 Louisiana, Bitubulogenerina, Eocene: Howe, 1583.
 Caldwell and Catahoula Parishes: Shreveport Geol. Soc., 3075.
 Foraminifera, Jackson Eocene: Howe, 1577.
 Ostracoda, Sabine Eocene: Howe, 1582.
 Mammals, Miocene and Pliocene, correlation with Asia: Teilhard de Chardin, 3331.
 Maryland, Archacomonas, diatoms: Deflandre, 878.
 Bonasa umbellus, ruffed grouse, Pleistocene: Wetmore, 3620.
 Calvert County, Miocene Ophiura: Berry, 267.
 Marine mammals, Calvert Cliffs, Eocene: Kellogg, 1766.
 Miocene birds: Wetmore, 3618.
 Miocene walnut: Berry, 279.
 Xenohelix: Dryden, 936.
 Massachusetts, Cape Cod region: Woodworth, 3779.
 Miocene, Gay Head: Sanford, 2942.
 Mastodons, trilophodont-tetrabelodont: Frick, 1164.
 Mexico, eastern, Miogypsina: Thalmann, 3342.
 Gastropods, Isthmus of Tehuantepec: Gardner, 1210.
 Hantkenina, Eocene: Thalmann, 3343.
 Lepidocyclus canellei, Oligocene, Tamasco: Thalmann, 3348.
 Miogypsina, Oligocene: Nuttall, 2512.
 Pliocene, elephant: Müllerried, 2432.
 Psammomulus mexicanus, Miocene, Santa Rosa, Vera Cruz: Collins, 707.
 Tamaulipas, Eocene, echinoid: Israelsky, 1637.
 Turtle Bay, Lower California, Pliocene fauna and Miocene diatomite: Hertlein, 1481.
 Miocene Foraminifera, Coastal Plain: Cushman, 818.
 Mississippi, Bitubulogenerina, Oligocene: Howe, 1583.
 Clarke and Wayne Counties: Shreveport Geol. Soc., 3076.
 Combretum petraflumensis, Eocene, Jackson: Berry, 274.
 Nautiloid cephalopods: Miller, 2322.
 Mollusca, Pliocene, Utah, Collinston: Chamberlain, 618.

Paleontology—Continued.

Tertiary—Continued.

- Montana, Diceratherium armatum (rhinoceros), Gallatin County: Wood, 3764.
 Heteromyid rodent, Oligocene: Wood, 3754.
 Mammals, Deep River beds: Matthew, 2254.
 Nebraska, artiodactyls: Barbour, 187.
 Artiodactyls: Cook, 728.
 Bassariscus, Pliocene, Ogallala: Hibbard, 1498.
 Bathornis veredus Wetmore, Oligocene: Wetmore, 3635.
 Bird, gallinaceous, lower Miocene: Wetmore, 3634.
 Birds, Miocene, Sioux County: Wetmore, 3626.
 Buteo typhoius, hawk, Agate, Miocene: Wetmore, 3622.
 Camels, Miocene, Agate Spring: Brown, 415.
 Cyrtornyx cooki, Miocene quail: Wetmore, 3691.
 Entelodont, Miocene: Loomis, 2092.
 Mammalia, Snake Creek quarries, Sioux County: Matthew, 2253.
 Miocene oreodonts, Birdcage Gap: Barbour, 179.
 Mollusk, Chadron formation (Oligocene): Cook, 727.
 Oligocene Titanotherium: Barbour, 175.
 Torynobelodon barnumbrowni, Pliocene, Cherry County: Barbour, 171.
 Vertebrata: Cook, 725.
 Woodpecker, unknown, lower Pliocene, Devil's Gulch beds: Wetmore, 3631.
 Nevada, Pseudaelurus, Miocene, Tonopah: Stock, 3248.
 New Jersey, birds, Eocene age: Wetmore, 3625.
 Bryozoa, Vincentown: Canu, 575.
 Southern Miocene mollusca: Pilsbry, 2631.
 Oklahoma, Basslerina, Ostracoda, Pennsylvanian: Moore, 2404.
 Pleistocene prairie-dog, near Frederick: Wood, 3755.
 Oregon, Goshen flora: Chaney, 625.
 Miocene cetothere, Newport: Packard, 2549.
 Mustelid, Malheur County: Hall, 1368.
 Pliocene Mollusca: Henderson, 1465.
 Trout Creek flora: MacGinitie, 2170.
 Panama, Lepidocyclus, Eocene: David, 854.
 Puerto Rico, corals, Miocene and Oligocene: Coryell, 757.

Paleontology—Continued.

Tertiary—Continued.

- Saskatchewan, Cypress Hills, Oligocene, vertebrates: Russell, 2396.
 Mammalian fauna, upper Eocene, Swift Current: Russell, 2889.
 Merychippus: Russell, 2888.
 Turtles: Russell, 2893.
 South Dakota, *Buteo grangeri* (hawk), Oligocene, Washabaugh County: Wetmore, 3642.
 Entelodont, Miocene: Loomis, 2092.
 Harding County, lower Lance florule: Berry, 276.
 Nannotragulus: Loomis, 2094.
 Oligocene, sabre-tooth cats: Jepsen, 1672.
 Oredont skeletons: Loomis, 2095.
 Tennessee, Pleistocene flora: Berry, 281.
 Texas, *Basslerina*, Ostracoda, Pennsylvanian: Moore, 2404.
 Decapod crustaceans, Eocene, Brazos County: Stenzel, 3200.
 Eocene, corals, *Madracis*: Wells, 3605.
 Plant localities, Bexar County: Parks, 2578.
 Ostracoda: Alexander, 33.
 Epistominoides and Coleites, Foraminifera: Plummer, 2643.
 Hemphill County: Reed, 2713.
 Jackson group of formations, Foraminifera: Ellisor, 1012.
 Wilcox of central Texas: Claypool, 658.
 Trinidad, *Lepidocyellina*, Eocene: David, 844.
 Pteropods and heteropods, Miocene: Rutsch, 2912.
 So-called rudistids, Oligocene: Rutsch, 2911.
 Utah, mammals, Duchesne River Oligocene, Uinta Basin: Peterson, 2617.
Mytonolagus petersoni, Eocene, Uinta Basin: Burke, 496.
Stagnicola kingi: Chamberlain, 617.
 Titanotheres, Uinta Eocene: Peterson, 2618.
 Uinta Basin, Eocene rodents: Burke, 495.
 Virginia, Eocene snake: Lynn, 2132.
 Miocene walnut: Berry, 279.
Phyllodus: Gildersleeve, 1243.
Pinus lynii, Eocene, Belvedere Beach: Berry, 277.
 Washington, floras: Beck, 233.
 Foraminifera, Oligocene: Frizzell, 1168.
 Type Blakeley fauna, upper Oligocene: Tegland, 3326.
 West Virginia, Pliocene mammals: Brooks, 413.

Paleontology—Continued.

Tertiary—Continued.

- Wyoming, *Apternodus brevirostris*, Oligocene, Bates's Hole; Schlaikjer, 2975.
Apternodus gregoryi, insectivore, Oligocene, Goshen County: Schlaikjer, 2974.
 Birds, Eocene, Bighorn Basin: Wetmore, 3636.
 Oligocene: Wetmore, 3637.
Crocodylus clavis Cope, Eocene: Mook, 2396.
 Heptodon, Wind River formation, Muddy Creek: Seton, 3034.
 Larval chambers of mining bees: Brown, 430.
Meniscotherium robustum, Eocene: Thorpe, 3386.
Metacheiromys and the *Edentata*: Simpson, 3091.
 Miocene oreodonts, Goshen Hole: Schlaikjer, 2976.
 Oligocene eagle: Wetmore, 3639.
 Oligocene lagomorphs: Walker, 3540.
 Sabre-tooth cats: Jepsen, 1672.
Palaeolagus haydeni Douglas: Dice, 904.
 Rails, Eocene: Wetmore, 3629.
 Southwestern, Uinta County: Veatch, 3497.

Triassic.

- Arizona, crocodile, ancestral, Cameron: Brown, 417.
Protosuchus richardsoni, ancestral crocodile: Brown, 422.
Schilderia adamanica: Daugherty, 853.
Stegocephalia, Winslow: Brown, 418.
 Greenland, fishes: Stensio, 3196.
 Pennsylvania, conifer, Bucks County: Wherry, 3649.
 Dinosaur tracks near Gettysburg: Willard, 3701.
 York County: Hickok, 1501.
 Fish, Lockatong formation, near North Wales: Bryant, 459.
 Texas, phytosaurs, Upper Triassic: Case, 592.
 Wyoming, Charophyta: Peck, 2596.
 Southwestern, Uinta County: Veatch, 3497.
 Yukon, Laberge area: Lees, 2024.

Paleopathology.

- Aenocyon dirus*, Pleistocene, California: Moodie, 2377, 2389, 2390.
Archidiskodon imperator, Pleistocene, Texas: Moodie, 2383.
Carnivora, Pleistocene, California: Moodie, 2384.
Hyracodon, White River beds: Moodie, 2381.

Paleopathology—Continued.

Indian, La Jolla Shores, California : Moodie, 2378, 2379.

Nothrotherium, Pleistocene, California : Moodie, 2382.

Piros Indians, New Mexico : Moodie, 2392.

Pre-Pueblo Indians, New Mexico : Moodie, 2385.

Sabre-tooth tiger, Pleistocene, California, sacralization : Moodie, 2391.

Smilodon californicus, Pleistocene, California : Moodie, 2380, 2386.

Stephanosaurus marginatus, Cretaceous, Alberta : Moodie, 2387, 2388.

Paleozoic (undifferentiated).

Geologic formations : Alcock, 21.

North America geologic formations : Shimer, 3071.

Oklahoma, pre-Mississippian Paleozoic : Edson, 984.

Ozark region, Missouri and Arkansas : Kansas G. S., 1741.

Planktonic faunas : Ruedemann, 2868.

Virginia : Bevan, 297.

Palmarolle and Taschereau map areas, Quebec : Lang, 1994.

Panama (including Canal Zone).

Paleontology.

Lepidocyclus : Vaughan, 3495.

Eocene : David, 854.

Paradox formation, Utah and Colorado : Baker, 132.

Paragenesis.

Hawaii, crystal cavities in lava : Dunham, 948.

Peat.

Canada, southeastern : Auer, 111.

Dismal Swamp, Virginia : Cocke, 677.

Erie basin, rate of growth : Sears, 3021.

Paleoclimatological studies : Bryan, 453.

U. S. A. : Dachnowski-Stokes, 823.

Pebbles.

Pebbles rounded in geyser tubes : Nichols, 2483.

Pediments.

Dissection : Koschmann, 1935.

Formation : Bryan, 455.

Pegmatites : Hess, 1487.

Hypogene deposits, western States : Hess, 1486.

Idaho, Latah County, mica pegmatites, origin : Anderson, 53.

Maine, graphite in pegmatite : Fisher, 1106.

Origin and classification : Landes, 1976.

Pegmatites—Continued.

Ore deposits, western States : Schaller, 2960.

Virginia, Amelia dikes : Glass, 1260.

Pelecypoda. See also Mollusca.

Arcidae, Tertiary, Pacific slope : Reinhart, 2736.

Bearpaw formation, Cretaceous, Saskatchewan : Warren, 3561.

California, Eocene : Clark, 649.

Gryphaeoid oyster, Eocene : Hertlein, 1479.

Cardita, statistical studies : Quayle, 2680.

Cardium ochoterenai, Cretaceous, Mexico : Müllerried, 2433.

Clearwater formation, Alberta : McLearn, 2197.

Conocardium, Pennsylvanian, Texas : Harris, 1409.

Cretaceous, Mexico : Müllerried, 2434.

Diploschiza, Cretaceous, Texas and Alabama : Stephenson, 3206.

Greenland, east, Cretaceous : Bøggard, 342.

Hinge-structure, transposed, lamellibranchs : Popenoe, 2648.

Lampsilus (?) chadronensis, Nebraska, Oligocene : Cook, 727.

Lophonychia, Devonian, Ohio : Stewart, 3218.

Louisiana, Caldwell and Catahoula Parishes : Shreveport Geol. Soc., 3075.

Nuculid pelecypods, classification : Schenck, 2968.

Ostrea idriaensis Gabb : Vokes, 3516.

Pachydonts, American relation to European : Müllerried, 2428.

Pecten, Oligocene, Florida : Mansfield, 2213.

Plagiptychus, Cretaceous, Mexico : Müllerried, 2430.

Protothaca, Miocene : Frizzel, 1169.

Pseudomonotis subcircularis, type species : Muller, 2442.

Rudistae, Cretaceous, Cuba : Boissvain, 343.

Guatemala : Mac Gillavry, 2169.

Cuba : Palmer, 2565.

Schizothaerus nuttallii bighopensis, Big Hope Island, Puget Sound, Washington : Henderson, 1462.

Syntrophinella, Alabama : Ulrich, 3445.

Unionidae, western Canada, reclassification : Russell, 2890.

Utah, Pliocene, Collinston ; Chamberlain, 618.

Vulsella, Eocene, Florida : MacNeil, 2202.

Pelmatzoan root-forms, fixation : Ehrenberg, 993.

Peneplains.

- Appalachian: Bryan, 454.
 Appalachian mountain sculpture: Ashley, 94.
 Appalachians, southern: Wright, 3793.
 Colorado, Medicine Bow and Park Ranges: Atwood, 103.
 San Juan and Front Ranges: Atwood, 99.
 Erosion surfaces and windgaps: Ver Steeg, 3498.
 Maryland, Chambersburg (Harrisburg) peneplain, Piedmont: Campbell, 554.
 Montana, peneplanation Beartooth Mountains: Hughes, 1610.
 Ohio, eastern and southern: Cole, 700.
 Pennsylvania: Meyerhoff, 2310.
 Chambersburg (Harrisburg) peneplain, Piedmont: Campbell, 554.
 South-central: Hickok, 1502.
 Rocky Mountains: Worcester, 3781.
 Wyoming, Medicine Bow and Park Ranges: Atwood, 103.

Peneplanation and base leveling in the Rocky Mountains: Worcester, 3781.

Pennsylvania.

- Applied geology: Stone, 3254.
 Southeastern Pennsylvania: Hall, 1307.

Areas described.

- Freeport quadrangle: Hughes, 1608.
 Middletown quadrangle: Stose, 3261.
 Somerset-Windber quadrangles: Richardson, 2763.

Economic geology.

- Anthracle: Austin, 114.
 Bradford sand, Bradford field: Fettke, 1071.
 Clays, white: Leighton, 2036.
 Gas and oil, Potter County: Cathcart, 603.
 Gas possibilities, Cameron County: Cathcart, 606.
 Oriskany sand, Elk County: Cathcart, 607.
 Oriskany sand, McKean County: Cathcart, 608.

- Iron ore, Cornwall: Hickok, 1503.
 Limestones: Miller, 2331.

Metamorphism, Lower Kittanning coal bed: Stadnichenko, 3163.

Mineral deposits, eastern Pennsylvania: Berkey, 262.

Mineral zoning, Triassic: Newhouse, 2473.

Natural gas and oil, northern Pennsylvania: Cathcart, 605.

Natural gas, Oriskany sand, Potter County: Cathcart, 602.

Tioga County: Cathcart, 604.

Oil and gas fields, western Pennsylvania: Sisler, 3107.

Petroleum and natural gas: Torrey, 3401.

Pennsylvania—Continued.

Economic geology—Continued.

- Slate: Behre, 241.
 Somerset-Windber quadrangles: Richardson, 2763.

Historical geology.

Atlantic Coastal Plain and Piedmont province: Jonas, 1717.

Baltimore & Ohio routes: Grimsley, 1331.

Bentonite in central and south-central Pennsylvania: Rosenkrans, 2811.

Blue Ridge: Stose, 3262.

Brunswick formation (Newark): McLaughlin, 2191.

Cameron County: Cathcart, 606.

Carlisle and Lowville limestones, hiatus between: Butts, 517.

"Catskill" sedimentation: Willard, 3697.

Chemung shore line, early: Willard, 3702.

Chemung, southwestern Pennsylvania: Willard, 3695.

Devonian and Silurian sections: Fettke, 1070.

Elk County: Cathcart, 607.

Hamilton group: Willard, 3698.

Lehigh-Northampton district: Behre, 241.

McKean County: Cathcart, 608.

Northern Pennsylvania: Cathcart, 605.

Northwestern Pennsylvania: Caster, 599, 601.

Oil and gas fields, western Pennsylvania: Sisler, 3107.

Pensauken formation: Strock, 3278.

Pocono, age: White, 3660.

Potter County: Cathcart, 602, 603.

Silurian, Mount Union: Swartz, 3287.

Southern Appalachian region: Butts, 513.

Southern Pennsylvania: Stose, 3260.

Southwestern Pennsylvania: Piper, 2633.

Spitzenberg conglomerate, Berks County: Whitcomb, 3650.

Tioga County: Cathcart, 604.

Triassic series: McLaughlin, 2192.

Tully limestone, Rush Township: Willard, 3699.

Mineralogy.

Clarion County, meteorite (?) : Stone, 3255.

Jaspers, origin, Lehigh and Northampton Counties: Myers, 2448.

Meteorites: Stone, 3256.

Millerite crystals, twisted, Nanticoke: Hawkins, 1424.

Thorianite: Wells, 3606.

Paleontology.

Brachiopods, Greenbrier limestone, Uniontown: Benson, 257.

Camptostroma, Lower Cambrian: Ruedemann, 2870.

Pennsylvania—Continued.

Paleontology—Continued.

Coal flora, Wilkes-Barre and Pittsburgh region: Darrah, 844.

Conifer, Triassic, Bucks County: Wherry, 3649.

Devonian faunas: Willard, 3694.

Dinosaur tracks, Triassic, near Gettysburg: Willard, 3701.

York County: Hickok, 1501.

Fish, Triassic, near North Wales: Bryant, 459.

Insects, Carboniferous: Carpenter, 587.

Mastodon, Point Marion: Price, 2665.

