

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, DIRECTOR

BULLETIN 409

BIBLIOGRAPHY
OF
NORTH AMERICAN GEOLOGY
FOR
1908
WITH SUBJECT INDEX

BY

JOHN M. NICKLES



WASHINGTON
GOVERNMENT PRINTING OFFICE
1909



CONTENTS.

	Page.
Serials examined.....	5
Bibliography.....	9
Index.....	95
Lists.....	133
Chemical analyses.....	133
Minerals described.....	135
Rocks described.....	137
Geologic formations described.....	137



SERIALS EXAMINED.

- American Academy of Arts and Sciences: Proceedings, vol. 43, nos. 13-22, vol. 44, nos. 1-5; Memoirs, vol. 13, no. 6. Boston, Mass.
- American Association for the Advancement of Science: Proceedings, vol. 58.
- American Geographical Society: Bulletin, vol. 40. New York.
- American Institute of Mining Engineers: Bi-Monthly Bulletin, nos. 19-24; Transactions, vol. 38. New York.
- American Journal of Science, 4th series, vols. 25, 26. New Haven, Conn.
- American Mining Congress: Papers and Addresses, 10th Annual Session.
- American Museum of Natural History: Memoirs, vol. 9, pt. 4; Bulletin, vol. 24, vol. 25, pt. 1; Journal, vol. 8. New York.
- American Naturalist, vol. 42. New York.
- American Philosophical Society: Proceedings, vol. 47; Transactions, new ser., vol. 21, pt. 5. Philadelphia, Pa.
- American Society of Civil Engineers: Transactions, vols. 60, 61. New York.
- Annales de Paléontologie, t. 3. Paris, France.
- Annales des Mines, 6^e sér., t. 13, 14. Paris, France.
- Annals and Magazine of Natural History, 8th ser., vols. 1, 2. London.
- Appalachia, vol. 11, no. 4. Boston, Mass.
- Association of Engineering Societies: Journal, vols. 40, 41. Philadelphia, Pa.
- Bernice Pauahi Bishop Museum: Memoirs, vol. 2, no. 3; Occasional Papers, vol. 2, no. 5, vol. 3, nos. 1, 2, vol. 4, no. 2. Honolulu, Hawaiian Islands.
- Boston Society of Natural History: Proceedings, vol. 34, nos. 2-4; Occasional Papers, vol. 7, nos. 8-10. Boston, Mass.
- Botanical Gazette, vols. 45, 46. Chicago, Ill.
- British Columbia, Bureau of Mines: Annual Report of the Minister of Mines for 1907. Victoria, B. C.
- Buffalo Society of Natural Science: Bulletin, vol. 9, no. 1. Buffalo, N. Y.
- California Academy of Sciences: Proceedings, 4th ser., vol. 3, pp. 1-48. San Francisco, Cal.
- California Journal of Technology, vol. 11, nos. 1, 2, vol. 12, nos. 1-4. Berkeley, Cal.
- California Physical Geography Club: Bulletin, vol. 1, no. 3, vol. 2, no. 1. Oakland, Cal.
- California State Mining Bureau: Report of Board of Trustees for 1908; Bulletins nos. 50, 53. San Francisco, Cal.
- California, University of, Department of Geology: Bulletin, vol. 5, nos. 12-17. Berkeley, Cal.
- Canada Geological Survey: Summary report for 1907; and miscellaneous publications. Ottawa, Ont.
- Canadian Mining Institute: Journal, vols. 10, 11. Ottawa, Ont.
- Canadian Mining Journal, vol. 29. Toronto and Montreal, Canada.
- Carnegie Institution of Washington: Yearbook, no. 6. Washington, D. C.
- Carnegie Museum: Annals, vol. 4, nos. 3, 4, vol. 5, no. 1. Pittsburg, Pa.