Northwestern Pennsylvania: Caster, 601.

Ostracoda, Kloedenellidae, Silurian: Swartz, 3286.

Nineveh limestone: Holland, 1553.

Plants, Pocono (Oswayo) sandstone: Arnold, 82.

Salonia magnaplicata, Ordovician brachiopod, Salona, Clinton County: Cooper, 750.

Scolithus, Cambrian quartzites, southern Pennsylvania: Cloud, 673.

Strobilus, Pocono, Port Allegany: Arnold, 84.

Stylonurus shaffneri, Chemung eurypterid: Willard, 3696.

Petrology.

Bradford sand, Bradford field: Fettke, 1071.

Physical geology.

Clay dikes, Redstone coal: Price, 2666.

Physiographic geology.

Appalachian mountain sculpture: Ashley, 94.

Chambersburg (Harrisburg) peneplain, Piedmont: Campbell, 554.

Erosion surfaces, south-central Pennsylvania: Hickok, 1502.

Glacial deposits outside of Wisconsin terminal moraine: Leverett, 2048.

Ohio River, evolution: Fowke, 1141.

Scenery: Ashley, 91.

Southwestern Pennsylvania: Piper, 2633.

Susquehanna River, North Branch: Burroughs, 499.

Terraces, Susquehanna Valley, below Harrisburg: Mackin, 2186.

Windgaps and watergaps in Pennsylvania: Meyerhoff, 2310.

Wisconsin glacier, Delaware Valley: Ward, 3548.

Underground water.

Southeastern Pennsylvania: Hall, 1307; Piper, 2633.

Pennsylvanian. See Carboniferous.

Pentremites. See Blastoida.

Permian. See Carboniferous.

Petrified forests.

Arizona: Geithmann, 1223.

Petrofabrics and orogenesis: Sander, 2937

Petroleum. See also Bituminous rocks and sands; Oil shales: Egloff, 990.

Accumulation in limestone: Howard, 1576.

Relation to structure: Wrather, 3791.

Alberta: Hume, 1615.

Aldersyde area, potentialities: Owen, 2547.

Central: Allan, 36.

Oil City district: Craig, 768.

Source rocks, distribution: Hume, 1618.

Turner Valley gas and oil field: Link, 2065.

Waterton Lakes-Flathead Valley: Hume, 1616.

Appalachian region, oil-field waters, composition: Torrey, 3402.

Areal photography applied to petroleum geology: Maxemin, 2255.

Bottom-hole pressure: Wright, 3796.

British Columbia: Hume, 1615.

California: McCollough, 2142.

Casmalla oil field: Porter, 2650.

Huntington Beach oil field: Gale, 1200.

Kettleman Hills, correlation of sands: Bramlette, 383.

Kettleman North and Middle Dome fields: Dodd, 908.

Kettleman Hills oil field: Gester, 1227; Goudkoff, 1288.

Lompoc oil field: Dolman, 913.

Long Beach oil field: Crown, 809.

McKittrick oil field, Kern County: Taff, 3298.

North Belridge oil field: Preston, 2664.

Oil-field waters: Jensen, 1671.

Physical properties: Taff, 3299.

San Joaquin Valley: Beebe, 240.

San Joaquin Valley: Cunningham, 814.

Source beds, Mesole, west side of Sacramento Valley: Trask, 3409.

Southern: Livingston, 2067.

Southern, Pliocene: Reed, 2715.

Canada, western, prospects: Hunter, 1622.

Carbon ratios: Lahee, 1955.

Carbon-ratio theory of origin: Thom, 3358.

Classification tables: Van Amringe, 3455.

Colorado, Greasewood area, Weld and Morgan counties: Aurand, 113.

Oil and gas possibilities: Van Tuyl, 3484.

Oil possibilities: Van Tuyl, 3483.

McCallum anticlines, Jackson County: Miller, 2336.

Compaction and its effect on local structure: Athy, 95.

Petroleum—Continued.

- Conversion of fatty and waxy substances into petroleum hydrocarbons: Seyer, 3037.
- Criteria for petroleum provinces: Lauer, 2013.
- Cuba, occurrences in igneous rocks: Lewis, 2057.
- Eastern interior coal basin, reservoirs: Bell, 248.
- Evolution: Barton, 213.
- Florida, oil possibilities: Jenny, 1666; Hill, 1507.
- Generation, oil, by shearing pressures: Rand, 2690.
- Genesis, cosmic: Jeffery, 1649.
- Geology: Lahee, 1954; White, 3658.
- Oil and gas fields: Avery, 116.
- Role in petroleum exploration: Herold, 1474.
- Geophysical prospecting: DeGolyer, 882; Weaver, 3580.
- Gravity of oils, Appalachian province: Reger, 2726.
- Guadeloupe, possibilities: Barrabé, 197.
- Gulf border salt deposits, age: Brown, 425.
- Gulf coast crude oil, natural history: Barton, 212.
- Geosyncline, Texas and Louisiana: Barton, 210.
- Region: Vanderpool, 3468.
- Historical development of petroleum industry: Croneis, 798.
- Hydrogenation, and origin: Pratt, 2663.
- Illinois, Jersey, Greene and Madison Counties: Collingwood, 704.
- Industry in the United States: Soyster, 3153.
- Jamin effect in oil production: Wright, 3801.
- Kansas: Folger, 1130; Hall, 1373; Koester, 1933.
- Bartlesville shoestring sands, Greenwood and Butler Counties: Bass, 215; Tarr, 3311.
- Oil pools distribution: Rich, 2748.
- Pennsylvanian Burbank sand: Weirick, 3590.
- Voshell field, McPherson County: Hiestand, 1504.
- Kentucky: St. Clair, 2925.
- Big Sinking pool, Lee County: Jones, 1723.
- Deep well records: Meacham, 2269.
- Oil and gas pools, Hart County: Russell, 2903.
- North of Seabee, Henderson and Webster Counties: Russell, 2902.
- Origin: Russell, 2906.
- Owensboro field: Shlarella, 3066.
- Lima-Indiana field: Carman, 581.
- Limestone reservoir rocks, Mexico: Muir, 2439.
- Limestone reservoirs, western United States and Canada: Adams, 9.

Petroleum—Continued.

- Louisiana: Shaw, 3039, 3041.
- Louisiana and Texas Gulf coast: Deussen, 902.
- Louisiana and Texas, overhanging salt on domes: Judson, 1737.
- Converse oil field, Sabine Parish: Easton, 973.
- Gulf Coast: Eby, 977.
- Lafayette and St. Martin Parishes: Howe, 1579.
- Valentine (LaRose) dome, Lafourche Parish: Buchanan, 460.
- Magnetic anomalies in oil fields: Van Weelden, 3488.
- Magnetic surveys, failure to show commercial structures: Jenny, 1669.
- Manitoba: Hume, 1615.
- Mexico: Brunet, 446; Ordóñez, 2530.
- Poza Rica district, Veracruz: Villatoro, 3509.
- Tampico oil field, Chapopote, Cretaceous: Müllerried, 2429.
- Michigan basin: Newcombe, 2470.
- Oil and gas fields: Newcombe, 2469.
- Midcontinent oil fields: McCoy, 2146.
- Midcontinent region, relation of pools to unconformities: Levorsen, 2051.
- Structure and accumulation: Tomlinson, 3398.
- Micro-organisms, relation to generation: Hammar, 1378.
- Migration and accumulation: Lahee, 1956.
- Structural theory: McCoy, 2145.
- Migration, lateral and vertical: Lahee, 1957.
- Missouri, western, pools: Greene, 1310.
- Montana: Dobbin, 907; Rowe, 2854.
- Cut Bank oil field: Perry, 2611.
- New Mexico: Winchester, 3747.
- New York, Allegany State Park: Brewer, 404.
- North American oil fields: Bentz, 258.
- Northwest Territories: Hume, 1615.
- Occurrence: Lahee, 1958.
- Oil accumulation, role of cap rock: Dake, 828; Lockwood, 2075.
- Oil and gas accumulation theory, history: Howell, 1598.
- Oil-field waters: Washburne, 3567.
- Oil finding, progress in: Deussen, 903.
- Oil gravities, Rocky Mountain States: Bartram, 214.
- Oil preservation during erosion of reservoir rocks: Dorsey, 925; Irwin, 1636.
- Oklahoma-Kansas zinc-lead mining field: Fowler, 1143.
- Lucien field: Zavoico, 3815.
- Oil and gas fields: Wrather, 3787.
- Pennsylvanian Burbank sand: Weirick, 3590.
- Shales, base-replacement studies: Case, 595.
- Southeast of Choctaw fault: Vanderpool, 3471.

Petroleum—Continued.

- Ontario: Harkness, 1401, 1403.
 Organic content of rocks: Russell, 2905.
 Organic matter in recent sediments: Trask, 3408.
 Origin: Berl, 266; Hume, 1615; Macfarlane, 2159; Seyer, 3037; Van Tuyl, 3485, 3487.
 Origin and accumulation: Clark, 651.
 Origin and evolution: Snider, 3144.
 Origin, experimental studies: Stadnichenko, 3162.
 Gulf coast: Krejci-Graf, 1944.
 Hackford's theory: Ginter, 1256.
 Migration and accumulation: Rich, 2751.
 Taylor's theory: Case, 594.
 Ouachita Paleozoics, southern Mid-continent: Miser, 2364.
 Paleogeology: Levorsen, 2058.
 Pennsylvania: Torrey, 3401.
 Bradford field: Pettke, 1071.
 Freeport quadrangle: Hughes, 1608.
 Potter County: Cathcart, 603.
 Tioga County: Cathcart, 604.
 Western: Sisler, 3107.
 Permeability of porous media, measurement: Wyckoff, 3803.
 Petroleum, depth in earth's crust: Jones, 1728.
 Physical properties, variation: Barton, 211.
 Porosity, permeability and compaction: Nevin, 2468.
 Problems of petroleum geology: Wrather, 3788.
 Reservoir rocks, physical and chemical properties: Nutting, 2514.
 Reservoirs, classification: Wilson, 3741, 3742.
 Rocky Mountain district: Davies, 855.
 Rocky Mountain States, underground waters: Coffin, 691.
 Sand grains, character: Ries, 2768.
 Saskatchewan: Hume, 1615.
 Sediments, organic constituents, in relation to origin: Trask, 3407.
 Organic content: Trask, 3410.
 Seismic reflection exploration methods: Mitera, 2368.
 Source beds: Snider, 3145.
 Source sediments, origin and environment: Trask, 3406.
 Structural trends on the Gulf coast: Jenny, 1670.
 Subsurface water, Oklahoma and Kansas: Case, 596.
 West Texas Permian Basin: Berger, 259.
 Temperature gradients in oil wells: Van Orstrand, 3479.
 Tennessee: St. Clair, 2925.
 Tinsley's Bottom field: Roberts, 2774.
 Texas and Louisiana Gulf coast: Deussen, 902.

Petroleum—Continued.

- Texas and Louisiana, overhanging salt on domes: Judson, 1737.
 Texas, central, serpentine rocks: Plummer, 2642.
 Conroe field: Schütte, 3000.
 Darst Creek oil field, Guadalupe County: McCallum, 2137.
 Driscoll pool, Duval County: Sheldon, 3044.
 East Texas oil field: Minor, 2358; Whitehead, 3670.
 Ector County: Young, 3811.
 Esperson dome, Liberty County: Goldston, 1271.
 Gulf Coast: Eby, 977.
 Luling, Salt Flat, and Darst Creek fields: Jones, 1729.
 McFaddin-O'Conner, Greta, Fox, Refuge, White Point and Saxet fields: Getzendaner, 1228.
 Northeast of East Texas oil field: Decker, 877.
 Oil and gas fields: Wrather, 3787.
 Oil reservoirs, structural classification: Plummer, 2641.
 Raccoon Bend oil field, Austin County: Teas, 3325.
 Sugarland oil field: McCarter, 2138.
 United States: White, 3658.
 Utah, Moab District: Baker, 131.
 West Virginia, eastern Ohio, and east Kentucky: Billingsley, 305.
 Liverpool oil and gas pool: Heck, 1438.
 Wyoming, Colorado, and northwestern New Mexico fields: Krampert, 1942.
 Southwestern, Uinta County: Veatch, 3497.
 Petrology (general). For areal see names of States. See also Igneous and volcanic rocks; Sedimentary rocks; Technique: Frondel, 1173.
 Amphibolites, igneous and sedimentary: Runner, 2879.
 Authigenic feldspar in sandstones: Goldich, 1266.
 Cherts, formation: Taliaferro, 3305.
 Clay minerals: Grim, 1329.
 Contamination of acid magmas: Nockolds, 2498.
 Continental shelf sediments: Alexander, 25.
 Feldspars, authigenic, in sediments: Tester, 3340.
 Igneous rocks: Daly, 836.
 Louisiana, salt dome cap rock: Hanna, 1389.
 Nodular granite, Ontario and New York: Brøgger, 412.
 Organic content of rocks: Russell, 2905.
 Orientation of minerals in rocks: Pabst, 2548.

Petrology (general)—Continued.

Pegmatites, origin and classification: Landes, 1976.

Petrofabrics and orogenesis: Sander, 2937.

Petrotectonics: Knopf, 1926.

Quartz sand, rounded, zone off New England coast: Stetson, 3214.

Quartz, spectrographic examination: Bruce, 443.

Rock, definition: Ransome, 2700.

Schists, internal evidence of origin: Gilluly, 1250.

Shape determination of large sedimental rock fragments: Wadell, 3527.

Shapes of rock particles: Wentworth, 3609.

Sphericity and roundness of rock particles: Wadell, 3525.

Spillite and average metabasalt: Fairbairn, 1041.

Texas, salt dome cap rock: Hanna, 1389.

Virginia, Potomac River sediments: Hoffman, 1546.

West Virginia, Potomac River sediments: Hoffman, 1546.

Petrotectonics: Knopf, 1926.

British Columbia, Shuswap terrane, mineral orientation: Gilluly, 1251.

Phoronida.

Scolithus, fossil phoronid: Fenton, 1062.

Phosphate: Jacob, 1642.

Alberta, Canadian Rockies: Telfer, 3332.

Canada, apatites: Dadson, 824.

British Columbia, Canadian Rockies: Telfer, 3332.

Tennessee, Devonian constitution: Cayeux, 609.

Western States: Mansfield, 2210.

Physical geology (general). For areal see names of States: Mather, 2231.

Ablation of snow fields by solar heat, high altitudes: Matthes, 2250.

Appalachians, northern, foreland folds, symmetry: Sherrill, 3064.

Structure: Seidl, 3026.

Atlantic Coast, changes in level: Townsend, 3403.

Banding in fissure veins: Schaub, 2964
Basin Range structure, genesis: Gianella, 1235.

Beach sands, rounding: MacCarthy, 2139.

Bedding plane movements: Behre, 245.
Calcium carbonate precipitation, Great Bahama Bank: Black, 313.

Caverns, solution, in limestone: Henderson, 1463.

Channel-contraction, effect upon stream bed: Straub, 3274.

Physical geology (general)—Continued.

Cone-in-cone structure, Fox Hills formation: Boos, 346.

Crustal shortening during uplift of geosynclines: Johnson, 1704.

Crypto-volcanic structure, Mid-Continent region: Bucher, 468.

Deformation of earth's crust: Bucher, 461.

Diastrophism and intrusion: Delury, 890.

Earthquake epicenters, location: Taber, 3296.

Earthquakes, prediction: De Montalk, 892.

Earth-structure theory: Hodgson, 1543.

Elastic properties of rocks: Goranson, 1230.

Fault movements, mechanics: Hulin, 1612.

Flow lines and flow planes in plastic masses: Fraser, 1149.

Gases, entrapped, as factor in stratification: Birch, 308.

Geyser theory, Bunsen's: Sherzer, 3065.

Great Lakes basin, origin: Shepard, 3053.

Ice caves: Smith, 3119.

Origin: Harrington, 1408.

Laboratory manual: Putnam, 2678.

Physical geology: Alexander, 34.

Lake balls, Cladophora balls, and coal balls: Kindle, 1882.

Log jams, Red River: Guardia, 1350.

Magma waves, theory: Lay, 2020.

Mississippi Valley, diastrophic action: Eakin, 965.

Mud-cracked layers, curvature: Bradley, 373.

Mud stalagmites: Malott, 2206.

New England, structures and intrusions: Keith, 1760.

Pebbles rounded in geyser tubes: Nichols, 2483.

Rain-wash profiles, humid regions: Lawson, 2017.

Rhythmic bedding in Monterey rocks, California: Bramlette, 384.

Rock resistance and interfluvial degradation: Rich, 2747.

Rock surfaces grooved by sand laden currents: Blackwelder, 318.

Rock-weathering insolation hypothesis: Blackwelder, 320; Jeffreys, 1651.

Rotational stress and crustal deformation: Baker, 134.

Schistosity: Fourmarier, 1137, 1138.

Schuchert's tectonic ideas: Strahov, 3270.

Silt in Rio Grande: Flock, 1098.

Slickensides: Morse, 2421.

Slump scarps: Finch, 1093.

Strain and relief: Bain, 127.

Tectonic metamorphism, southern Appalachians: Becker, 235.

Thrust faults: Willis, 3716.

Physical geology (general)—Continued.

Thrusting of unfolded rock: De Bethune, 873.

Thrusting younger rocks over older: Billings, 300.

Toggling-shelf orogeny: Russell, 2883.

Turbulence and transportation of debris by streams: Leighly, 2034.

Physiographic geology (general). For areal see names of States. See also Drainage changes; Glacial geology: Keyes, 1848.

Airways of America: Lobeck, 2071.

Alpine land forms, western (U. S.): Russell, 2897.

Ancient marine levels, correlation: Johnson, 1677.

Appalachian peneplains: Bryan, 454.

Appalachians, southern: Wright, 3793.

Atlas of American geology: Lobeck, 2070.

Available relief and texture of topography: Johnson, 1681.

Blue Ridge escarpment: Johnson, 1680. California, Santa Monica coast, submarine mock valleys: Davis, 866.