- Cassier's Magazine, vol. 33, nos. 3-6, vol. 34, vol. 35, nos. 1-2. New York.
- Centralblatt für Mineralogie, Geologie und Paleontologie, Jahrgang 1908. Stuttgart, Germany.
- Chicago Academy of Sciences: Bulletin, vol. 3, no. 1; Special Publication, no. 2. Chicago, Ill.
- Colorado College Publications: Science Series, vol. 12, no. 6. Colorado Springs, Colo.
- Colorado School of Mines: Bulletin, vol. 4, no. 2. Golden, Colo.
- Colorado Scientific Society: Proceedings, vol. 8, pp. 363-422, vol. 9, pp. 5-112. Denver, Colo.
- Colorado, University of: Studies, vol. 5, nos. 2-4, vol. 6, no. 1. Boulder, Colo.
- Connecticut Academy of Arts and Sciences (Publications of Yale University): Transactions, vol. 13, pp. 299-548, vol. 14, pp. 1-170. New Haven, Conn.
- Connecticut State Geological and Natural History Survey: Bulletins, nos. 10-12. Hartford, Conn.
- Delaware County Institute of Science: Proceedings, vol. 3, nos. 2-4, vol. 4, no. 1. Media, Pa.
- Denison University, Scientific Laboratories: Bulletin, articles 1-5. Granville, Ohio.
- Deutsche Geologische Gesellschaft: Zeitschrift, Bd. 60. Berlin, Germany.
- Economic Geology, vol. 3. Lancaster, Pa.
- Elisha Mitchell Scientific Society: Journal, vol. 24. Chapel Hill, N. C.
- Engineering and Mining Journal, vols. 85, 86. New York.
- Engineering Association of the South: Proceedings, vol. 19. Nashville, Tenn.
- Engineering Magazine, vol. 34, nos. 4-6, vol. 35, vol. 36, nos. 1-3. New York.
- Engineers' Club of Philadelphia: Proceedings, vol. 25. Philadelphia, Pa.
- Field Columbian Museum: Geological Series, vol. 3, no. 7. Chicago, Ill.
- Florida State Geological Survey: First Annual Report; Bulletin no. 1. Tallahassee, Fla.
- Franklin Institute: Journal, vols. 165, 166. Philadelphia, Pa.
- Geographical Journal, vols. 31, 32. London.
- Geographical Society of the Pacific: Transactions and Proceedings, 2d ser., vol. 5. San Francisco, Cal.
- Geological Magazine, new ser., decade 5, vol. 5. London.
- Geological Society of America: Bulletin, vol. 18, nos. 21-22, vol. 19, nos. 1-20. New York.
- Georgia Geological Survey: Bulletin, nos. 14-17. Atlanta, Ga.
- Harvard College, Museum of Comparative Zoology: Bulletin, vol. 43, no. 6, vol. 49 (Geological Series, vol. 8), nos. 5-7, vol. 51, nos. 9-12, vol. 52, nos. 1-6, vol. 53, nos. 1-2; Memoirs, vol. 26, no. 6, vol. 34, no. 2, vol. 36, no. 1. Cambridge, Mass.
- Illinois State Geological Survey: Bulletins nos. 7-9. Urbana, Ill.
- Illinois State Laboratory of Natural History: Bulletin, vol. 8, article 1. Urbana, Ill.
- Imperial Earthquake Investigation Committee: Bulletin, vol. 2. Tokyo, Japan.
- Indiana Academy of Science: Proceedings for 1907. Indianapolis, Ind.
- Indiana, Department of Geology and Natural Resources: 32d Annual Report. Indianapolis, Ind.
- Institution of Mining Engineers: Transactions, vol. 34, pts. 3-6, vol. 35, vol. 36, pt. 1. Newcastle-upon-Tyne, England.
- Iowa Academy of Sciences: Proceedings, vol. 15. Des Moines, Iowa.
- Iowa Geological Survey: Annual Report, vol. 18. Des Moines, Iowa.
- Johns Hopkins University: Circulars, 1908, nos. 1-10. Baltimore, Md.
- Journal of Geography, vol. 6, nos. 6-11, vol. 7, nos. 1-4. Lancaster, Pa.
- Journal of Geology, vol. 16. Chicago, Ill.
- Kansas Academy of Sciences: Transactions, vol. 21, pt. 1. Topeka, Kans.
- Kansas, University of: Science Bulletin, vol. 4, nos. 7-20. Lawrence, Kans.