Central Appalachian region: Johnson, 1676.

Colorado River delta: Sykes, 3295.

Craters, meteoric, formation: Wyllie, 3804.

Crypto-volcanic structure, Mid-Continent region: Bucher, 468.

Cycle of erosion, later stages: Crickmay, 785.

Desert geomorphogeny: Davis, 863.

Drainage systems and dynamic cycles: Johnson, 1679.

Eastern North America, evolution: Johnson, 1678.

Erosion surfaces, correlation: Fenneman, 1051.

Even-crested ridges without peneplanation: Rich, 2752.

Fenstreams: Holden, 1549.

Gateways through mountains, river-cut: Johnson, 1684.

Geologic structures: Willis, 3714.

Georges Bank, origin: Shepard, 3058.

Great Lakes basin, origin: Shepard, 3053.

Hail prints and mud cracks, Proterozoic: Fenton, 1058.

Meanders, cut-off, effects of: Macar, 2134.

Meteor Crater: Spencer, 3156.

Meteor craters: Nininger, 2493.

Mud cracks and hail prints, Proterozoic: Fenton, 1058.

Newer Appalachians, southern: Wright, 3793.

Oceans, geological misconceptions: Shepard, 3056.

Pediment dissection: Koschmann, 1935.

Physiographic geology (general)—Con.

Peneplanation: Gabriel, 1197.

Piedmont benchlands: Davis, 859.

Reviews, geomorphologic papers: Bryan, 452.

Roches moutonnées: Longwell, 2089.

Rock fans and pediments, origin and evolution: Rich, 2753.

Rocky Mountains: Strzygowski, 3279.

Southern end: Keyes, 1852.

Slump scarps: Finch, 1093.

Stream profiles, longitudinal: Woodford, 3773.

Submarine mock-valleys: Davis, 861.

Submarine valleys: Shepard, 3052, 3054, 3055, 3057, 3061, 3062.

Talus slopes, Basin Range province: Blackwelder, 322.

United States, structural features: King, 1884.

Windgaps and erosion surfaces: Ver Steeg, 3498.

Pisces.

Albula antiqua, Cretaceous, Florida: Cockerell, 682.

Arthrodire, *Leptosteus angustus* Bryant: Gross, 1334.

Barbados, fish, Scotland Beds: White, 3664.

Beartooth Butte, Devonian, Wyoming: Dorf, 922.

Carboniferous, Illinois, Ohio and Texas: Romer, 2805.

Carcharodon megalodon, Miocene, Gay Head, Massachusetts: Sanford, 2942.

Caturus groenlandicus, Greenland: Aldinger, 23.

Celacanthus, Pennsylvanian, Kansas: Hibbard, 1499.

Cognathus for Xenognathus (preoccupied): Case, 593.

Coprolites, Pennsylvanian, Colorado: Johnson, 1701.

Diplopterax, Greenland: Sæve-Söderbergh, 2920.

Dolophonodus Branson, east Greenland: Woodward, 3778.

Evolution: Hildebrand, 1505.

Greenland, east, Permian sharks: Branson, 390.

Permo-Carboniferous: Nielsen, 2486.

Triassic: Stensiö, 3196.

Phylloodus, Eocene, Virginia: Gilder-sleeve, 1243.

Phyllolepidia and Arthrodira, Devonian, east Greenland: Stensiö, 3197.

Pennsylvanian, Missouri and Kansas: Gunnell, 1352.

Portheus molossus Cope, Kansas, Cretaceous: Thorpe, 3387.

Preoccupied names: Whitley, 3674.

Skulls, evolution: Gregory, 1317.

Triassic, Pennsylvania: Bryant, 459.

Pisces—Continued.

Wyoming, Beartooth Butte: Bryant, 458.

Middle Phosphoria formation fauna: Branson, 389.

Permian sharks: Branson, 390.

Placers.

California, Sierra Nevada: Jenkins, 1658.

Planktonic faunas, Paleozoic: Ruedemann, 2868.

Plants, fossil. See Paleobotany.

Platinum.

Canada: O'Neill, 2527.

Idaho, Snake River: Hite, 1527.

Mexico: Santillán, 2945.

Oregon, beach placers, coastal: Pardee, 2572.

Takilma-Waldo and Blue Creek districts: Shenon, 3046.

Pleistocene. See Glacial geology; Quaternary.

Pliocene. See Tertiary.

Polyzoa. See Bryozoa.

Popular and elementary geology.

Earth oil: Egloff, 990.

Our stone-pelted planet: Nininger, 2487.

Porifera.

Yukon, Laberge area: Lees, 2024.

Potash: Smith, 3118.

Nebraska: Condra, 714.

New Mexico: Delacote, 886.

Southeastern: Smith, 3117.

New Mexico and Texas: Mansfield, 2211.

Texas: Delacote, 886.

Potholes.

Ontario, Cloche Mountains, Pleistocene: Stanley, 3169.

Pre-Cambrian. See also Paleontology, Pre-Cambrian: White, 3657.

Alabama, northern: Johnston, 1714.

Alberta, central: Allan, 36.

Arctic America, Baffin Land and Melville Peninsula: Mathiassen, 2242.

Arizona, Algonkian formations, Grand Canyon National Park: Hinds, 1515.

Archean ripple mark in Grand Canyon: Maxson, 2261.

Colorado dome: Keyes, 1829.

Fundamental crystalline complex: Keyes, 1828.

Grand Canyon: Campbell, 549, 551, 552.

Unkar Group, Grand Canyon: Van Gundy, 3475.

Pre-Cambrian—Continued.

British Columbia, Barkerville, Cariboo District: Johnston, 1706.

Brisco-Dogtooth area: Evans, 1032.

Salmo area: Walker, 3538.

Slocan mining camp area: Cairnes, 537.

California, Death Valley: Noble, 2497.

Inyo Range, Wyman Canyon, White Mountains: Maxson, 2260.

Panamint Range: Murphy, 2444.

Canada, Arctic America, north of Hudson Bay: Freuchen, 1163.

Canadian Shield: Bain, 125; Bruce, 442; Cooke, 737.

Eastern Arctic: Weeks, 3587.

Eparchean peneplain: Lawson, 2018.

Colorado, Climax district: Butler, 507.

Duparquet Township, Quebec: O'Neill, 2526.

Eastern New York and western New England: Longwell, 2085.

Geologic formations: Alcock, 21.

Greenland: Koch, 1930.

East, Caledonian Mountains: Telchert, 3327.

Northwest, Inglefield Land: Koch, 1929.

Idaho, Idaho County, Elk City, Orogrande, Buffalo Hump and Tenmile district: Shenon, 3050.

Map of sedimentary formations of Canadian shield: Can. G. S. 559.

Maryland, Appalachian region: Stose, 3260.

Atlantic Coastal Plain: Jonas, 1717.

Michigan, Marquette and Crystal Falls districts, correlation: Zinn, 3818.

Palmer gneiss: Lames, 1969.

Republic granite, post-Huronian age: Lamey, 1967.

Miquelon and Saint Pierre Islands: Aubert de la Rue, 104.

Montana, gold-quartz veins, Libby, southwestern Montana: Gibson, 1239.

Medicine Bow Mountains: Neely, 2459.

Northwestern: Deiss, 884.

Nebraska, pre-Pennsylvanian stratigraphy: Lugin, 2123.

New Jersey mineral resources: Berkey, 262.

New York, New York City and vicinity: Berkey, 263.

State: Newland, 2476.

North Carolina clay and shales: Fabianic, 1038.

Coleman dam site, Cherokee County: Moneymaker, 2372.

Northwest Territories, Echo Bay district, Great Bear Lake: Robinson, 2783.

Pre-Cambrian—Continued.

Northwest Territories—Continued.

Great Bear Lake area: Riley, 2769.
Great Slave Lake-Coppermine River area: Stockwell, 3249.

Nova Scotia, Purcell's Cove, Halifax County: Howse, 1599.

Oklahoma, Arbuckle and Wichita Mountains, early Paleozoic: Decker, 874.

Oil and gas fields: Wrather, 3787.

Ontario and Minnesota, Seine-Coutchiching problem, Rainy Lake: Merritt, 2298.

Blue limestone, Hastings County: Wilson, 3727.

Canadian Shield, Peterborough County: Wilson, 3730.

Claire River syncline, Hastings County: Wilson, 3728.

Heron Bay-White Lake area: Thomson, 3381.

Janes, McNish, Pardo, and Dana Townships: Bruce, 440.

Kakagi Lake area: Burwash, 503.

Lava flows, north shore of Lake Superior: Sandberg, 2936.

Manitou-Stormy Lakes area: Thomson, 3382.

Michipicoten River area: Matheson, 2234.

Moose Mountain-Wanapitei area: Kindle, 1883.

Obonga-Kashishibog area, Thunder Bay: Kidd, 1877.

Pashkokogan-Misehgow area: Dyer, 959, 961.

Porcupine district, Hollinger Mine: Graton, 1304.

Rush Lake area, Sudbury district: Bannerman, 159.

Shabumeni-Birch Lakes area: Furse, 1196.

Sioux Lookout area, Kenora district: Hurst, 1624.

Straw-Manitou Lakes area: Thomson, 3383.

Swayze gold area: Rickaby, 2767.

Pennsylvania, Atlantic Coastal Plain and Piedmont province: Jonas, 1717.

Eastern: Berkey, 262.

Limestones: Miller, 2331.

Middletown quadrangle: Stose, 3261.

Southern: Stose, 3260.

Quebec, Amulet mine, Noranda district: Wilson, 3731.

Arntfield-Aldermac mines area, Beauchastel Township: Bruce, 439.

Assup River area, Abitibi County: Bell, 247.

Cape Smith area, Hudson Bay: Gunning, 1354.

Chatham-Grenville stock: Osborne, 2541.

Pre-Cambrian—Continued.

Quebec—Continued.

Coulonge and Black Rivers, Pontiac County: Retty, 2746.

Duparquet Township: O'Neill, 2528.

Foch area, Abitibi County: Bell, 252.

Horne mine, Rouyn Township: Butterfield, 512.

Northern: Wilson, 3729.

North Shore, St. Lawrence River, Betsiamites to Manigouagan: Faessler, 1039.

Palmarolle and Taschereau map areas: Lang, 1994.

Rivière à Pierre area, plutonic massifs: Osborne, 2542.

Rouyn-Bell River region: Lang, 1996.

Senneterre area, Abitibi district: Bell, 253.

Siscoe gold deposit: Hawley, 1426.

Waite-Ackerman-Montgomery property, Duprat and Dufresnoy Townships: Gill, 1246.

Waswanipi Lake area: Lang, 1995.

Research, progress and scope: Sederholm, 3024.

Saskatchewan, Amisk Lake area: Wright, 3798.

Amisk Lake area: western half: Wright, 3799.

South Dakota, metamorphosed calcareous concretions: Runner, 2880.

Nemo district, Black Hills: Runner, 2882.

Texas: Sellards, 3029.

Wolf Mountain phacolith: Stenzel, 3199.

Utah, Wasatch Mountains, southern: Eardley, 966.

Western Uinta and central Wasatch Mountains: Hintze, 1524.

Virginia, Blue Ridge: Stose, 3262.

Northern: Bevan, 288.

Shenandoah National Park area: Furcron, 1193.

Structural pattern: Bevan, 294.

Wyoming, Five Springs Creek area: Wilson, 3721.

Owl Creek Mountains: Love, 2107.

Sheep Mountain area: Bradford, 370.

Shoshone Canyon area, Park County: Johnson, 1692.

Yukon, Carmacks map area: Bostock, 354.

Laberge area: Lees, 2024.

Precious stones.

Gem minerals, American: McIntosh, 2176.

Oregon, sunstone: Anonymous, 3835.

Virginia, staurolites, Patrick and Henry Counties: Roberts, 2781.

Primates. See Mammalia.

Problems of petroleum geology: Wrather, 3788.

Protozoa. See Foraminifera; Invertebrates (general).

Pseudo-eutectic ore textures: Anderson, 59.

Pseudomorphs.

California, montmorillonite after feldspar: Lauder milk, 2007.

Pteropoda.

American, Tertiary: Collins, 706.

Puerto Rico.

Geology: Meyerhoff, 2307.

Economic geology.

Mineral resources: Britton, 406.

Historical geology.

Fajardo district: Meyerhoff, 2308.

Paleontology.

Corals, Tertiary: Coryell, 757.

Physical geology.

Pepino Hills, asymmetry: Thorp, 3385.

Pumice.

Oregon: Fuller, 1191.

Crater Lake region, nuée ardente deposits: Moore, 2399.

Eastern: Moore, 2400.

Pyrite.

Illinois, lead-zinc district: Born, 352.

Pyroclastics, zeolitic alteration: Bramlette, 382.

Quadra Island, British Columbia: Ellsworth, 1019.

Quaternary. See also Glacial geology: Paleontology, Quaternary.

Alaska, Curry district: Tuck, 3416.

Girdwood district: Park, 2573.

Moose Creek area: Waring, 3550.

Mount Elison district: Reed, 2711.

Alberta, central: Allan, 36.

Barbados: Saint, 2924.

Bonaire, Danish West Indies: Pijpers, 2628.

California: Reed, 2714.

Carpinteria district: Reed, 2716.

Iron Canyon, Table Mountain and Kennett dam sites: Etcheverry, 1031.

Kennett, Iron Canyon and Table Mountain dam sites: Louderback, 2096.

Lucia quadrangle, Monterey County: Reiche, 2727.

Merced formation: Johnson, 1691.

Northern Sierra Nevada: Jenkins, 1653.

San Gabriel Mountains, western: Miller, 2354.

San Joaquin clay, San Joaquin Valley: Barbat, 162.

San Miguel Island, Santa Barbara County: Bremner, 401.

Redding-Weaverville districts: Hinds, 1516.

Southern: Livingston, 2067.

6022°—35°—24

Quaternary—Continued.

Cuba, Guantanamo Bay region: Meiner, 2274.

Habana and vicinity: Palmer, 2566.

Sierra Maestra: Taber, 3297.

Delaware, Chesapeake Bay region: Stephenson, 3203.

Kansas, Gerlane formation: Knight, 1909.

Maryland, Chesapeake Bay region: Stephenson, 3203.

Southern: Cooke, 729.

Massachusetts, Cape Cod region: Woodworth, 3779.

Mexico, San Quintin Bay, Lower California, Pleistocene: Manger, 2207.

Nebraska, Pleistocene: Lugin, 2122.

Nevada, quicksilver, Lake Lahontan: Schuette, 2999.

New Jersey coastal region: Richards, 2755.

New Mexico: Winchester, 3747.

Nicaragua, volcanic rocks: Burri, 498.

Ontario, Cloche Mountains, Pleistocene: Stanley, 3169.

Pennsylvania, Pensauken formation: Strock, 3278.

Quebec, Coulonge and Black Rivers, Pontiac County: Retty, 2746.

North Shore, St. Lawrence River, Betsiamites to Manigouagan: Faessler, 1039.

Rhode Island, Block Island: Woodworth, 3779.

South Dakota, central Perkins County: Searight, 3017.

Texas: Plummer, 2640.

Coastal Plain: Weeks, 3585.

Goliad area: Johnson, 1690.

Hemphill County: Reed, 2713.

Lissie formation and Beaumont clay: Price, 2674.

Reynosa problem: Baker, 138.

Reynosa problem: Price 2670.

Utah, Wasatch Mountains, southern: Eardley, 966.

Virginia, Chesapeake Bay region: Stephenson, 3203.

West Indies, Tobago: Trechmann, 3412.

Wyoming, southwestern, Uinta County: Veatch, 3497.

Yukon, Laberge area: Lees, 2024.

Quebec.

Coulonge and Black Rivers, Pontiac County: Retty, 2746.

North Shore, St. Lawrence River, Betsiamites to Manigouagan: Faessler, 1039.

Areas described.

Assup River area: Bell, 247.

Foch area, Abitibi County: Bell, 252.

Palmarolle and Taschereau map areas, Abitibi County: Lang, 1994.

Senneterre area, Abitibi district: Bell, 253.

Quebec—Continued.

Areas described—Continued.

Siscoe gold deposit: Hawley, 1426.

Southern Quebec: Clark, 655.

Waite-Ackerman-Montgomery property, Duprat and Dufresnoy Townships: Gill, 1246.

Waswanipi Lake area: Lang, 1995.

Economic geology.

Arntfield-Aldermac mines area, Beauchastel Township: Bruce, 439.

Assup River area: Bell, 247.

Beattie gold mine, Duparquet Township: O'Neill, 2526, 2528; Rowe, 2856.

Cape Smith sulphide deposits: Airth, 19.

Chromite, eastern Quebec: Denis, 893.

Ditton gold placers, southeastern Quebec: Goodwin, 1279.

Gaspé Bay and Marsui River, lead and zinc deposits: Jones, 1726.

Granites: Burton, 501; Osborne, 2539.

Horne mine, Noranda, Rouyn Township: Butterfield, 512; Price, 2669.

Mineral prospecting: Goodwin, 1277.

Mining operations, 1932: Dufresne, 942; 1933: Dufresne, 943.

Noranda district, Amulet mine: Wilson, 3731.

Oil shales, Port Daniel: Swinnerton, 3294.

Palmarolle and Taschereau map areas, Abitibi County: Lang, 1994.

Pascal-Louvencourt area, mines: Bell, 251.

Rouyn-Bell River region: Lang, 1996.

Siscoe gold deposit: Hawley, 1426.

Thetford and Disraeli quadrangles: Cooke, 738.

Thetford district: Cooke, 736.

Waswanipi Lake area: Lang, 1995.

Historical geology.

Arntfield-Aldermac mines area, Beauchastel Township: Bruce, 439.

Cape Smith area, Hudson Bay: Gunning, 1354.

Desmeloizes sheet, Abitibi County: Can. G. S. 560.

Duparquet sheet, Abitibi and Témiscamingue Counties: Can. G. S., 561.

Duparquet Township: O'Neill, 2526.

Lava field in Canadian Shield: Wilson, 3729.

Macamic sheet, Abitibi County: Can. G. S., 569.

Noranda district, Amulet mine: Wilson, 3731.

Palmarolle sheet, Abitibi County: Can. G. S., 571.

Southern Quebec: Clark, 655.

Tabletop area, Gaspé Peninsula: Jones, 1725.

Quebec—Continued.

Historical geology—Continued.

Taschereau sheet, Abitibi County: Can. G. S., 574.

Thetford and Disraeli quadrangles: Cooke, 738.

Waite-Ackerman-Montgomery mine, Noranda district, sills and dykes: Wilson, 3733.

Mineralogy.

Pyrrhotite in chalcopyrite, Waite-Ackerman-Montgomery mine: Stevenson, 3217.

Silica, Gatineau Point: Cole, 696.

Uraninite, Lac Pied des Montes, Saguenay District: Ellsworth, 1020.

Paleontology.

Conodonts: Branson, 394.

Eurypterus remipes, Silurian: Kindle, 1880.

Fossils, collecting, Gaspé: Cooper, 745. Silurian, Baie des Chaleurs: Parks, 2579.

Syndetocrinus, Silurian, Port Daniel: Kirk, 1895.

Trilobites, Richmond formation, Akpatok Island: Cox, 767.

Petrology.

Chatham-Grenville stock, pre-Cambrian: Osborne, 2541.

Metabasalt, southern Quebec. chemical changes: Fairbairn, 1040.

Mount Johnson dike rocks: Osborne, 2540.

Rivière à Pierre area, plutonic massifs: Osborne, 2542.

Physical geology.

Chatham-Grenville stock, pre-Cambrian: Osborne, 2541.

Waite-Ackerman-Montgomery mine, Noranda district; sills and dykes: Wilson, 3733.

Physiographic geology.

Akpatok Island: Cox, 764.

Clay rhizocretions, St. Lawrence River: Rousseau, 2853.

Saguenay and Lake St. John area: Blanchard, 330.

St. Lawrence submarine trough: Shepard, 3051.

Tabletop area, Gaspé Peninsula: Jones, 1725.

Talus slopes, Gaspé Peninsula: Miner, 2357.

Quicksilver.

Arkansas: Sohlberg, 3149.

Parnell Hill mine: Stearn, 3181.

Pike County: Stearn, 3180.

California, Del Norte and Siskiyou Counties: Maxson, 2256.

Nevada, quicksilver, Lahontan: Schuette, 2999.

Oregon: Lewellen, 2054.

Southwestern: Wells, 3601.

Quicksilver—Continued.

Texas, Terlingua district, Brewster County: Ross, 2835.

Utah, Deep Creek Mountains deposit: Crawford, 769.

Washington, cinnabar: Ott, 2545.

Western States: Ross, 2829.

Radiolaria.

Cuba, Cretaceous and Eocene: Palmer, 2563.

Radium.

Northwest Territories, Echo Bay district, Great Bear Lake: Robinson, 2783; Wright, 3795.

Ocean-bottom sediments: Piggot, 2626.

Ramparts.

Ice ramparts, formation: Evans, 1035.

Reefs or bioherms.

Texas, Capitan limestone: Keyes, 1823.

Relief maps.

California: Reed, 2714.

Pacific coast: Reed, 2718.

Reptilia—Continued.

Alabama, marine Cretaceous: Ranger, 2737.

Alberta, dinosaurs and turtles, Upper Cretaceous: Parks, 2580.

Archaeosuchus richardsoni, Triassic, Arizona: Brown, 417.

Arizona, Chinle, Triassic: Camp, 545.

Ceratopsia, revision: Lull, 2124.

Chamososaurus, Belly River, Alberta: Parks, 2583.

Chamososaurus kaiseni (Ceratopsian), Red Deer River, Alberta: Brown, 420.

Crocodylia, evolution and classification: Mook, 2398.

Crocodylus clavis Cope, Wyoming: Mook, 2396.

Cynodont skull: Simpson, 3097.

Dinosaurs: Gilmore, 1255.

Bipedal, Jurassic: Camp, 546.

Footprints, Texas: Houston, 1567.

Greybull, Big Horn Mountains, Wyoming: Anonymous, 3834.

Group in Buffalo Museum: Cummings, 813.

Tracks, Peace River, Canada: Sternberg, 3208.

Triassic, Pennsylvania: Hickok, 1501; Willard, 3701.

Goniopholis (Amphicotylus) lucasii Cope (crocodile), Colorado: Mook, 2395.

Kansas, crocodilian remains, Dakota sandstone: Mehl, 2273.

Phytosaurs, Upper Triassic, Texas: Case, 592.

Protosuchus richardsoni, Triassic, Arizona: Brown, 422.

Pseudemys idahoensis (turtle), Idaho: Gilmore, 1254.

Reptilia—Continued.

Snake, Eocene, Virginia: Lynn, 2132.

Squamation of Homoeosaurus: Barbour, 189.

Stegocephalia birdi, Triassic, Arizona: Brown, 418.

Stegocephalia, progressive chondrification: Case, 590.

Teleorhinus browni, skull characters, Cretaceous, Montana: Mook, 2394.

Teleorhinus robustus, Benton, Montana: Mook, 2397.

Trachodon, Cretaceous, Nebraska: Barbour, 170.

Triceratops elatus, Montana and Wyoming: Osborn, 2534.

Triceratops flabellatus: Lull, 2125.

Triceratops maximus, Cretaceous, Montana: Brown, 419.

Troodon and nodosaurs, habitat and characters: Sternberg, 3207.

Troodon, Belly River beds, Alberta: Russell, 2887.

Turtles, Midway group, Tennessee: Whitlatch, 3673.

Belly River formation, Alberta: Parks, 2582.

Cretaceous and Eocene, Saskatchewan: Russell, 2893.

Upper Cretaceous, New Mexico: Wiman, 3743.

Restorations. See also Paleontology.

Ceratopsia: Lull, 2124.

Chamososaurus belli, Cretaceous, Alberta: Russell, 2895.

Dinosaur, Peace River, Canada: Sternberg, 3208.

Gonioceras, Ordovician, Minnesota: Sardeson, 2953.

Nannotrachus loomis: Loomis, 2094.

Oreodonts, Miocene, South Dakota: Loomis, 2095.

Paleozoic marine life: Ruedemann, 2873.

Pterygotus princetonii, eurypterid, Wyoming: Ruedemann, 2874.

Protaspis, Wyoming: Bryant, 458.

Struthiomimus currellii: Parks, 2580.

Triceratops elatus, Montana and Wyoming: Osborn, 2534.

Zarhachis flagellator, porpoise, Eocene, Maryland: Kellogg, 1766.

Rhode Island.

Areas described.

Block Island: Woodworth, 3779.

Rhythmic bedding in Monterey rocks, California: Bramlette, 384.

Ripple marks.

Archean ripple mark in Grand Canyon: Maxson, 2261.

Texas, Merkle dolomite: Patton, 2592.

Rivers.

Bed-sediment transportation in open channels: MacDougall, 2149.

Rivers—Continued.

- Colorado River delta: Sykes, 3295.
 Origin: Blackwelder, 325.
 Des Moines River, Iowa, glacial history: Keyes, 1854.
 Dynamics of streams: Straub, 3272, 3273.
 Equilibrium-conditions in debris-laden streams: Rubey, 2864.
 Meanders, cut-off, effects of: Macar, 2137.
 Ohio River: Fowke, 1141.
 Sediment, diversion at branching channels: Matthes, 2252.
- Road materials.
 Iowa: Morris, 2419.
 Pennsylvanian: Wood, 3767.
- Rock saw: Vanderwilt, 3474.
- Rocks. See Igneous and volcanic rocks; Sedimentary rocks.
- Rock slides. See Landslides.
- St. Lawrence submarine trough: Shepard, 3051.
- Saint Pierre.
Historical geology.
 General: Aubert de la Rue, 104, 110.
Mineralogy.
 Manganese mineral, Langlade: Aubert de la Rue, 109.
Physiographic geology.
 General: Aubert de la Rue, 108.
- Saint Pierre and Miquelon Islands: Aubert de la Rue, 104, 105, 106, 107, 109, 110.
- Saline domes. See Salt domes.
- Saline lake deposits, Downey Lakes, Wyoming: Knight, 1923.
- Salt.
 Arkansas, Smackover field, Union County: Bell, 249.
 Louisiana, Lafayette and St. Martin Parishes: Howe, 1579.
 Ohio: Stout, 3263.
- Salt domes.
 Anhydrite cap rock, origin: Goldman, 1267.
 Arkansas, Smackover field, Union County: Bell, 249.
 Fluid mechanics: Nettleton, 2463.
 Gulf Coastal Plain, water analyses: Minor, 2359.
 Gulf coast, Isthmus of Tehuantepec, and Utah-Colorado fields: Hanna, 1388.
 Louisiana: Steinmayer, 3195.
 Louisiana and Texas, overhanging salt on domes: Judson, 1737.
 Lafayette and St. Martin Parishes: Howe, 1579.
 Mechanics: Barton, 208.
 Salt flowage: Jones, 1727.

Salt domes—Continued.

- Texas and Louisiana, overhanging salt on domes: Judson, 1737.
 Carlos dome, Grimes County: Roisenhausen, 2798.
 Esperson dome, Liberty County: Goldston, 1271.
 Mechanics: Barton, 208.
 Sugarland oil field: McCarter, 2138.
- Salvador.
Physical geology.
 Volcanoes, active: Sapper, 2947.
- Sand. See also Silica: Martens, 2221.
 Beach sands, rounding: MacCarthy, 2139.
 Calcium carbonate in beach sands: MacCarthy, 2140.
 Illinois, Buda quadrangle: Ekblaw, 996.
 Mineral analysis: Manger, 2208.
 Sand grains, character: Ries, 2768.
- Sandstone.
 Ontario, Hawkesbury: Cole, 697.
 Size distribution of heavy minerals in water-laid sandstone: Rubey, 2863.
 West Virginia, northern: Martens, 2220.
- Santa Catalina Island, marine terraces: Smith, 3138.
- Santa Lucia Range structure California: Stanton, 3171.
- Saskatchewan.
Areas described.
 Amisk Lake area: Wright, 3798.
 Amisk Lake area, western half: Wright, 3799.
Economic geology.
 Amisk Lake area: Wright, 3798.
 Amisk Lake area, western half: Wright, 3799.
 Buff. and white-burning clays: McLearn, 2198.
 Flinflon district, gold: Wright, 3797.
 Kaolin, Whitemud beds, southern Saskatchewan: Fraser, 1150.
 Oil and gas: Hume, 1615.
Historical geology.
 Pas sheet: Can. G. S., 572.
Paleontology.
 Bearpaw formation: Warren, 3561.
 Foraminifera, Jurassic: Wickenden, 3681.
 Gyraulus cyclostomus, Rosetown, Interglacial: Baker, 141.
 Mammalian fauna, upper Eocene, Swift Current: Russell, 2889.
 Merychippus, Miocene: Russell, 2889.
 Molluscan fauna, Pleistocene and post-Pleistocene: Russell, 2891.
 Turtles, Cretaceous and Eocene: Russell, 2893.
 Vertebrates, Oligocene, Cypress Hills: Russell, 2896.

Saskatchewan—Continued.

Underground water.

Rush Lake and Elbow Quadrangles:
Maddox, 2204.

Scablands, Washington: Hodge, 1541.

Scaphopoda.

Throopella typa, Missouri: Greger,
1312.

Schists.

Origin, internal evidence: Gilluly,
1250.

Scolecodonts: Croneis, 793.

Scolithus, fossil phoronid: Fenton, 1062.

Sea level, determination: Marmer, 2217.

Secondary enrichment. See Ore deposits,
origin.

Sedimentary rocks. See also Petrology.

Chalk, composition: Frizzel, 1166.

Classification: Van Amringe, 3457.

Cumulative curves and histograms:
Dryden, 938; Galliher, 1203.

Guadeloupe: Barrabé, 195.

Mechanical analysis: Krumbein, 1948.
Fine-grained sediments: Ritten-
house, 2771.

Sedimentary material: Tolman, 3396.

Michigan, Devonian: Eddy, 983.

Grande Ledge: Kelly, 1774.

Marshall formation: Stearns, 3186.

Sylvania rocks: Alty, 49.

Mississippi, Tombigbee sands: Need-
ham, 2457.

Ohio: Lamborn, 1965.

Oklahoma, dolomites: Merritt, 2297.

Ontario, heavy minerals, Ordovician
sediments: Derry, 898.

Heavy minerals, Pleistocene, Don
Valley, Toronto: Derry, 897.

Oriskany sandstone, petrography:
Stow, 3268.

Pennsylvania, early Chemung shore
line: Willard, 3702.

Sand, mineral analysis: Manger, 2208.

Sedimentation analysis, factors: Gal-
liher, 1204.

Shape determination of large sedi-
mental rock fragments: Wadell,
3527.

Shapes of rock particles: Wentworth,
3609.

Sphericity and roundness of rock par-
ticles: Wadell, 3525.

Texas, Cataboula formation, Fayette
County: Bowling, 364.

Lingual deposition, Woodbine sands:
Shuler, 3079.

Wisconsin, Dresbach sandstone, heavy
minerals: Wilgus, 3690.

Sedimentation. See also Conglomerates;
Erosion; Sedimentary rocks:
Twenhofel, 3435.

Sedimentation—Continued.

Andros Island, Bahamas, algal sedi-
mentation: Black, 312.

Arkansas, Parnell Hill: Stearn, 3181.

Bahamas, calcareous shallow-water de-
posits: Thorp, 3384.

Bed-sediment transportation in open
channels: MacDougall, 2149.

Calcium carbonate precipitation, Great
Bahama Bank: Black, 313.

California, diatomaceous sediments:
Taliaferro, 3304.

Santa Monica Bay: Shepard, 3059.

Channel-contraction, effect upon stream
bed: Straub, 3274.

Clay rhizoconcretions, St. Lawrence
River, formed by tidal plants:
Rousseau, 2853.

Continental shelf sediments: Alexan-
der, 25.

Northeastern United States: Stet-
son, 3212.

Cumulative curves and histograms:
Dryden, 938; Galliher, 1203.

Cycle of erosion, later stages: Crick-
may, 785.

Equilibrium-conditions in debris-laden
streams: Rubey, 2864.

Feldspars, authigenic, in sediments:
Tester, 3340.

Florida, calcareous shallow-water de-
posits: Thorp, 3384.

Great Salt Lake: Eardley, 970.

Lime deposition at Tortugas, Florida:
Gee, 1219.

Louisiana, Red River below mouth of
Ouachita River: Jones, 1733.

Mississippi River: Vogel, 3513.

North Carolina and Florida coasts:
Tyler, 3438.

Ohio, variation series of beach sands,
Cedar Point: Pettijohn, 3619.

Ontario, Point Pelee, Lake Erie: Kin-
dle, 1879.

Oolites, secondary: Swartzlow, 3291.

Precipitation of calcium carbonate in
lakes: Williams, 3704.

Quartz sand, rounded, zone off New
England coast: Stetson, 3214.

Radium content of ocean-bottom sedi-
ments: Piggot, 2626.

Rio Grande, silt carried: Fiock, 1098.

Rock fans and pediments, origin and
evolution: Rich, 2753.

Sand grains, character: Ries, 2768.

Sediment, diversion at branching chan-
nels: Matthes, 2252.

Organic content: Trask, 3410.

Sedimentation analysis, factors: Gal-
liher, 1204.

Settling velocities, sand, gravel and
silt particles: Rubey, 2862.

Size distribution of heavy minerals
in water-laid sandstone: Rubey,
2863.

Sedimentation.—Continued.

- Size frequency distributions of sediments: Krumbein, 1949.
- Sporangites, Devonian, redeposited in Lake Michigan: Hough, 1566.
- Sulphur cycle in sediments: Galliher, 1202.
- Texas, Brazos River watershed: Geib, 1220.
- Lingual deposition, Woodbine sands: Shuler, 3079.
- Thermal overflow, thallophytes and rock building: Setchell, 3033.
- Transportation of bed load by streams: O'Brien, 2515.
- Trinidad, sedimentary volcanism: Kugler, 1951.
- Turbulence and transportation of debris by streams: Leighly, 2034.
- Utah Lake sediments: Hansen, 1391.
- Varves, formation: Collet, 703.
- Wisconsin, Lake Mendota, calcium carbonate precipitation: Twenhofel, 2429.

Seismology. See also Earthquakes.

- Comparative seismology studies: Willis, 3713.
- Deep earthquakes: Brunner, 447.
- Deepfocus earthquakes and allied problems: Stechschulte, 3189.
- Location: Blake, 328.
- Depths of strata, seismographic determination: Harris, 1412.
- Earthquake body waves: Macelwane, 2155.
- Earthquake, deep, of May 26, 1932: Brunner, 449.
- Earthquake surface waves: Macelwane, 2157.
- Earthquake waves: Warne, 3551.
- Paths and velocity of interior waves: Macelwane, 2158.
- Reflection and refraction: Macelwane, 2156.
- Earthquake, deep-focus: Stechschulte, 3188.
- Diurnal periodicity: Davison, 868.
- Forecasting: Keyes, 1809.
- Records, intermediate and great distances: Byerly, 524.
- Earth-structure theory: Hodgson, 1543.
- Earth waves, travel-time curves: Ewing, 1037.
- Elastic waves, velocity in granite and norite: Leet, 2027.
- Epicenter-determination: Bodle, 339.
- Field investigation of earthquakes: Wood, 3760.
- Mexico, Bay of Apulco, relation to earthquakes: Sánchez, 2931.
- New England microseisms, analysis: Leet, 2029.
- Pacific region, surface waves and structure: Carder, 579.
- Recording strong seismic motion: Blake, 327.

Seismology.—Continued.