- Kentucky Geological Survey: Bulletin no. 9; Report on Progress of Survey, 1906-7. Lexington, Ky.
- Lake Superior Mining Institute: Proceedings, vol. 13. Ishpeming, Mich.
- London, Geological Society: Quarterly Journal, vol. 64.
- London, Geologists' Association: Proceedings, vol. 20, pts. 4-7. London.
- Louisiana Geological Survey: Bulletin no. 7. Baton Rouge, La.
- Mexico, Instituto Geologico: Parergones, t. 2, nos. 4-7; Boletin, nos. 17, 26. Mexico, D. F.
- Michigan Academy of Science: Tenth Report. Lansing, Mich.
- Michigan Miner, vol. 10. Saginaw, Mich.
- Michigan State Board of Geological Survey: Report for 1907. Lansing, Mich.
- Mineral Collector, vol. 14, nos. 11-12, vol. 15, nos. 1-10. New York.
- Mineralogical Magazine and Journal of the Mineralogical Society, vol. 15. London.
- Mines and Minerals, vol. 28, nos. 6-12, vol. 29, nos. 1-5. Scranton, Pa.
- Mining and Scientific Press, vols. 96, 97. San Francisco, Cal.
- Mining World, vols. 28, 29. Chicago, Ill.
- Mississippi State Geological Survey: Bulletin no. 4. Jackson, Miss.
- Missouri Bureau of Geology and Mines, 2d ser., vols. 6-8. Jefferson City, Mo.
- Montana, University of: Bulletin, nos. 46, 50. Missoula, Mont.
- National Geographic Magazine, vol. 19. Washington, D. C.
- Nature, vol. 77, no. 1992- vol. 79, no. 2044. London.
- Nautilus, vol. 21, nos. 9-12, vol. 22, nos. 1-8. Philadelphia, Pa.
- Nebraska Geological Survey, vol. 3, pt. 2. Lincoln, Nebr.
- Neues Jahrbuch für Mineralogie, etc., 1908; Beilage Bd., 25, 26. Berlin, Germany.
- New Brunswick Natural History Society: Bulletin, no. 26 (vol. 6, pt. 1). St. John, N. B.
- New Jersey Geological Survey: Annual Report of the State Geologist for 1907. Trenton, N. J.
- New York Academy of Sciences: Annals, vol. 18. New York.
- New York Botanical Garden: Bulletin, vol. 6, no. 19. New York.
- New York State Museum: 60th and 61st Annual Reports; Bulletins 118-126; Memoirs 9, 11. Albany, N. Y.
- North Carolina Geological and Economic Survey: Bulletins nos. 16, 17. Chapel Hill, N. C.
- Nova Scotia Mining Society: Journal, vols. 11, 12. Halifax, N. S.
- Ohio Geological Survey: 4th ser., Bulletin no. 9. Columbus, Ohio.
- Ohio Naturalist, vol. 8, nos. 3-8, vol. 9, nos. 1-2. Columbus, Ohio.
- Oklahoma Geological Survey: Circular no. 1; Bulletin no. 1. Norman, Okla.
- Ontario, Bureau of Mines: Report, vol. 17. Toronto, Ont.
- Ottawa Naturalist, vol. 21, nos. 10-12, vol. 22, nos. 1-9. Ottawa, Ont.
- Paleontographica, Bd. 54, Lief. 2-6, Bd. 55, Lief. 1-4. Stuttgart, Germany.
- Pennsylvania, Topographic and Geological Survey: Report for 1906-1908. Harrisburg, Pa.
- Philadelphia Academy of Natural Science: Proceedings, vol. 60; Journal, 2d ser., vol. 13, pt. 4. Philadelphia, Pa.
- Philadelphia, Geographical Society of: Bulletin, vol. 6. Philadelphia, Pa.
- Popular Science Monthly, vols. 72, 73. New York.
- St. Louis Academy of Science: Transactions, vol. 17, no. 2, vol. 18, no. 1. St. Louis, Mo.
- School of Mines Quarterly, vol. 29, nos. 2-4, vol. 30, no. 1. New York.
- Science, new ser., vols. 27, 28. New York.
- Scientific American, vols. 98, 99. New York.
- Scientific American Supplement, vols. 65, 66. New York.
- Sierra Club Bulletin, vol. 6, nos. 4, 5. San Francisco, Cal.