- Reflection-seismograms, interpretation: Rutherford, 2907.
- Relation to hydrology: Heck, 1441.
- Report advisory committee: Day, 871.
- Review of 1932: Heck, 1442.
- Scales of seismic intensity: Davison, 867.
- Seismic geography: Byerly, 527.
- Seismicity of United States: Heck, 1439.
- Seismograms of near earthquakes, analysis: Byerly, 523.
- Seismograph, principles: Anderson, 73.
- Time-distance curves: Byerly, 525.
- Trace amplitudes, reduction: Byerly, 526.
- Travel-time curves, interpretation: Neumann, 2467.
- To depth of 600 km.: Brunner, 448.
- Wave transmission in rocks: Adams, 10.
- Waves, earthquake, surface-reflected: Hodgson, 1544.
- West Indies, island arcs: Heck, 1440.
- World distribution, earthquake centers and seismic sea waves: Heck, 1443.
- Selenite not a certain indicator of wind effect: Lang, 1997.
- Seneca Lake, "guns": Fairchild, 1042; Ingalls, 1631.
- Serpentinization: Bain, 129; Chawner, 636; Dresser, 935; Hess, 1491.
- Shale.
- Canada, eastern: McMahon, 2199.
- Georgia, northwestern, shales and brick clays: Smith, 3131.
- Oklahoma: Sheerar, 3043.
- Shore lines. See also Beaches; Changes of level; Glacial lakes; Terraces.
- Lagoon deposits, evolution: Lucke, 2121.
- Maine: Goldthwait, 1272.
- New Jersey, Barnegat Inlet: Lucke, 2119.
- Ontario, Point Pelee, Lake Erie: Kindle, 1879.
- Oregon: Smith, 3135, 3136.
- Pennsylvania, early Chemung shore line: Willard, 3702.
- Pleistocene changes of sea level: Cooke, 731.
- Tidal inlets, evolution: Hitchcock, 1526.
- Siderite.
- Texas, Carlos dome, Grimes County: Rolshausen, 2798.
- Silica. See also Quartz; Sand.
- Quebec, Gatineau Point: Cole, 696.
- Volatile transport: Greig, 1323; Terzaghi, 3334.
- Silurian. See also Paleontology, Silurian.
- For Lower Silurian, see Ordovician.

Silurian—Continued.

- Alabama, northern: Johnston, 1714.
- Arctic America, Baffin Land and Melville Peninsula: Mathiassen, 2242.
- Arizona, Fusselman series: Keyes, 1832.
- Arkansas: Kansas Geol. Soc., 1746.
- California, northern Sierra Nevada: Jenkins, 1653.
- Canada, Arctic America, north of Hudson Bay: Freuchen, 1163.
- Eastern Arctic: Weeks, 3587.
- Colorado, Front Range: Brainerd, 379.
- Eastern New York and western New England: Longwell, 2085.
- Greenland, northwest, Washington Land, south coast: Koch, 1928.
- Idaho, south-central: Ross, 2837.
- Illinois, Port Byron limestone: Savage, 2955.
- Kansas, Hunton limestone, McPherson and Harvey Counties: Hall, 1374.
- Kentucky, Mill Springs area: Knapp, 1906.
- Manitoba, well sections: Wickenden, 3682.
- Maryland, Appalachian region: Stose, 3260.
- Michigan, oil and gas fields: Newcombe, 2469.
- Mississippi Basin: Ball, 154.
- Nebraska, pre-Pennsylvanian stratigraphy: Lugn, 2123.
- Nevada, Tybo District: Ferguson, 1064.
- Newfoundland, western: Schuchert, 2996.
- New Hampshire, central: Billings, 303.
- Littleton quadrangle: Billings, 301.
- New Mexico: Winchester, 3747.
- Sierra County: Harley, 1404.
- New York, Catskill region; Chadwick, 610.
- New York City and vicinity: Berkey, 263.
- Southern: Fettke, 1070.
- State: Newland, 2476.
- Western, Clinton formation: Sanford, 2941.
- Ohio, sedimentary series: Lamborn, 1965.
- Serpent Mound structure: Bucher, 463.
- Oklahoma, Arbuckle and Wichita Mountains, early Paleozoic: Decker, 874.
- Oil and gas fields: Wrather, 3787.
- Osgood formation, foraminiferal correlation: Dunn, 952.
- Pennsylvania, eastern: Berkey, 262.
- Limestones: Miller, 2331.
- Mount Union: Swartz, 3287.
- Northern: Fettke, 1070.
- Southern: Stose, 3260.
- Quebec, Tabletop area, Gaspé Peninsula: Jones, 1725.

Silurian—Continued.

- Southern Appalachian region: Butts, 513.
- Texas: Sellards, 3029.
- Virginia, Appalachian Valley: Butts, 514.
- Blue Ridge: Stose, 3262.
- Northern: Bevan, 288.
- Silver.
 - Arizona, Yuma County, southern: Wilson, 3723.
 - British Columbia, Copper Mountain mining area, Similkameen district: Dolmage, 911.
 - Cranbrook area: Cairnes, 536.
 - Slocan mining camp area: Cairnes, 537.
 - California, Panamint Range: Sampson, 2929.
 - Canada, Great Bear Lake: Furnival, 1195.
 - Colorado, Breckenridge mining district: Lovering, 2111.
 - Mosquito gold mining district: Dyrenforth, 964.
 - Idaho, Banner district: Anderson, 58.
 - Boise County: Ross, 2831.
 - Coeur d'Alene district: Hershey, 1478; Warren, 3556.
 - Dome mining district, Butte County: Ross, 2833.
 - Mesothermal deposits: McKnight, 2189.
 - Mexico, Fresnillo mines: Landenberger, 1973.
 - Minnesota, northeastern: Grout, 1335.
 - Missouri, Silver Mine area, Madison County: Tolman, 3394.
 - Montana, metalliferous deposits, Helena region: Pardee, 2570.
 - New Mexico, Sierra County: Harley, 1404.
 - Northwest Territories, Great Bear Lake area: Kidd, 1876.
 - Ontario, Miller Lake O'Brien mine, Gowganda: Thomson, 3380.
 - Silver deposits and Keweenawan diabases, genetic relations: Moore, 2402.
- Sink holes.
 - Colorado, Eagle County: Johnson, 1696.
 - Fossil, Cretaceous, Prowers County, Colorado: Dane, 840.
 - Illinois, disappearing lake, Hardin County: Bonnell, 345.
 - New Mexico, linear and dendritic patterns: Melton, 2284.
- Slate.
 - Pennsylvania: Behre, 241.
- Slickensides: Morse, 2421.
- Slides. See Landslides.
- Slump scarps: Finch, 1093.

Soapstone.

- Vermont, serpentinization: Bain, 128.
Virginia, northern: Bevan, 288.

Societies. See Associations.

Soils.

- Origin: Smith, 3122.

Somerset-Windber folio, Pennsylvania (no. 224): Richardson, 2763.

South Carolina.

Mineralogy.

- Cherokee Springs meteorite: Perry, 2614.
Meteorite, Cherokee Springs: Perry, 2613.

Paleontology.

- Foraminifera: Cushman, 819.
Coastal Plain: Cushman, 818.
Pectinidae, Tertiary: Tucker, 3418.

Physiographic geology.

- Carolina bays: Prouty, 2676.
Iron meteorites and Carolina bays: Wylie, 3807.
Meteorite scars (?): Cooke, 734, 735; Johnson, 1687; Melton, 2281.

South Dakota.

Economic geology.

- Black Hills gold placers: Connolly, 722.
Grant County, South Dakota: Rothrock, 2847.
Homestake gold formation, metamorphism and hydrothermal alterations: Gustafson, 1358.
Homestake mine: Simmons, 3086.
Mining at Homestake mine: McLaughlin, 2195.
Perkins County, central: Searight, 3017.
Placer gold: Anderson, 65.
Stoneville coal area: Searight, 3016.

Historical geology.

- Black Hills: Kansas Geol. Soc., 1742.
Black Hills-Big Horn-Beartooth region, gravity anomalies: Chamberlin, 620.
Crepicephalus horizon in Deadwood formation: Meyerhoff, 2311.
Grant County, South Dakota: Rothrock, 2847.
Lake Kampeska area: Rothrock, 2845.
Nemo district, Black Hills, pre-Cambrian history: Runner, 2882.
Perkins County, central: Searight, 3017.
Pre-Cambrian structure, Beartooth, Big Horn and Black Hills uplifts: Cloos, 669.
Stoneville coal area: Searight, 3016.

Mineralogy.

- Beryl: Lincoln, 2059.
Black Hills: O'Harra, 2522.

Paleontology.

- Buteo grangeri (hawk), Oligocene, Washabaugh County: Wetmore, 3642.

South Dakota—Continued.

Palaeontology—Continued.

- Camel: Bump, 480.
Cats, sabre-tooth, Oligocene: Jepsen, 1672.
Crepicephalus horizon in Deadwood formation: Meyerhoff, 2311.
Entelodonts, Miocene: Loomis, 2092.
Florule, Harding County, lower Lance: Berry, 276.
Micro-fossiliferous Upper Cretaceous section: Applin, 78.
Nannotragulus skeleton: Loomis, 2094.
Oreodont skeletons, lower Miocene: Loomis, 2095.
Ostracoda, Morrison, Black Hills: Roth, 2841.
Vertebrates, collecting: Gilmore, 1253.

Petrology.

- Metamorphosed calcareous concretions: Runner, 2880.

Physiographic geology.

- Black Hills, cycles of erosion: Work, 3783.
Crow Creek area: Rothrock, 2848.

Underground water.

- Fort Thompson area: Rothrock, 2846.
Thermal springs, Black Hills: Work, 3782.

Spillite and average metabasalt: Fairbairn, 1041.

Spongiae.

- Calcsponge, Texas cretaceous: Wells, 3604.
Cincinnatian: Shideler, 3067.
Quebec, Baie des Chaleurs, Silurian: Parks, 2579.

Springs. See also Underground water.

- Costa Rica, mineral and warm springs: Schaufelberger, 2965.
Wyoming, intermittent spring, Swift Creek near Afton: Stearns, 3187.

Spherulites: Colony, 711.

- Oregon, Clarno acid lavas: Wilkinson, 3692.

Stalactites and stalagmites.

- Growth, Lewiston, Maine: Fisher, 1107.
Mud stalagmites: Malott, 2206.

Stone industries: Bowles, 363.

Stratigraphic geology. See Historical geology.

Straw-Manitou Lakes area, Ontario: Thomson, 3383.

Stream capture.

- Methods: Crosby, 806.

Stromatoporoidea.

- Quebec, Baie des Chaleurs, Silurian: Parks, 2579.
Systematic position: Parks, 2584.

Structural geology. See Physical geology.

- Structural materials. See Building stones; Clay, etc.
- Study and teaching. See Educational.
 - Geological field courses in American colleges: Patton, 2593.
 - Geologic instruction, laboratory equipment: Croncis, 797.
- Styeolites.
 - Missouri, Carthage, cherts and styolites, relation: Bastin, 223.
 - West Virginia, in sandstones: Price, 2667.
- Structural crystallography: Rogers, 2791.
- Structural features.
 - Unsoundness of certain types rocks: Morris, 2419.
- Submarine mock-valleys: Davis, 861, 866.
- Submarine valleys: Shepard, 3052, 3054, 3055, 3057, 3060, 3061, 3062.
 - Oregon coast: Smith, 3136.
- Submerged river valleys: Hess, 1488, 1489.
- Subsidence. See Changes of level.
- Subterranean water. See Underground water.
- Sulphur.
 - Texas: Baker, 136.
- Surveys. See also History.
 - Activities, State geological surveys: Branner, 387, 388.
 - Canada, report 1933: Collins, 708.
 - Colorado, cooperative geological survey, report surveys for 1932: Butler, 509.
 - Connecticut Fifteenth biennial report of State Survey: Britton, 407.
 - Florida, Geological Survey, administrative report: Gunter, 1355.
 - Functions of State surveys: Ashley, 93.
 - Functions, State geological surveys: Leighton, 2039.
 - Government surveys and mining industry: Sales, 2927.
 - Idaho, Bureau of Mines, Report: Finch, 1092.
 - Indiana, Division of Geology, 12th report: Logan, 2077; 13th report: Logan, 2078; 14th report: Logan, 2079.
 - Mexico, annual report: Santillán, 2943.
 - Missouri, report of State Geologist: Buehler, 472.
 - Public Works activities, U. S. Geological Survey: Sears, 3020.
 - Science Advisory Board report on U. S. Geological Survey, 1934: Leith, 2044.
 - Service: Bain, 126.
 - United States Geological Survey annual report, 1933: Mendenhall, 2285; 1934: Mendenhall, 2288.
 - Public services: Mansfield, 2212.
- Surveys—Continued.
 - Value: Roberts, 2773.
 - To non-mining community: Agar, 14.
- Tables of formations. See Geologic formations, tables.
- Takilma-Waldo and Blue Creek districts: Shenon, 3046.
- Talc.
 - Vermont, serpentinization: Bain, 128.
- Teaching.
 - Introductory geology: Schroeder, 2993.
 - Laboratory exercises in general geology: Giles, 1244.
- Technique. See also Mineralogy; Petrology.
 - Biaxial crystals, model: Rogers, 2792.
 - Bottom-hole pressure: Wright, 3796.
 - Canada balsam, quick-drying: Coombs, 740.
 - Centrifuge tube for heavy mineral separations: Taylor, 3322.
 - Clastic rocks, disaggregation by pressure chamber: Taylor, 3321.
 - Clay minerals: Grim, 1329.
 - Detrital grains, handling and determination: Partridge, 2588.
 - Diatomaceous earth, preparation: Shropshire, 3078.
 - Dispersion of fine-grained sediments for mechanical analysis: Krumbein, 1947.
 - Drill cuttings, collection and interpretation: Richards, 2758.
 - Exposure determination, photomicrography: Henbest, 1453.
 - Factor in mechanical analysis, fine-grained sediments: Galliher, 1201.
 - Flow lines and flow planes in plastic masses: Fraser, 1149.
 - Foraminifera, concentration: Carson, 589.
 - Sorting stage: Ellis, 1010.
 - Friable material, thin sections: Hite, 1528.
 - Geologic instruction, laboratory equipment: Croncis, 797.
 - Grains, transfer from one liquid to another: Calkins, 538.
 - Hyrax, new mounting medium: Hanna, 1381.
 - Synthetic resin: Cameron, 544.
 - Ideal solution immersion liquids, optical properties: Buerger, 473.
 - Index liquids, standardization: Glass, 1261.
 - Illustrations for geologic articles: Hooker, 1559.
 - Imbedding fossils in paraffine for cleaning: Cooper, 748.
 - Jamin effect in oil production: Wright, 3801.
 - Magnetic separation, minerals and rocks: Ryan, 2915.

Technique—Continued.

Mechanical analysis, fine-grained sediments: Rittenhouse, 2771.

Sedimentary material: Tolman, 3396.

Metals, field tests for: Fansett, 1046.

Microfaunal technique, Paleozoic rocks: Dunn, 953.

Microhardness of minerals comprising Mohs scale: Hodge, 1542.

Mountain structure, laboratory studies: Mitchell, 2367.

Mounting polished surfaces in bakelite: Fuller, 1184.

Nitrocellulose sections, fossils and rocks: Fenton, 1063.

Optical instruments for mineralogists: MacNelly, 2203.

Orientation of minerals in rocks: Pabst, 2548.

Paleobotanical micro-technique: Noé, 2503.

Photography for the mineralogist: Stephens, 3202.

Plagioclase determination: Emmons, 1024.

Portraying structure of coal fields: MacKay, 2177.

Preparation for elutriation of clay samples by steam agitation: Postel, 2651.

Paleobotanical sections by peel method: Graham, 1292.

Projection of dip angle on profile section: Foley, 1126; Herold, 1476.

Quantitative microscopic methods: Alling, 45; Thackwell, 3341.

Quartz spectograph in study of opaque minerals: Haycock, 1431.

Recovery of Paleozoic arenaceous Foraminifera: Secrist, 3023.

Refractive index liquids: Rogers, 2790.

Refractometer, high index: Emmons, 1023.

Resin, high index: Alexander, 28.

Mounting medium, 1.66 index of refraction: Keller, 1762.

Rock saw: Vanderwilt, 3474.

Rotary type of sample splitter: Wentworth, 3614.

Sampling heavy minerals: Otto, 2546.

Sedimentary laboratory, portable: Henson, 1471.

Sediments, sampling: Krumbein, 1948.

Serial sectioning of fossils: Simpson, 3095.

Specific gravity of minerals, determination by index liquids: Meen, 2272.

Spectroscopic analysis, galenas, sphalerites, and pyrites: Claussen, 657.

Strata, thickness between dips: Ickes, 1627.

Submarine surveying: Rude, 2866.

Textures, film study: Appel, 77.

Thin-section mineralogy: Rogers, 2788.

Thin sections of weathered rock: Anonymous, 3821.

Technique—Continued

Tray for microscopic examination of opaque objects: Cullison, 812.

Varved clays: Rittenhouse, 2772.

Tectonic map of United States, proposed: Longwell, 2090.

Temperature gradients in oil wells: Van Orstrand, 3479.

Tennessee.

Reelfoot Lake: Glenn, 1263.

Economic geology.

Clays: Collins, 705; Roberts, 2775.

Ducktown district: Kendall, 1777.

Holston marble, Asbury: Walls, 3543.

Iron ores, brown, Western Highland Rim region: Burchard, 490.

Oil and gas: St. Clair, 2925.

Phosphates, Devonian, constitution: Cayeux, 609.

Tennessee River basin, mineral resources: U. S. G. S., 3449.

Tinsley's Bottom oil field: Roberts, 2774.

Historical geology.

Forked Deer Creek section, Clinch Mountain: Hall, 1372.

Geologic map: Pond, 2645.

Knox dolomite: Oder, 2517.

Southern Appalachian region: Butts, 513.

Western Tennessee: Wells, 3599.

Mineralogy.

Tennessee Valley Authority region: Eckel, 982.

Paleontology.

Crinoidea: Bassler, 217.

Flora, Pleistocene: Berry, 281.

Foraminifera: Cushman, 819.

Turtle, Midway group, Hornsby: Whitlach, 3673.

Physical geology.

Cumberland thrust block: Rich, 2754.

Underground water.

Western Tennessee: Wells, 3599.

Terraces. See also Beaches; Changes of level; Glacial lakes; Shore lines.

Arizona, lower Colorado River: Blackwelder, 324.

California, Santa Catalina Island: Smith, 3138.

Colorado, upper Arkansas and Eagle Rivers: Behre, 244.

Maryland, southern: Cooke, 729.

• Pennsylvania, south-central: Hickok, 1502.

Susquehanna Valley below Harrisburg: Mackin, 2186.

Wyoming, Big Horn Basin: Johnson, 1689.

Tertiary. See also Paleontology, Tertiary. Alabama: Shreveport Geol. Soc., 3074.

Ackerman formation: Cooke, 730.

Cocoa sand member of Jackson formation: Cooke, 733.

Tertiary—Continued.

- Alaska, Alaska Peninsula and Aleutian Islands: Capps, 578.
 Curry district: Tuck, 3416.
 Moose Creek area: Waring, 3550.
 Alberta, central: Allan, 36.
 Sweetgrass arch, northward extension: Michener, 2312.
 Arctic America, Baffin Land and Melville Peninsula: Mathiasen, 2242.
 Barbados: Saint, 2924.
 Bonaire, Danish West Indies: Pijpers, 2628.
 British Columbia, Barkersville, Cariboo District: Johnston, 1706.
 Copper Mountain mining area, Similkameen district: Dolmage, 911.
 California: Reed, 2714.
 Berkeley Hills, Pliocene sequence: Clark, 645.
 Death Valley: Noble, 2497.
 Diatomaceous sediments: Taliaferro, 3304.
 "Domengine" middle Eocene, Ventura County: McMasters, 2201.
 Huntington Beach oil field: Gale, 1200.
 Kettleman Hills oil field: Gester, 1227; Goudkoff, 1288.
 Kramer deposits, Kern County: Mead, 2270.
 Lajas formation, Ventura County: McMasters, 2200.
 Lucia quadrangle, Monterey County: Reiche, 2727.
 McKittrick oil field, Kern County: Taff, 3298.
 Monterey formation, Miocene: Eaton, 976.
 Northern Sierra Nevada: Jenkins, 1653.
 Redding-Weaverville districts: Hinds, 1516.
 Salinas Valley district, Eocene: Edwards, 988.
 San Gabriel Mountains, Martinez: Clements, 662.
 Western: Miller, 2354.
 San Joaquin clay, San Joaquin Valley: Barbat, 162.
 San Miguel Island, Santa Barbara County: Bremner, 401.
 Santa Monica Mountains, western: Soper, 3152.
 Southern: Livingston, 2067.
 Tehachapi region: Buwalda, 519.
 Canada, eastern Arctic: Weeks, 3587.
 Colorado, Climax district: Butler, 507.
 McCallum anticlines, Jackson County: Miller, 2336.
 Two Buttes dome: Parker, 2577.
 Correlation of lower Oligocene, South and Central America and Mexico: Dorr, 923.
 Costa Rica, highlands: Lohmann, 2084.

Tertiary—Continued.

- Cuba: Sánchez Roig, 2935.
 Guantanamo Bay region: Meiner, 2274.
 Habana and vicinity: Palmer, 2566.
 Sierra Maestra: Taber, 3297.
 Delaware, Chesapeake Bay region: Stephenson, 3203.
 Greenland, east, Angmagsalik to Kap Dalton area: Wager, 3520.
 Cape Dalton: Havn, 2702.
 Fleming Inlet area: Noe-Nygaard, 2506.
 Guadeloupe, Désirade, Lesser Antilles: Barrabé, 196.
 Idaho, Pearl-Horseshoe Bend gold belt: Anderson, 60.
 Thunder Mountain mining district, Valley County: Ross, 2832.
 John Day formation, age: Hodge, 1539.
 Kansas, Ogallala formation, High Plains: Elias, 1002.
 "Lillis formation", California: Hanna, 1383.
 Louisiana: Howe, 1578.
 Louisiana and Texas Gulf coast: Deussen, 902.
 Louisiana, Caldwell and Catahoula Parishes: Shreveport Geol. Soc., 3075.
 Maryland, Chesapeake Bay region: Stephenson, 3203.
 Miocene formations: Dryden, 939.
 Southern: Cooke, 729.
 Massachusetts, Cape Cod region: Woodworth, 3779.
 Mexico, Baja California, coastal plain: Vivar, 3512.
 Central Sonora: King, 1891.
 Comales, Ozuama, Veracruz: Villatoro, 3508.
 Tampico district, middle Oligocene: Thalmann, 3351.
 Mississippi: Shreveport Geol. Soc., 3074.
 Clarke and Wayne Counties: Shreveport Geol. Soc., 3076.
 Eocene: Lowe, 2115.
 Jackson gas field, Hines and Rankin Counties: Monroe, 2373.
 Montana, Cinnabar Mountain, Park County: Wilson, 3720.
 Medicine Bow Mountains: Neely, 2459.
 Ness and Hodgeman Counties, Kansas: Moss, 2424.
 Nevada, Gold Circle mining district, Elko County: Rott, 2849.
 New Mexico: Winchester, 3747.
 San Juan basin: Hunt, 1620.
 Nicaragua, volcanic rocks: Burri, 498.
 Oregon, Cascade Range: Callaghan, 540.
 Keasey formation: Schenck, 2966.
 Marine Eocene: Turner, 3424.
 Mascall formation: Merriam, 2296.

Tertiary—Continued.

- Puerto Rico: Meyerhoff, 2307.
 Rhode Island, Block Island: Woodworth, 3779.
 Saskatchewan, southern: McLearn, 2198.
 South Dakota, central Perkins County: Searight, 3017.
 Stoneville area: Searight, 3016.
 Texas: Plummer, 2638, 2640.
 Texas and Louisiana Gulf coast: Deussen, 902.
 Catahoula formation, Fayette County: Bowling, 364.
 Darst Creek oil field, Guadalupe County: McCallum, 2137.
 Driscoll pool, Duval County: Sheldon, 3044.
 Government Wells district, Duval County: Jones, 1730.
 Hemphill County: Reed, 2713.
 Kelsey anticline, Upshur County: Denison, 895.
 Kincaid formation: Gardner, 1209.
 McFaddin-O'Conner, Greta, Fox, Refuge, White Point and Saxet fields: Getzendaner, 1228.
 Northeast of East Texas oil field: Decker, 877.
 Oil and gas fields: Wrather, 3787.
 Utah, Uinta Basin: Kay, 1755.
 Varved clay in Ogden Valley: Leggett, 2033.
 Wasatch Mountains, southern: Eardley, 966.
 Virginia, Chesapeake Bay region: Stephenson, 3203.
 Washington, Columbia River lavas: Wilson, 3726.
 Mascall formation: Merriam, 2296.
 Olympic peninsula: Weaver, 3579.
 Rattlesnake Hills gas field: Hammer, 1379.
 West Indies, Tobago: Trechmann, 3412.
 Wyoming, Absaroka Range: Love, 2108.
 Bald Mountain conglomerate: Hares, 1400.
 Owl Creek Mountains: Love, 2107.
 Shoshone Canyon area, Park County: Johnson, 1692.
 Southwestern, Uinta County: Veatch, 3497.
 Valley region, Park County: Rouse, 2852.
 Wind River Basin: Bauer, 228.
 Yukon, Laberge area: Lees, 2024.

Testudinata. See Reptilia.

Texas.

- Bibliography and subject index: Sellards, 3030.
 Guidebook, Southern Pacific Lines, New Orleans to Los Angeles: Darton, 848.

Texas—Continued.

- Inspiration Point, Palo Pinto County: Shuler, 3080.
 Western Texas: Darton, 847.
Areas described.
 Hemphill County: Reed, 2713.
Economic geology.
 Darst Creek oil field, Guadalupe County: McCallum, 2137.
 Driscoll pool, Duval County: Sheldon, 3044.
 East Texas oil field: Minor, 2358; Whitehead, 3670.
 Esperson dome, Liberty County: Goldston, 1271.
 Galena in Upper Cambrian: Baker, 135.
 Gold: Baker, 133.
 Government Wells district, Duval County: Jones, 1730.
 Gulf coast oil horizons: Deussen, 902.
 Gulf Coast region: Vanderpool, 3468.
 Luling, Salt Flat, and Darst Creek oil fields: Jones, 1729.
 McFaddin-O'Conner, Greta, Fox, Refuge, White Point, and Saxet oil fields: Getzendaner, 1228.
 Mid-Continent oil and gas fields: Miser, 2364.
 Mineral resources, Maverick County: Getzendaner, 1231.
 Uvalde County: Getzendaner, 1229.
 Zavala County: Getzendaner, 1230.
 Natural gas, Amarillo district: Cotner, 762.
 Anderson and Leon Counties: Tarr, 3310.
 Oil and gas fields: Wrather, 3787.
 Oil and gas recent developments, Gulf Coast: Eby, 977.
 Oil possibilities, northeastern Texas: Decker, 877.
 Oil reservoirs, structural classification: Plummer, 2641.
 Petroleum, Conroe field: Schütte, 3000.
 Ector County: Young, 3811.
 Potash: Delacote, 886.
 Potash field, Permian: Mansfield, 2211.
 Raccoon Bend oil field, Austin County: Teas, 3325.
 Salt, overhanging, on salt domes: Judson, 1737.
 Serpentine rocks, central Texas: Plummer, 2642.
 Siderite in cap rock, Carlos dome, Grimes County: Rolshausen, 2798.
 Sugarland oil field, Fort Bend County: McCarter, 2138.
 Sulphur: Baker, 136.
 Terlingua quicksilver district, Brewster County: Ross, 2835.
Historical geology.
 Capitan limestone as great barrier reef: Keyes, 1823.
 Catahoula formation, Fayette County: Bowling, 364.

Texas—Continued.

Historical geology—Continued.

- Chalks, east Texas: Thomas, 3363.
 Colorado River valley, Pennsylvanian: Bullard, 478.
 Concho County, Permian: Kramer, 1941.
 Cretaceous, trans-Pecos: King, 1885.
 Darst Creek oil field, Guadalupe County: McCallum, 2137.
 Dolomite dikes, Clear Fork formation: Kramer, 1940.
 El Paso limestone, Ordovician, correlations: Kirk, 1897.
 Fredericksburg-Washita contact, Edwards Plateau region: Curry, 817.
 General: Kansas Geol. Soc., 1747.
 Geology: Adkins, 13; Plummer, 2640; Sellards, 3028, 3029.
 Government Wells district, Duval County: Jones, 1730.
 Graham formation: Coryell, 759.
 Gulf coast geosyncline: Barton, 210.
 Gulf coast oil horizons: Deussen, 902.
 Jackson group of formations: Ellis, 1012.
 Kelsey anticline, Upshur County: Denison, 895.
 Kelsey dome, Upshur County: Denison, 894.
 Kincaid formation: Gardner, 1209.
 Lingual deposition, Woodbine sands, Copperas Branch, Denton County: Shuler, 3079.
 Lissie formation and Beaumont clay: Price, 2674.
 Lissie, Reynosa, and Upland Terrace deposits, Coastal Plain: Weeks, 3585.
 Midway group, age: Scott, 3009.
 Oakville, Lagarto, and Reynosa formations, stratigraphy: Johnson, 1690.
 Ouachita Paleozoics, relation to oil and gas fields, Mid-Continent region: Miser, 2364.
 Pecan Gap chalk, correlation: Ellis, 1013.
 Permian, Glasscock County: Adams, 8.
 Raccoon Bend oil field, Austin County: Teas, 3325.
 Reynosa, problem: Baker, 138; Price, 2670.
 Salt domes, mechanics: Barton, 208.
 Somervell County: Fiedler, 1076.
 Sugarland oil field, Fort Bend County: McCarter, 2138.
 Texas Panhandle: Kansas Geol. Soc., 1743.
 Trans-Pecos Permian: King, 1886.
 Trans-Pecos, upper Mississippian rocks: King, 1887.
 Triassic, limits: Roth, 2840.
 Wilcox of central Texas: Claypool, 658.
 Wolf Mountain phacolith, pre-Cambrian: Stenzel, 3199.

Texas—Continued.

Mineralogy.

- Calcite, rose pink: Brock, 409.
 Galena in Upper Cambrian: Baker, 135.
 Pierce Junction salt dome, Harris County: Hanna, 1387.
 Meteorites, north Texas: King, 1888.
 Salt dome cap rock minerals: Hanna, 1389.
 Selenite crystals, secondary, in Tertiary strata: Broughton, 414.

Paleontology.

- Ammonite fauna, Turonian: Adkins, 12.
 Aturias, Eocene: Stenzel, 3201.
 Basslerina, Ostracoda, Pennsylvanian: Moore, 2404.
 Brachiopod, western Texas: Girty, 1258.
 Calcsponge, Lower Cretaceous: Wells, 3604.
 Conocardium, Pennsylvanian, Hood County: Harris, 1409.
 Cytherelloidea, Tertiary ostracode genus: Howe, 1580.
 Cytheridea plummeri, reversed valve and hinge structure, Upper Cretaceous: Alexander, 30.
 Cytheropteron, shell structure, Cretaceous: Alexander, 31.
 Daemonhelix, Pleistocene, Briscoe County: Wood, 3765.
 Decapod crustaceans, Eocene, Brazos County: Stenzel, 3200.
 Diploschiza, Cretaceous: Stephenson, 3206.
 Dipnoans, Permian: Romer, 2805.
 Echinoids, Cretaceous: Smiser, 3110.
 Elephants, Connor sand pits, Dallas: Shuler, 3081.
 Epistominoides and Coleites, Tertiary Foraminifera: Plummer, 2643.
 Fern from Clear Fork limestone, Permian: Adams, 8.
 Footprints, Comanchean limestone, Hondo Creek, Bandera County: Houston, 1567.
 Foraminifera: Cushman, 819.
 Moody Branch marl, Jackson Eocene: Gravell, 1306.
 Geology: Plummer, 2640; Sellards, 3028, 3029.
 Madracis, Eocene: Wells, 3605.
 Orbitulina, Glen Rose formation: Silvestri, 3084.
 Orbitolina walnutensis, Cretaceous: Lynch, 2131.
 Ostracoda, Cretaceous: Alexander, 32.
 Midway (Eocene): Alexander, 33.
 Osteoborus and Borophagus Cope: Stirton, 3224.
 Phytosaurs, Upper Triassic: Case, 592.
 Plant localities, Eocene, Bexar County: Parks, 2578.

Texas—Continued.***Paleontology—Continued.***

Plants, Lytle, Bexar County: Kirn, 1898.

Wilcox of central Texas: Claypool, 658.

Petrology.

Catahoula formation, Fayette County: Bowling, 364.

Concretions in Manning beds: Burt, 600.

Physical geology.

Brazos River watershed, erosion: Geib, 1220.

Caliche, origin: Baker, 138; Price, 2670.

Corpus Christi area, diastrophism: Price, 2671.

Faulting, recent, McLennan County: Bryan, 450.

Fractures, surface: Barton, 209.

Longhorn cavern: Law, 2016.

Ripple marks, Merkle dolomite: Patton, 2592.

Valentine earthquake, August 16, 1931: Byerly, 529.

Physiographic geology.

Corpus Christi area: Price, 2671.

Craters formed by air blowers: Price, 2672.

Meteorite crater: Spencer, 3156.

Odessa meteorite crater: Nininger, 2494.

Soil hillocks: Melton, 2282.

Texas, southern, drainage: Barton, 209.

Underground water.

Dimmit and Zavala Counties: White, 3669.

Duval County: Sayre, 2956.

Galveston area, water resources: Turner, 3426.

Mineral water supply, Mineral Wells area: Turner, 3425.

Serpentine rocks, central Texas: Plummer, 2642.

Somervell County, artesian water: Fiedler, 1076.

Webb County: Lonsdale, 2091.

West Texas Permian Basin: Berger, 259.

Textbooks. See also Educational.

Foraminifera, manual: Galloway, 1205.

Geologic processes and their results: Chamberlin, 622.

Glacial geology: Thwaites, 3388.

Historical geology: Moore, 2407; Schuchert, 2994; Ver Wiebe, 3505.

Introduction to study of fossils: Shimer, 3070.

Introductory geology: Schroeder, 2993.

Laboratory exercises in general geology: Giles, 1244.

Laboratory manual, general geology: Roberts, 2778.

Physical geology: Alexander, 34.

Textbooks—Continued.

Mineral deposits: Lindgren, 2060.

Paleontology: Zittel, 3819.

Vertebrate: Romer, 2801.

Physical geology, laboratory exercises: Putnam, 2678.

Optical mineralogy, elements of: Winchell, 3745.

Principles of geology, outline: Field, 1082.

Principles of historical geology: Field, 1078.

Vertebrates: Romer, 2801.

Thermal waters.

Algae agency in travertine deposition: Allen, 41.

Texas, central, serpentine rocks: Plummer, 2642.

Thermal overflow, thallophytes and rock building: Setchell, 3033.

Thermal springs, development: Allen, 39.

Thunder Mountain mining district, Valley County, Idaho: Ross, 2832.

Tin.

Alabama: Ellsworth, 1018.

Alaska, Rampart and Hot Springs districts, placer concentrates: Waters, 3568.

Nova Scotia: Messervey, 2306.

Gold River area, Lunenburg County: Davison, 869.

Titanium.

Virginia, ilmenite-apatite deposits, Amherst and Nelson Counties: Ryan, 2916.

Northern: Bevan, 288.

Role of volatiles in formation: Ross, 2823.

Topaz.

Colorado, Tarryall Mountains: Wulff, 3802.

Maine, topaz deposit, Topsham: Palache, 2556.

Tracks and trails.

Nova Scotia, Carboniferous: Sternberg, 3210.