- Smithsonian Institution: Annual Report for 1907; Miscellaneous Collections, vols. 50-53. Washington, D. C.
- Sociedad científica "Antonio Alzate": *Memorias y Revista*, t. 26, nos. 7-12, t. 27, nos. 1-3. Mexico, D. F.
- Sociedad Geologica Mexicana: *Boletin*, t. 3, 4. Mexico, D. F.
- Società Geologica Italiana: *Bollettino*, vol. 26. Rome, Italy.
- Société géologique de Belgique: *Annales*, t. 30, l. 4, t. 33, l. 4, t. 34, l. 3, t. 35, l. 1-3. Liège, Belgium.
- Société géologique de France: *Bulletin*, 4^e sér., t. 8, nos. 1-6. Paris, France.
- South Carolina Geological Survey: Series 4, Bulletin no. 2. Columbia, S. C.
- South Dakota School of Mines: *Bulletin* no. 8. Rapid City, S. Dak.
- Southern California Academy of Sciences: *Bulletin*, vol. 7, no. 1. Los Angeles, Cal.
- Staten Island Association of Arts and Sciences: *Proceedings*, vol. 2, pt. 1. Staten Island, N. Y.
- Technology Quarterly, vol. 21. Boston, Mass.
- Terrestrial Magnetism and Atmospheric Electricity, vol. 13. Washington, D. C.
- Texas Academy of Sciences: *Transactions*, vol. 10. Austin, Tex.
- Texas, University of: *Bulletin* no. 102. Austin, Tex.
- Toronto, University of: *Studies, Geological Series*, no. 5. Toronto, Ont.
- Torrey Botanical Club: *Bulletin*, vol. 35. Lancaster, Pa.
- Torreya, vol. 8. Lancaster, Pa.
- Tschermaks Mineralogische und Petrographische Mitteilungen, Bd. 26, H. 5-6. Vienna, Austria.
- U. S. Department of Agriculture: *Field Operations of the Bureau of Soils*, Eighth Report. Washington, D. C.
- U. S. Geological Survey: 29th Annual Report; *Professional Papers* nos. 58, 60, 62, 63; *Bulletins* nos. 319, 328-332, 334-340, 342-355, 357-359, 362-363, 365-366, 369; *Water-Supply Papers* nos. 211-215, 217-220, 222; *Geologic Atlas of the United States*, folios nos. 155-161; *Mineral Resources for 1907*. Washington, D. C.
- U. S. National Museum: *Proceedings*, vols. 33-35; *Bulletins* 50, 53, pt. 2, 56, 57, 59-61. Washington, D. C.
- Vermont Geological Survey: 6th Report. Burlington, Vt.
- Washington Academy of Sciences: *Proceedings*, vol. 9, pp. 523-558, vol. 10, pp. 1-248. Washington, D. C.
- Washington Philosophical Society: *Bulletin*, vol. 15, pp. 75-126. Washington, D. C.
- West Virginia Geological Survey: vol. 2A; Map showing coal, oil, gas, and limestone areas. Morgantown, W. Va.
- Wisconsin Geological and Natural History Survey: *Bulletin* no. 20. Madison, Wis.
- Wisconsin Natural History Society: *Bulletin*, vol. 6. Milwaukee, Wis.
- Wisconsin, University of: *Bulletin, Science Series*, vol. 3, nos. 7, 8. Madison, Wis.
- Yorkshire Geological Society: *Proceedings*, vol. 16, pt. 3. Leeds, England.
- Zeitschrift für Gletscherkunde*, Bd. 2, H. 3-5, Bd. 3, H. 1, 2. Berlin, Germany.
- Zeitschrift für Krystallographie*, Bd. 44, H. 3-6, Bd. 45, H. 1-6. Leipzig, Germany.
- Zeitschrift für praktische Geologie*, Jahrg. 16. Berlin, Germany.

BIBLIOGRAPHY.

Adams, Frank Dawson.

1. Bernard J. Harrington.—Am. Jour. Sci., 4th ser., vol. 25, pp. 91-92, January, 1908.
2. On the structure and relations of the Laurentian system in eastern Canada.—London, Geol. Soc., Quart. Jour., vol. 64, pp. 127-148, 3 pls., 3 figs., May, 1908.
3. Recent studies in the Grenville series of eastern North America.—Jour. Geology, vol. 16, no. 7, pp. 617-635, 1908.

Aguilar y Santillán, Rafael.

4. Bibliografía geológico y minera de la República Mexicana completada hasta el año de 1904.—México, Inst. Geol., Bol. no. 17, xiii, 330 pp., 1908.

Aguilera, José G.

5. Los kaolines de la hacienda de Yexthó.—Soc. Geol. Mexicana, Bol., t. 3, pp. 25-33, 1908.
Describes the occurrence of deposits of kaolin along the river San Juan del Río, in the State of Hidalgo, Mexico, and explains their origin.
6. Marmoles.—México, Secretaría de Fomento, Bol., año 7, no. 9, II, pp. 504-529, April, 1908.
Gives a list of localities in Mexico where marble, onyx, granite, diorite, gabbro, and monzonite are found.

Alden, Wm. C.

7. Pleistocene phenomena of central Massachusetts.—Abstract: Science, new ser., vol. 27, pp. 694-695, May 1, 1908.

Alderson, J. Coleman.

8. A hand book of southern West Virginia. The Kanawha or middle measures of coal. The Coal River basin. The Alderson Land and Development Company's Survey. Charleston, Kanawha County, W. Va., 1907. 28 pp., 4 pls.
Gives information in regard to the character and occurrence of coal seams.

Aldrich, Thomas H.

9. A new Eocene fossil from Claiborne [Alabama].—Nautilus, vol. 22, no. 2, p. 13, June, 1908.
Describes *Mitromorpha eocenensis* n. sp.
10. New Eocene fossils from Alabama and Mississippi.—Nautilus, vol. 22, no. 8, pp. 74-76, 1 pl., December, 1908.

Aldrich, Thomas H., jr.

11. The treatment of the gold ores of Hog Mountain, Alabama.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 24, pp. 911-916, November, 1908.
Includes notes on the local geology.

Allen, E. T., and Clement, J. K.

12. The rôle of water in tremolite and certain other minerals.—Am. Jour. Sci., 4th ser., vol. 26, pp. 101-118, 5 figs., August, 1908.

Allorge, M. M.

13. The newly discovered cave of Atoyac, Mexico: A contribution to the study of cave development.—British Assoc. Adv. Sci., Rept. 77th meeting, p. 577, 1908.

Amador, Manuel Gutiérrez.

14. Las capas Cárnicas de Zacatecas.—Soc. Geol. Mexicana, Bol., t. 4, pp. 29-35, 1 pl., 1908.
Describes the occurrence, character, relations, and geologic history of Triassic deposits in the State of Zacatecas, Mexico.

Ami, Henry M.

15. Memorial of A. R. C. Selwyn.—Abstract: Geol. Soc. America, Bull., vol. 18, p. 614, 1908.

Anderson, Frank M.

16. A further stratigraphic study in the Mount Diablo Range of California.—California Acad. Sci., Proc., 4th ser., vol. 3, pp. 1-40, 1908.

Anderson, Robert.

17. Earth flows at the time of the San Francisco earthquake.—Abstract: Geol. Soc. America, Bull., vol. 18, p. 643, 1908.
Effects of the [California] earthquake on houses in San Mateo and Burlingame.—See Lawson, A. C., and others, no. 643.
Conglomerate formed by a mineral-laden stream in California.—See Arnold and Anderson, no. 30.
The Coalinga, California, oil field.—See Arnold and Anderson, no. 31.
Preliminary report on the Coalinga oil district, Fresno and Kings counties, California.—See Arnold and Anderson, no. 32.

Anderson, Tempest.

18. Report on the eruptions of the Soufrière in St. Vincent in 1902, and on a visit to Montagne Pelée in Martinique. Part II. The changes in the districts and the subsequent history of the volcanoes.—Royal Soc. London, Phil. Trans., Ser. A, vol. 208, pp. 275-303, 17 pls., 1908.
19. The volcanoes of Guatemala.—Geog. Jour., vol. 31, no. 5, pp. 473-485, 7 pls., 1 map, May, 1908.
Gives also notes upon earthquakes in Guatemala.
20. The Soufrière of St. Vincent: The changes subsequent to the eruption of 1902.—Abstract: Geol. Mag., dec. 5, vol. 5, no. 10, pp. 468-469, October, 1908.

Anonymous papers. See page 94.

Argall, Philip.

21. Rock oxidation at Cripple Creek [Colorado].—Min. and Sci. Press, vol. 96, pp. 883-886, 2 figs., June 27, 1908.
Describes the local geology.
22. The ore deposits of Magdalena, New Mexico.—Eng. and Min. Jour., vol. 86, pp. 366-370, 9 figs., August 22, 1908.
Describes the geology of the region and the occurrence, character, geologic relations, and origin of the lead, zinc, and copper ores.

Arnold, Ralph.

23. Das letzte grosse Erdbeben in California, seine Ursachen und Wirkungen.—Abstract: The Technologist, vol. 12, no. 5, pp. 68-71, 4 figs., May, 1907.
Discusses fault phenomena of the San Francisco earthquake.
24. New and characteristic species of fossil mollusks from the oil-bearing Tertiary formations of Santa Barbara County, California.—Smithsonian Misc. Coll., vol. 50 (Quart. Issue, vol. 4, pt. 4), pp. 419-447, 9 pls., 1908.
25. Dome structure in conglomerate.—Abstract: Geol. Soc. America, Bull., vol. 18, pp. 615-616, 1908.

Arnold, Ralph—Continued.

26. Notes on the occurrence of the recently described gem mineral, benitoite.—*Science*, new ser., vol. 27, pp. 312-314, February 21, 1908.
27. The Miner ranch oil field, Contra Costa County, California.—*U. S. Geol. Survey, Bull.* 340, pp. 339-342, 1908.
Describes the geology and structure of the field and the occurrence of oil and gas.
28. Descriptions of new Cretaceous and Tertiary fossils from the Santa Cruz Mountains, California.—*U. S. Nat. Mus., Proc.*, vol. 34, pp. 345-390, 7 pls., 1908.
Includes a brief account of the Cretaceous and Tertiary formations found in the Santa Cruz quadrangle, with lists of fossils occurring in each.
29. Description of a new brittle star from the upper Miocene of the Santa Cruz Mountains, California.—*U. S. Nat. Mus., Proc.*, vol. 34, pp. 403-406, 1 pl., 1908.
Describes *Amphiura sanctacrucis* n. sp.