Chemung, Pennsylvania: Willard, 3700.

Transportation of debris by streams: Leighly, 2034.

Travertine.

Algae agency in deposition from thermal waters: Allen, 41.

Virginia: Hinkle, 1521.

Lexington: Steidtmann, 3193.

Triassic. See also Paleontology, Triassic. Alberta, Canadian Rockies: Telfer, 3332.

Central: Allan, 36.

Crowsnest Pass area: Warren, 3558.

Arizona, Chinle formation: Vander Hoof, 3465.

Triassic—Continued.

British Columbia, Canadian Rockies:
Telfer, 3332.

Slocan mining camp area: Cairnes,
537.

California, northern Sierra Nevada:
Jenkins, 1653.

Redding-Weaverville districts:
Hinds, 1516.

Canada, eastern Arctic: Weeks, 3587.

Colorado: Kansas Geol. Soc., 1747.

Central: Lovering, 2110.

McCallum anticlines, Jackson Coun-
ty: Miller, 2336.

Two Buttes dome: Parker, 2577;
Sanders, 2938.

Eastern New York and western New
England: Longwell, 2085.

Greenland, Fleming Inlet area: Noe-
Nygaard, 2506.

Kansas: Kansas Geol. Soc., 1747.

Limits of Triassic: Roth, 2840.

Maryland, Appalachian region: Stose,
3260.

Mexico, central Sonora: King, 1891.

Tehuacan region: Müllerried, 2431.

Montana, Cinnabar Mountain, Park
County: Wilson, 3720.

Medicine Bow Mountains: Neely,
2459.

New Mexico: Kansas Geol. Soc., 1747;
Winchester, 3747.

New York, New York City and vicini-
ty: Berkey, 263.

Oklahoma: Kansas Geol. Soc., 1747.

Limits of Triassic: Roth, 2840.

Western, Permian-Triassic problem:
Anderson, 71.

Oregon, Ochoco Range: Schenk, 2971.

Pennsylvania: McLaughlin, 2192.

Brunswick formation (Newark):
McLaughlin, 2191.

Eastern: Berkey, 262.

Limestones: Miller, 2331.

Middletown quadrangle: Stose, 3261.

Southern: Stose, 3260.

Spitzenberg conglomerate, Berks
County: Whitcomb, 3650.

Rocky Mountain region: Heaton, 1437.

Texas: Adkins, 13; Kansas Geol. Soc.,
1747.

Limits of Triassic, Roth, 2840.

Utah, Moab District: Baker, 131.

Wasatch Mountains, southern: Eard-
ley, 966.

Virginia: McGill, 2167.

Structural pattern: Bevan, 294.

Wyoming, Owl Creek Mountains: Love,
2107.

Phosphoria and Dinwoody tongues in
lower Chugwater: Thomas, 3367.

Shoshone Canyon area, Park County:
Johnson, 1692.

Southwestern, Uinta County:
Veatch, 3497.

Yukon, Laberge area: Lees, 2024.

Trilobita. See also Crustacea.

Agnostian trilobites, habitats: Howell,
1597.

Alabama, Middle Cambrian, larval
stages: Lalicker, 1959.

Akpatok Island, Richmond formation:
Cox, 767.

California, northern, anthracolithic
trilobites: Wheeler, 3648.

Cambrian: Ulrich, 3441.

Centropleurinae, classification: Howell,
1595.

Devonian, Grand Tower, Jackson
County, Illinois: Roy 2858.

Dicranopeltis, Silurian, Wisconsin:
Mason, 2225.

Greenland, east, Lower Cambrian:
Poulsen, 2656.

Griffithides olsoni, Pennsylvanian,
Missouri: Williams, 3709.

Paedeumias, California: Crickmay, 780.

Pterocephalia, genotype, restudy:
Bridge, 405.

Relation to arachnids: Störmer, 3252.

Trinidad.

Paleontology.

Foraminifera: Cushman, 819.

Lepidocyclina, Eocene: David, 854.

Pteropods and heteropods, Miocene:
Rutsch, 2912.

Rudistids, so-called, Oligocene: Rutsch,
2911.

Physical geology.

Sedimentary volcanism: Kugler, 1951.

Tularosa Valley, scarps, New Mexico: Tal-
mage, 3307.

Tungsten.

British Columbia, Kootenay Belle mine,
Salmo: Walker, 3541.

Missouri, Silver Mine area, Madison
County: Tolman, 3394.

Nevada, Mill City: Kerr, 1785.

Western States: Lovering, 2109.

Turtles. See Reptilia.

Unconformities.

Colorado, central: Lovering, 2110.

Jurassic, North America: Crickmay,
784.

Minnesota, Cambrian-Ordovician con-
tact: Graham, 1295.

Underground water (general). For areal
see names of States. See also
Geysers; Mineral water; Springs;
Thermal water: Bagg, 120; Tol-
man, 3396.

Bibliography: Sayre, 2957.

California, New Mexico and Oregon,
investigations: Piper, 2634.

Chloride brine, subsurface concentra-
tion: Russell, 2901.

Connecticut Valley: Crosby, 803.

Control of ground water: Gardner,
1211.

Underground water (general—Continued.

- Deep-well salinity-exploration: Fiedler, 1075.
 Fluctuations, meteorological: Taylor, 3324.
 Geophysical interpretation ground-water levels: Meinzer, 2275.
 Geyser basins and igneous emanations: Allen, 40.
 Ground-water hydrology and oceanography: Thompson, 3372.
 Gulf Coastal Plain: Minor, 2359.
 Hydrology, ground-water, history and development: Meinzer, 2276.
 Infiltration, role in hydrologic cycle: Horton, 1560.
 New England: Crosby, 802.
 Oil- and gas-bearing formations, Rocky Mountains: Coffin, 691.
 Oil-field waters: Washburne, 3567.
 Permeability with low hydraulic gradient: Meinzer, 2277.
 Report of committee, 1932: Thompson, 3373; 1933-34: Thompson, 3374.
 Resources, United States: Nat. Res. Board, 2453.
 Sulphate reduction in oil-well waters: Ginter, 1257.
 Water-levels in wells and test holes, interpretation: Lee, 2023.
 Water retention: Piper, 2636.
 Work of underground water: Reimann, 2735.

Ungulata. See Mammalia.

Upper Silurian. See Silurian.

Uranium. See also Carnotite: Lane, 1991.
 Crystallography of oxides: Palache, 2559.

Northwest Territories, pitchblende oxidation products, Bear Lake: Palache, 2552.

Utah.

General: Hintze, 1523.

Areas described.

Moab District, Grand and San Juan Counties: Baker, 131.

Economic geology.

Basin-Range faulting, influence, Bingham: Farmin, 1047.

Colorado Plateau region: Gregory, 1316.

Deep Creek Mountains mercury ore, microscopic characteristics: Crawford, 769.

Diatomaceous earth: Wimber, 3744.

Fuller's earth, Aurora: Crawford, 771.

Metals in Utah: Coffman, 692.

Microscopy for evaluating gold placers: Crawford, 774.

Mining geology, Tintic: Billingsley, 306.

Salt Lake Region: Boutwell, 356.

Historical geology.

Asphalt Ridge, Cretaceous fauna: Tolmachoff, 3393.

Utah—Continued.

Historical geology—Continued.

Basin ranges: Becker, 236.

Colorado Plateau region: Gregory, 1316.

Goshen Mountains: Eaton, 974.

Paradox formation: Baker, 132.

Proterozoic-Paleozoic contact, western Uinta and central Wasatch Mountains: Hintze, 1524.

Salt Lake region: Boutwell, 356.

Tintic district: Farmin, 1048.

Uinta Basin, Tertiary: Kay, 1755.

Utah Lake sediments: Hansen, 1391.

Varved clay, Tertiary, in Ogden Valley: Leggette, 2033.

Wasatch formation, central Utah: Spieker, 3158.

Wasatch Mountains, relief before faulting: Eardley, 967.

Rock Canyon: Schneider, 2981.

Southern: Eardley, 966.

Mineralogy.

Bixbyite and topaz, Thomas Range: Montgomery, 2375.

Clifton district, Tooele County: McGrath, 2173.

Corvusite and rilandite: Henderson, 1458.

Pseudobrookite, Topaz Mountain: Palache, 2555.

Topaz Mountain: Palache, 2554.

Paleontology.

Algae, Jurassic, Washington County: Johnson, 1700.

Elephas primigenius, Pleistocene, Payson: Hansen, 1390.

Eocene Lagomorpha: Burke, 494.

Graptolites, Ordovician, near Logan: Clark, 656.

Mammals, Duchesne River Oligocene, Uinta Basin: Peterson, 2617.

Mollusca, Lake Bonneville: Berry, 269.

Pliocene, Collinston: Chamberlain, 618.

Mosses, fossil: Flowers, 1122.

Mytonolagus petersoni, Eocene, Uinta Basin: Burke, 496.

Rodents, Eocene, Uinta Basin: Burke, 495.

Stagnicola kingi: Chamberlain, 617.

Titanotheres, Uinta Eocene: Peterson, 2618.

Petrology.

Feldspar phenocrysts in Cottonwood granodiorite: Crawford, 773.

Physical geology.

Earthquakes: Carlston, 580.

Erosion control in Salina Canyon: Okeson, 2523.

Floods and erosion: Bailey, 122.

Pebble dikes, Tintic district: Farmin, 1048.

Volcanism near Salt Lake City: Schneider, 2982.

Wasatch Mountains, southern: Eardley, 968.

Utah—Continued.

Physiographic geology.

- Goshen Mountains: Eaton, 974.
 Marysvale Canyon: Eardley, 969, 971.
 Physiographic types: Buss, 506.
 Pleistocene glaciation: Blackwelder, 323.

Wasatch Mountains, relief before faulting: Eardley, 967.

Southern: Eardley, 968.

Underground water.

- Seepage of groundwater: Jennings, 1664.

Valdez Creek mining district, Alaska: Ross, 2826.

Valleys.

California, "lost valley" on Shepherd's Crest, Sierra Nevada: Matthes, 2244.

Submarine mock valleys: Davis, 861, 866.

Submarine: Shepard, 3052, 3054, 3057, 3060, 3061, 3062.

Vanadium.

British Columbia, Quadra Island: Ellsworth, 1019.

Varves.

Formation: Collet, 703.

Vermes. See also Invertebrates (general).

Paleozoic plankton: Ruedemann, 2878.

Scolithus, Cambrian, Pennsylvania: Cloud, 673.

Worms: Croneis, 799.

Vermont.

Economic geology.

- Asbestos, talc, and soapstone deposits, serpentinization: Bain, 128.
 Calcite marble, origin: Bain, 124.
 Marble: Perkins, 2605.
 Marble belt: Longwell, 2085.
 Mineral resources, 1933-34: Jacobs, 1643.

Historical geology.

Athens, Brookline and Westminster: Richardson, 2761.

Cambrian and Ordovician: Schuchert, 2995.

Cambrian, Upper, base, in northwestern Vermont: Howell, 1596.

Marble belt: Bain, 124; Longwell, 2085.

Putney: Richardson, 2762.

Rugg Brook formation, Cambrian: Howell, 1594.

Winooski and Mallett formations, contact: Howell, 1593.

Mineralogy.

Staurolite and associated minerals, Gassetts: Currier, 815.

Paleontology.

Bovicornellum vermontense, Parker's Hill, Franklin County, Cambrian: Howell, 1591.

6022°—35—25

Vermont—Continued.

Petrology.

Plutonites, quartz-bearing: Maynard, 2263.

Physical geology.

Faults, Lake Champlain region: Quinn, 2681.

Rutland area, metamorphism: Foyles, 1148.

Physiographic geology.

Black River valley: Crosby, 801.

Stowe Valleys, glacial lakes: Bigelow, 299.

Vertebrata (general). See also Amphibia, Aves, etc.

Artiodactyls, Oligocene and Miocene, Nebraska: Cook, 728.

California, Sespe beds, Simi Valley: Stock, 3243.

Eurypterid influence on vertebrates history: Romer, 2803.

Evolution: Romer, 2800.

Nebraska, Ogallala formation: Hesse, 1493.

Nebraska, Tertiary: Cook, 725.

Nebraska, Wyoming and South Dakota, collecting: Gilmore, 1253.

New York: Moqdie, 2393.

North American, bibliography and catalogue: Hay, 1429.

Phylogeny: Hamlett, 1377.

Report, vertebrate paleontology: Stetson, 3211, 3213.

Textbook of paleontology: Zittel, 3819.

Virginia.

Hot springs district: Bevan, 291.

Lower York-James Peninsula: Roberts, 2777.

Economic geology.

Austinville mine, Wythe County, zoning of ores: Brown, 436.

Coal: McGill, 2167.

Gold: Bevan, 290; McGill, 2166.

Gold mining: McGill, 2164, 2168.

Greensand and diatomite: Roberts, 2780.

Ilmenite-apatite deposits, Amherst and Nelson Counties: Ryan, 2916.

Marble, Giles County: Mathews, 2235.

Mineral resources: Bevan, 293.

Mineral zoning, Triassic: Newhouse, 2473.

Northern Virginia: Bevan, 288.

Oil and gas explorations, southwestern Virginia: McGill, 2162.

Oriskany manganese ore, origin: Holden, 1550.

Rutile deposits, Amherst-Nelson district: Ross, 2820.

Historical geology.

Appalachian revolution: Holden, 1548.

Appalachian Valley: Butts, 514; McGill, 2163.

Geological map: Bevan, 296;

Sediments: Butts, 515.

Virginia—Continued.

Historical geology—Continued.

Bentonite in northern Virginia: Rosenkrans, 2810.

Blue Ridge: Stose, 3262.

Chesapeake Bay region: Stephenson, 3203.

Diabase dikes near Lexington: Campbell, 548.

Giles County: Mathews, 2236.

Granites, Cambrian and pre-Cambrian: Pegau, 2599.

Harrisonburg area, Shenandoah Valley: Butts, 516.

Northern Virginia: Bevan, 288.

Oriskany manganese ore, origin: Holden, 1550.

Paleozoic formations: Bevan, 297.

Pyrite-gold belt, Louisa and Spotsylvania Counties: Virginia Geol. Survey, 3510.

Shenandoah National Park area, igneous rocks: Furcron, 1193.

Southern Appalachian region: Butts, 513.

Structural pattern: Bevan, 294.

Mineralogy.

Amelia pegmatite dikes, constituents: Glass, 1260.

Epidote in Fredericksburg granite: Steidtmann, 3192.

General: Pegau, 2598.

Iso-orthoclase, Luray: Barth, 200.

Staurolites: Roberts, 2781.

Sulphur, amorphous, Orange County: McGill, 2165.

Titanium, formation of: Ross, 2823.

Paleontology.

Arachnid, Carboniferous, Allegheny: Ewing, 1036.

Miocene foraminifera, Coastal Plain: Cushman, 818.

Peat and fossil pollen, Dismal Swamp: Cocke, 677.

Phyllosodus, Eocene: Gildersleeve, 1243.

Pinus lynii, Eocene, Belvedere Beach: Berry, 277.

Protolpidodendron, Devonian: Berry, 271.

Snake, Eocene: Lynn, 2132.

Vertebrates, Eocene: Gildersleeve, 1242.

Walnut, Miocene: Berry, 279.

Petrology.

Igneous rocks, Valley of Virginia: Dennis, 896.

Metamorphism, hydrothermal, Schuyler: Hess, 1490.

Potomac River sediments: Hoffman, 1546.

Physical geology.

Caverns of Virginia: McGill, 2163.

Coastal erosion: Bevan, 292.

Cumberland thrust block: Rich, 2754.

Granodiorite and Air Point granite: Jonas, 1718.

Virginia—Continued.

Physical geology—Continued.

North River, summer and winter turbidity: English, 1029.

Travertine and travertine-depositing waters: Hinkle, 1521.

Travertine deposits near Lexington: Steidtmann, 3193.

Physiographic geology.

Coastal erosion: Bevan, 295.

Cumberland Gap: Rich, 2750.

Drainage changes, upper Roanoke and James River basins: Wright, 3792.

Gravel plateau, Northern Neck: Campbell, 553.

Mountain Lake, origin: Sharp, 3038.

Natural Bridge region: Wright, 3794.

Natural divisions: Roberts, 2779.

Structural pattern: Bevan, 294.

Underground water.

Ground-water resources, northern Virginia: Cady, 533.

Northern Virginia: Cady, 534.

Yellow Sulphur Spring water: Sears, 3018.

Volcanic ash.

Climate, effect on: Humphreys, 1619.

Correlation use: Keyes, 1825.

Texas, Government Wells district, Duval County: Jones, 1730.

Volcanism. See also Volcanoes.

California, Burnt Lava flow: Finch, 1095.

Colorado, Cripple Creek volcano: Loughlin, 2103.

Geyser basins and igneous emanations: Allen, 40.

Magnetism: Ellis, 1011.

New Mexico, Magdalena district: Koschmann, 1934.

Nicaragua, fumaroles: Schönberg, 2983.

Oregon, Crater Lake: Rostel, 2839.

Crater Lake region, nuée ardente deposits: Moore, 2399.

Puerto Rico: Meyerhoff, 2307.

Trinidad, sedimentary volcanism: Kugler, 1951.

And diatomaceous sediments, relation: Taliaferro, 3304.

Wyoming, Hart Mountain thrust sheets: Bucher, 465.

Volcanoes. See also Volcanism; Leet, 2028.

Alaska, Alaska Peninsula and Aleutian Islands: Capps, 578.

Aniakchak and Veniaminof volcanoes: Knappen, 1907.

Large craters, Alaskan Peninsula: McGavock, 2160.

Shishaldin volcano: Finch, 1096.

California, Lassen Volcanic National Park: Williams, 3705.

Mount Shasta: Williams, 3707.

Costa Rica, Talamanca Mountains and Reventazon Valley: Lohmann, 2083.

Volcanoes—Continued.

- Guatemala and Salvador: Sapper, 2947.
 Hawaii: Stearns, 3182.
 Kilauea volcano: Jaggard, 1644.
 Mauna Loa, eruption: Alexander, 35.
 1933 eruption of Mauna Loa: Jones, 1719.
 Martinique, Mt. Pelée: Arsandaux, 90.
 Mexico, El Chichon, Yucatan, eruption: Müllerried, 2427.
 Mont Pelé: Reeds, 2719.
 Mt. Pelée, Martinique, dome: Arsandaux, 88.
 Secondary dome: Arsandaux, 89.
 Santa Maria, Guatemala: Termer, 3333; Zies, 3817.

Volcanoes, extinct.

- Arizona, Sunset Crater basalt stream: Colton, 712.
 California, Glass Mountain: Anderson, 63.
 Mount Thielsen, a dissected Cascade volcano: Williams, 3706.
 Northern, Tuscan formation: Anderson, 62.
 Salton domes, Imperial County: Rogers, 2794.
 Colorado, Eagle County: Landon, 1931.
 Mexico, El Bernal de Horcasitas, Tampico: Heim, 1449.
 Oregon, Crater Lake: Kettner, 1786.
 Utah, Salt Lake City: Schneider, 2982.

Washington.

- Ariel dam site, geology: Williams, 3708.

Economic geology.

- General: Waters, 3569.
 Gneisses and ore formations, Cascades: Richarz, 2764.
 Kaolin and china clay, Inland Empire: Wilson, 3726.
 Rattlesnake Hills gas field: Hammer, 1379.

Historical geology.

- Cascade Mountains, replacement of dikes and sills: Goodspeed, 1275.
 Columbia River lavas, structure: Hoffman, 1547.
 Geologic history: Waters, 3569.
 Kechelus andesites, Mount Ranier: Coombs, 742.

- Mascall formation, Miocene: Merriam, 2296.

- Olympic peninsula: Weaver, 3579.
 Seattle area, Eocene: LaMotte, 1970.

Mineralogy.

- Basalt minerals, Spokane: Fernquist, 1068.
 Cinnabar, Morton: Ott, 2545.
 Gem stones: Fernquist, 1066.
 Opal, Columbia River basalt: Fernquist, 1065.
 Stilbite, Camas Land sill, Chelan County: Chappell, 634.

Washington—Continued.**Paleontology.**

- Fauna, type Blakeley, upper Oligocene: Tegland, 3326.
 Florules, upper Miocene: LaMotte, 1972.
 Foraminifera, Oligocene: Frizzell, 1168.
 Schizothaerus nuttallii bighopensis, Big Hope Island, Puget Sound: Henderson, 1462.
 Tertiary floras, central Washington: Beck, 233.

Petrology.

- Camas Land sill, Chelan County: Chappell, 634.

Physical geology.

- Columbia River lavas, structural features: Fuller, 1189.
 Fault, active, western base of Cascade Range: Waters, 3570.
 Gneisses and ore formations, Cascades: Richarz, 2764.
 Tolt River earthquake, July 17, 1932, Bradford, 372.

Phytogeographic geology.

- Channeled scabland: Bretz, 402.
 Columbia River and lower canyon, age: Hodge, 1538.
 Columbia River, Lake Chelan: Waters, 3571.
 Glacial channels in Ferry, Stevens and Pend d'Oreille Counties: Freeman, 1162.
 Mount Ranier, geomorphology: Coombs, 74.
 Okanogan lobe, Cordilleran ice sheet, stagnation: Freeman, 1161.
 Okanogan region, glaciation: Flint, 1118.
 Scablands, origin: Hodge, 1541.
 Spokane flood: Allison, 46.

Underground water.

- Walla Walla Basin: Piper, 2637.

Waswanipi Lake area, Quebec: Lang, 1995.**Water gaps.**

- Pennsylvania, peneplains: Meyerhoff, 2310.

Water, underground. See Underground water.**Weathering.**

- Colorado, Fountain and pre-Fountain rocks, contact: Thompson, 3377.
 Geomorphic processes at high altitudes: Bryan, 457.
 Glacial boulders, migrating, Teton glacier: Fryxell, 1180.
 Glacial tables, formation, Teton National Park: Fryxell, 1178.
 Insolation hypothesis: De Terra, 900.
 Iowa State Capitol building, sandstone: Gwynne, 1365.
 Limestone weathering and plant associations, San Francisco region: Kelly, 1769.

Weathering—Continued.

Massachusetts, Medford diabase: Billings, 302; Lane, 1985.

Rock weathering insolation hypothesis: Blackwelder, 320; Jeffreys, 1651.

Soils, origin: Smith, 3122.

Talus behavior above timber in Rocky Mountains: Behre, 243.

Well records. See Borings.

West Indies (general). See also names of islands.

Barbados, uplift: Trechmann, 3411.

Areas described.

Bonaire, Danish West Indies: Pijpers, 2623.

Historical geology.

Tobago, Tertiary and Quaternary: Trechmann, 3412.

Paleontology.

Amblyrhiza, Pleistocene, St. Martin: Schreuder, 2991.

Barbados coral rock: Trechmann, 3411.

Physical geology.

Seismology and the island-arcs: Heck, 1440.

Physiographic geology.

Bartlett Trough region: Hess, 1488.

West Virginia.

Economic geology.

Coal, carbonizing properties and constitution, Point Lick, Kanawha County: Fieldner, 1084.

Coal measures, vertical section: Tucker, 3419.

Liverpool oil and gas pool: Heck, 1438.

Mineral resources: Sisler, 3106.

Oil and gas: Billingsley, 305.

Historical geology.

Baltimore & Ohio routes: Grimsley, 1331.

Southern Appalachian region: Butts, 513.

Mineralogy.

Sandstones, northern West Virginia: Martens, 2220.

Paleontology.

Coal, carbonizing properties and constitution, Point Lick, Kanawha County: Fieldner, 1084.

Footprints, Permian: Happ, 1394.

Greene formation, flora: Haught, 1421.

Mammals, Pliocene: Brooks, 413.

Ostracods, Nineveh limestone: Holland, 1553.

Petrology.

Potomac River sediments: Hoffman, 1546.

Physical geology.

Clay dikes, Redstone coal: Price, 2666.

Cone-in-cone in coal: Price, 2668.

Stylolites in sandstones: Price, 2667.

West Virginia—Continued.

Physiographic geology.

Cheat River, drainage diversions: Fridley, 1165.

Drainage history, northwestern West Virginia: Happ, 1393.

Ohio River, evolution: Fowke, 1141.

Teas Valley, evidence of ice action: Petty, 2621.

Whitewater gold belt, Taku River District, British Columbia: Kerr, 1780.

Willow Creek District, Alaska: Ray, 2703.

Wind gaps.

Wind gaps and erosion surfaces: Ver Steeg, 3498.

Wind gaps and water gaps in Pennsylvania: Meyerhoff, 2310.

Pennsylvania, peneplains: Meyerhoff, 2310.

Wind work.

California, yardangs, Mojave desert: Blackwelder, 321.

Dust cloud, May 11, 1934, Washington, D. C.: Hand, 1380.

Dustfall of November 13, 1933, Buffalo, New York: Alexander, 24, 26, 27.

Dustfall, November 12-13, 1933, Great Plains: Miller, 2334, 2335; Hovde, 1568.

Dustfall of December 15-16, 1933: Page, 2551.

Dust storm, April 12, 1934, Baton Rouge, Louisiana: Russell, 2899.

Dust storm, November 13, 1933: Watson, 3573.

Great Plains: Keyes, 1872.

Loess, rate of deposition: Keyes, 1833.

Massachusetts, wind-faceted pebbles, Nantucket: Matthes, 2249.

Nebraska: Condra, 719.

Puerto Rico, Pepino Hills asymmetry: Thorp, 3385.

Sand fall, Ontario: Lloyd, 2069.

Selenite not a certain indicator of wind effect: Lang, 1997.

Wisconsin.

Monroe County, soils: Whitson, 3678.

Economic geology.

Lake Superior region: Hotchkiss, 1563.

Mayville iron ore: Hawley, 1427.

Ore deposition, Wisconsin-Illinois lead-zinc district: Scott, 3008.

Historical geology.

Baraboo area, Paleozoic strata: Wanenmacher, 3544.

Cambrian: Twenhofel, 3433.

General: Twenhofel, 3436.

Glenwood shales, affinities: Sardeson, 2952.

Mississippi Valley, upper: Trowbridge, 3413, 3414.

St. Croix River: Clement, 660.

Wisconsin—Continued.**Historical geology—Continued.**

Shakopee formation: Sardeson, 2954.

Willow dolomite, upper Mississippi Valley: Keyes, 1836.

Wisconsin glacial title: Keyes, 1873.

Mineralogy.

Mayville iron ore: Beaven, 232; Hawley, 1427.

Paleontology.

Baraboo area, Paleozoic strata: Wanenmacher, 3544.

Dicranopeltis, Silurian, Wauwatosa: Mason, 2225.

Graptolitoidea, Cambrian: Ruedemann, 2872.

Merostomata, Cambrian: Raasch, 2685.

Trilobita, Cambrian: Ulrich, 3441.

Petrology.

Dresbach sandstone, heavy minerals: Wilgus, 3690.

Mayville iron ore: Hawley, 1427.

Physical geology.

Lake Mendota, calcium carbonate precipitation: Twenhofel, 2429.

Physiographic geology.

Physical geography: Martin, 2222.

Wolframite: See also Tungsten.

New Brunswick, Square Lake, Queens County: Poitevin, 2644.

Wyoming.

Alcova area: Beckwith, 238.

Saline lake deposits: Bradford, 371.

Sheep Mountain area: Bradford, 370.

Whiskey Gap area: Neely, 2458.

Areas described.

Winta County, southern: Veatch, 3497.

Economic geology.

Big Horn basin oil fields: Field, 1077.

Kyanite deposits, Encampment district: Beckwith, 237.

Oil and gas fields: Krampert, 1942.

Ore deposits, relation to stratigraphy, structure and igneous activity: Burbank, 484.

Saline lake deposits, Downey Lakes: Knight, 1923.

Uinta County, southern: Veatch, 3497.

Historical geology.

Absaroka Range, Tertiary: Love, 2108.

Beartooth-Big Horn region: Bucher, 464, 466.

Beartooth Butte: Dorf, 922.

Lower Devonian channel: Dorf, 918.

Beartooth Mountain front, Park County: Hughes, 1609.

Black Hills: Kansas Geol. Soc., 1742; O'Harra, 2522.

Black Hills-Big Horn-Beartooth region, gravity anomalies: Chamberlin, 620.

Deer Creek intrusives, Park County: Rouse, 2851.

Embar and related formations, south-central Wyoming: Thomas, 3365.

Wyoming—Continued.**Historical geology—Continued.**

Five Springs Creek area: Wilson, 3721.

Hartville Uplift, southeastern Wyoming: Kansas Geol. Soc., 1742.

Heart Mountain overthrust and Yellowstone Park volcanics, relative age: Hares, 1399.

Jurassic: Crickmay, 787.

Kennedy Peak klippe: Neely, 2460.

Laramie Basin, fault system: Beckwith, 239.

Laramide orogeny: Knight, 1922.

Physical evolution: Knight, 1917.

Logan Mountain and the Heart Mountain overthrust: Laurence, 2014.

Mid-Phosphoria unconformity: Thomas, 3363.

Owl Creek Mountains: Love, 2107.

Permian, central and southeastern Wyoming: Thomas, 3362.

Phosphoria and Dinwoody tongues in lower Chugwater: Thomas, 3367.

Pre-Cambrian structure, Beartooth, Big Horn and Black Hills uplifts: Cloos, 669.

Shoshone Canyon area, Park County: Johnson, 1692.

Structural type, space and time relationships, Yellowstone-Beartooth-Big Horn region: Thom, 3359.

Tertiary conglomerate, Bald Mountain: Hares, 1400.

Triassic-Jurassic contact, central Wyoming: Branson, 399.

Uinta County, southern: Veatch, 3497.

Wind River Basin: Bauer, 228.

Yellowstone-Beartooth-Big Horn region: Field, 1077.

Mineralogy.

Allanite: Wells, 3608.

Paleontology.

Apternodus brevirostris, Oligocene, Bate's Hole: Schlaikjer, 2975.

Apternodus gregoryi, insectivore, Oligocene, Goshen County: Schlaikjer, 2974.

Beartooth Butte, Devonian flora: Dorf, 920.

Beartooth Butte, Devonian, flora and fauna: Dorf, 921, 922.

Birds, Eocene, Big Horn Basin: Wetmore, 3636.

Oligocene, Torrington: Wetmore, 3637.

Cats, sabre-tooth, Oligocene: Jepsen, 1672.

Cephalopods, Phosphoria formation: Miller, 2326.

Charophyta, Paleozoic and Mesozoic: Peck, 2596.

Crocodilus clavus Cope, Eocene, Bridger: Mook, 2396.

Dinosaurs, Greybull, Big Horn Mountains: Anonymous, 3834.

Eagle, Oligocene: Wetmore, 3639.

Wyoming—Continued.

Paleontology—Continued.

Fish fauna, Beartooth Butte: Bryant, 458.

Middle Phosphoria formation: Branson, 389.

Flora, Aspen shale, southwest Wyoming: Brown, 426.

Heptodon, Wind River formation, Muddy Creek: Seton, 3034.

Jurassic brachiopoda: Crickmay, 786.

Knowltonella maxoni, Aladdin, Cretaceous: Berry, 273.

Lagomorphs, Oligocene: Walker, 3540.

Larval chambers of mining bees: Brown, 430.

Liquidambar, Aspen shale: Brown, 427.

Meniscotherium robustum: Thorpe, 3386.

Metacheiromys and the Edentata: Simpson, 3091.

Mollusca, Cretaceous: Henderson, 1464.

Morrison invertebrate fauna: Branson, 392.

Oreodonts, Goshen Hole, Miocene: Schlaikjer, 2976.

Palaeolagus haydeni Douglas: Dice, 904.

Phosphoria faunas from "Embar" red beds: Thomas, 3366.

Pterygotus princetoni, eurypterid, Devonian: Ruedemann, 2874.

Rails, Eocene: Wetmore, 3629.

Sharks, Permian: Branson, 390.

Triceratops elatus, Montana and Wyoming: Osborn, 2534.

Uinta County, southern: Veatch, 3497.

Vertebrates, collecting: Gilmore, 1253.

Petrology.

Deer Creek intrusives, Park County: Rouse, 2851.

Front Range, granites: Boos, 349.

Owl Creek Mountains: Love, 2107.

Physical geology.

Cross-lamination in Casper sandstone: Knight, 1918.

Faulting, recent, central-western Wyoming: Rubey, 2865.

Forelle limestone, crinkly structure: Knight, 1919.

Heart Mountain thrust: Bucher, 467.

Jackson Hole, earthquake shocks: Fryxell, 1179.

Joining, Five Springs Creek area: Wilson, 3721.

Rocky Mountains, south-central Wyoming, physical evolution: Knight, 1921.

Volcanic explosions and overthrusts: Bucher, 465.

Woods-Jelm area, thrust faults: Knight, 1920.

Wyoming—Continued.

Physiographic geology.

Beartooth Mountains, peneplanation: Hughes, 1610.

Big Horn Basin: Johnson, 1689.

Big Horn Basin and Yellowstone Park: Johnson, 1685.

Glacial boulders, migrating, Teton glacier: Fryxell, 1180.

Glacial tables, formation, Teton National Park: Fryxell, 1178.

Glaciers, Grand Teton National Park: Fryxell, 1181.

Jackson Hole: Fryxell, 1177.

Medicine Bow and Park Ranges, warped peneplain and glacial features: Atwood, 103.

Tunnels, natural, Dinwoody Creek, Wyoming, and Boulder River, Montana: Wentworth, 3611.

Valley region, Park County: Rouse, 2852.

Wind River Basin: Bauer, 228.

Yellowstone Park and Big Horn Basins: Johnson, 1688.

Underground water.

Intermittent spring, Swift Creek, near Afton: Stearns, 3187.

Xenohelix, Miocene, Maryland: Dryden, 936.

Yardangs, Mojave Desert: Blackwelder, 321.

Yellowstone National Park.

Historical geology.

General: Field, 1077.

Geology: Stearns, 3183.

Heart Mountain overthrust and Yellowstone Park volcanics, relative age: Hares, 1399.

Section, Mount Everts: Wilson, 3720.

Structural type, space and time relationships, Yellowstone-Beartooth-Big Horn region: Thom, 3359.

Physical geology.

Hydrothermal metamorphism, geyser basins: Fenner, 1055.

Yukon.

Areas described.

Laberge area: Lees, 2024.

Economic geology.

Mining industry, 1932: Bostock, 353.

1933: Bostock, 354.

Zeballos River area, Vancouver Island, British Columbia: Gunning, 1353.

Zinc: Jackson, 1639.

British Columbia, Brisco-Dogtooth area: Evans, 1032.

Cranbrook area: Cairnes, 536.

Slocan mining camp area: Cairnes, 537.

Colorado, Breckenridge mining district: Lovering, 2111.

Zinc—Continued.

Lead and zinc, Upper Mississippi Valley, micography: Banfield, 158.
Mesothermal deposits: McKnight, 2189.
Mexico, Lca Lamentos mine, Chihuahua: Foshag, 1138.
Mississippi Valley, temperature of formation: Newhouse, 2474.
Montana, metalliferous deposits, Helena region: Pardee, 2570.
Nevada, Tybo district: Ferguson, 1064.
New Jersey, Franklin Furnace, Sussex County: Olpp, 2525.
New Mexico, Santa Rita and Hanover region: Ransome, 2697.

Zinc—Continued.

Oklahoma-Kansas mining field: Fowler, 1146.
Oklahoma, Miami-Picher zinc-lead district: Tarr, 3313.
Quebec, Amulet mine, Noranda district: Wilson, 3731.
Gaspé Bay and Marsui River: Jones, 1726.
Tri-State district: Fowler, 1142, 1145; Tarr, 3318.
Tri-State mining district, chertification: Fowler, 1144.