The cause of the great earthquake.—See Spencer and Arnold, no. 996.

Arnold, Ralph, and Anderson, Robert.

30. Conglomerate formed by a mineral-laden stream in California.—*Geol. Soc. America, Bull.*, vol. 19, pp. 147-154, 2 pls., July, 1908.
31. The Coalinga, California, oil field.—*Abstract: Science*, new ser., vol. 28, pp. 127-128, July 24, 1908.
32. Preliminary report on the Coalinga oil district, Fresno and Kings counties, California.—*U. S. Geol. Survey, Bull.* 357, 142 pp., 2 pls. (maps), 1 fig., 1908.
Describes the stratigraphy and geologic structure of the field and the occurrence, character, and origin of the oil, and gives a detailed account of the productive areas.

Arnold, Ralph S., and Johnson, H. R.

33. The so-called volcano in the Santa Monica Mountains, near Los Angeles, California.—*Science*, new ser., vol. 27, pp. 553-554, April 3, 1908.
Describes burning petroliferous shale at the locality cited and the geologic conditions of the region.

Ashley, George H.

34. Studies in mechanics of Allegheny structure.—*Abstract: Science*, new ser., vol. 27, pp. 924-925, June 12, 1908.
35. Review of economic geology of southwestern Pennsylvania.—*Pennsylvania, Topog. and Geol. Survey Comm., Rept.* 1906-1908, pp. 218-340, 6 pls., 2 figs., 1908.
36. Stratigraphy of southwestern Pennsylvania.—*Pennsylvania, Topog. and Geol. Survey Comm., Rept.* 1906-1908, pp. 128-189, 205-218, 1 pl., 12 figs., 1908.
Gives a general account of the Carboniferous formations of southwestern Pennsylvania.

Ashley, George H., assisted by Stone, R. W., Butts, Charles, and Munn, M. J.

37. Report of progress on geologic work under the Topographic and Geologic Survey Commission of Pennsylvania, in cooperation with the United States Geological Survey.—*Pennsylvania, Topog. and Geol. Survey Comm., Report*, 1906-1908, pp. 81-340, 21 pls., 21 figs., 1908.

Atwood, Wallace W.

38. Lakes of the Uinta Mountains.—*Am. Geog. Soc., Bull.*, vol. 40, pp. 12-17, 6 figs., January, 1908.
39. Working hypothesis on the physiography of Alaska.—*Abstract: Science*, new ser., vol. 27, pp. 730-731, May 8, 1908.
40. Geologic studies in southwestern Alaska.—*Abstract: Science*, new ser., vol. 28, p. 933, December 25, 1908.

The interpretation of topographic maps.—See Salisbury and Atwood, no. 932.

Atwood, Wallace W., and Goldthwait, James Walter.

41. Physical geography of the Evanston-Waukegan region.—Illinois State Geol. Survey, Bull. no. 7, 102 pp., 14 pls., 52 figs., 1908. Abstract: Illinois State Geol. Survey, Bull. no. 8, pp. 48-52, 1908.

Aubury, Lewis E.

42. Biennial report of the state mineralogist covering the fifty-eighth fiscal year ending June 30, 1907, and the fifty-ninth fiscal year ending June 30, 1908.—California State Min. Bur., Rept. Board of Trustees for 1907-1908, pp. 11-22, 1908.

43. The copper resources of California.—California State Min. Bur., Bull. no. 50, 366 pp., pls., figs., and maps, 1908.

A detailed account by counties of the copper deposits of California.

Auerbach, Herbert S.

44. The north side of the Cœur d'Alene district [Idaho].—Eng. and Min. Jour., vol. 86, pp. 65-70, 8 figs., July 11, 1908.

Gives some account of the geology and the occurrence and character of the ore bodies.

45. Tungsten ore deposits of the Cœur d'Alene [Idaho].—Eng. and Min. Jour., vol. 86, pp. 1146-1148, 6 figs., December 12, 1908.

Ayres, W. S.

- Deutschman's cave, near Glacier, B. C., Canada.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 857-876, 17 figs., 1908.—See no. 88 of Bulletin 372, U. S. Geol. Survey.

Bagg, Rufus M., jr.

46. Geology and mining industry of Chihuahua, Mexico.—Abstract: Science, new ser., vol. 27, p. 723, May 8, 1908.

47. Geology of the mining districts of Chihuahua [Mexico].—Min. and Sci. Press, vol. 97, pp. 152-153, 187-189, 5 figs., 1908.

48. Some copper deposits in the Sangre de Christo Range, Colorado.—Econ. Geology, vol. 3, no. 8, pp. 739-749, 3 figs., 1908.

Bain, H. Foster.

49. Illinois State Geological Survey, Bulletin no. 8, Yearbook for 1907, 391 pp., 23 pls., 32 figs., 1 map, 1908.

The papers of geological interest are listed under the individual authors.

50. Administrative report [of the Illinois State Geological Survey] for 1907.—Illinois State Geol. Survey, Bull. no. 8, pp. 11-28, 1908.

51. Petroleum fields of Illinois in 1907.—Illinois State Geol. Survey, Bull. no. 8, pp. 273-312, 1 pl., 1908. Abstract: Science, new ser., vol. 27, p. 723, May 8, 1908.

Includes notes upon the stratigraphy and records of drillings. Discusses the occurrence and correlation of oil-bearing horizons.

52. Some recent literature on petroleum.—Econ. Geology, vol. 3, no. 3, pp. 231-246, 1908.

53. Geology of Illinois petroleum fields.—Econ. Geology, vol. 3, no. 6, pp. 481-491, 1 pl., 1 fig., 1908.

54. Outlook for young men in geology.—Science, new ser., vol. 27, pp. 877-879, June 5, 1908.

Bain, H. Foster, and others.

55. Studies of Illinois coals.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 24, pp. 1099-1170, November, 1908.

Ball, Sydney H.

56. Geology of the Georgetown quadrangle, Colorado.—U. S. Geol. Survey, Prof. Paper 63, pp. 29-96, 12 pls., 26 figs., 1908.
57. The post-Jurassic igneous rocks of southwestern Nevada.—Jour. Geology, vol. 16, no. 1, pp. 36-45, 1 fig., 1908.

Bancroft, George J.

- The formation and enrichment of ore-bearing veins.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 245-268, 1908. See no. 127, page 20 of Bulletin 372, U. S. Geol. Survey.

Bancroft, J. Austen.

58. Report on that portion of the coast of British Columbia extending from Powell River to Kingcome Inlet, including the adjacent islands.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 16-18, 1908. British Columbia, Ann. Rept. Minister of Mines for 1907, pp. 159-161, 1908.
- On the occurrence of gedrite in Canada.—See Evans and Bancroft, no. 337.

Barbour, Erwin Hinckley.

59. Ancient inhabitants of Nebraska.—Records of the Past, vol. 6, pt. 2, pp. 40-46, 5 figs., February, 1907.
 60. The skull of *Moropus*.—Nebraska Geol. Survey, vol. 3, pt. 2, 7 pp., 2 pls., 4 figs., 1908.
- Describes a skull of *Moropus cooki* from the lower Miocene of Sioux County, Nebraska.

Barbour, Percy E.

61. The Cochiti mining district, New Mexico.—Eng. and Min. Jour., vol. 86, pp. 173-175, 2 figs., July 25, 1908.
- Gives notes upon the local geology and the occurrence and character of the gold-silver ores.

Barlow, Alfred Ernest.

62. The origin of the silver of James township, Montreal River mining district [Ontario].—Canadian Min. Inst., Jour., vol. 11, pp. 256-272, 6 pls., 1908.
- Describes the occurrence, character, and relations of the silver ores, and discusses their origin.
63. The silver veins of the Montreal River district, Canada.—Min. and Sci. Press, vol. 97, pp. 462-465, October 3, 1908.

Barnett, V. H.

64. A natural bridge due to stream meandering.—Jour. Geology, vol. 16, no. 1, pp. 73-75, 2 figs., 1908.
65. Striations in gravel bars of the Yukon and Porcupine rivers, Alaska.—Jour. Geology, vol. 16, no. 1, pp. 76-78, 2 figs., 1908.
66. An example of disruption of rock by lightning on one of the leucite hills in Wyoming.—Jour. Geology, vol. 16, no. 6, pp. 568-571, 1 fig., 1908.

Barrell, Joseph.

67. Studies for students: Relations between climate and terrestrial deposits.—Jour. Geology, vol. 16, pp. 159-190, 255-295, 363-384, 1908. Abstract: Geol. Soc. America, Bull., vol. 18, pp. 616-621, 1908.
68. Schaeberle and geological climates.—Science, new ser., vol. 28, pp. 371-373, September 18, 1908.

Barrows, Harlan H.

69. Middle portion of the Illinois Valley.—Illinois State Geol. Survey, Bull. no. 8, pp. 77-80, 2 pls., 1 fig., 1908.
- Describes physiographic features.

Baskerville, Charles.

70. The rare metals.—Eng. and Min. Jour., vol. 86, pp. 907, 960, 1055, 1100, 1241-1242, 1908.

Describes the characters and occurrence of minerals containing the rare metals beryllium, columbium, molybdenum, tantalum, and thorium.

Bassler, Ray S.

71. The formation of geodes, with remarks on the silicification of fossils.—U. S. Nat. Mus., Proc., vol. 35, pp. 133-154, 7 pls., 1 fig., 1908.
72. Cement materials of western Virginia.—Econ. Geology, vol. 3, no. 6, pp. 503-524, 4 figs., 1908.

Gives a general account of the Ordovician formations of western Virginia, with particular reference to the limestones and other cement materials.

The late Niagaran strata of West Tennessee.—See Pate and Bassler, no. 804.

New American Paleozoic Ostracoda. Preliminary revision of the Beyrichiidae, with descriptions of new genera.—See Ulrich and Bassler, no. 1070.

Bastin, Edson S.

73. A pyrrhotitic peridotite from Knox County, Maine—a sulphide ore of igneous origin.—Jour. Geology, vol. 16, no. 2, pp. 124-138, 3 figs., 1908. Abstract: Science, new ser., vol. 27, p. 426, March 13, 1908.
74. Description of the Rockland quadrangle, Maine.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 158, 15 pp., 2 figs., 5 maps, 1908.

Describes the general geography and geology, the occurrence, character, and relations of igneous and metamorphosed sedimentary rocks and Pleistocene surficial deposits, the geological history, and economic resources.

Road materials of southern and eastern Maine.—See Leighton and Bastin, no. 654.

Mineral resources of the United States, 1907: Quartz and feldspar.—See no. 1072.

Baum, G.

75. Kohle und Eisen in Nordamerika. Essen (Ruhr), Verlag der Berg- und Hüttenmännischen Zeitschrift "Glückauf," 1908. 152 pp., 1 pl., 175 figs.

A general account of the occurrence and mining of coal and iron in the United States and Canada.

Bayley, William Shirley.

76. Note on the occurrence of graphite schist in Tuxedo Park, New York.—Econ. Geology, vol. 3, no. 6, pp. 535-536, 1908.
77. The American Association for the Advancement of Science. Section E. Geology and Geography.—Science, new ser., vol. 27, pp. 721-733, May 8, 1908.

Gives an account of the meeting held in Chicago, December 30, 1907, and abstracts of papers presented.

78. Preliminary account of the geology of the Highlands of New Jersey.—Abstract: Science, new ser., vol. 27, pp. 722-723, May 8, 1908.

Description of the Passaic quadrangle, New Jersey-New York.—See Darton and others, no. 269.

Becker, Arnold.

79. Geological possibilities at Goldfield [Nevada].—Min. and Sci. Press, vol. 96, p. 846, 1 fig., June, 1908.

Includes notes on the local geology.

Becker, George F.

80. Age of a cooling globe in which the initial temperature increases directly as the distance from the surface.—Science, new ser., vol. 27, pp. 227-233, February 7, p. 392, March 6, 1908.
81. Relations of radioactivity to cosmogony and geology.—Geol. Soc. America, Bull., vol. 19, pp. 113-146, June, 1908.

Beeler, Henry C.

82. Progress in the Wyoming mines, 1907.—Wyoming Mines, 1907. 46 pp., illus., [1908].
 83. The South Pass gold mining district [Wyoming].—Min. World, vol. 29, pp. 953-955, December 26, 1908.

Bell, J. J.

84. The Moose Mountain iron range [Ontario].—Eng. and Min. Jour., vol. 85, p. 805, 1 fig., April 18, 1908.
 Includes notes upon the character and occurrence of the iron ores.

Bell, Robert.

85. Personal reminiscences of Sir William E. Logan.—Abstract: Geol. Soc. America, Bull., vol. 18, p. 622, 1908.
 86. The tar sands of the Athabasca River, Canada.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 20, pp. 157-169, 2 figs., March, 1908; Trans., vol. 38, pp. 836-848, 2 figs., 1908. Abstract: Min. World, vol. 28, p. 753, May 9, 1908.
 Describes the occurrence of Cretaceous sands impregnated with tar, and discusses the source of the petroleum from which the tar was derived and the utilization of the deposits.

Bell, Robert N.

87. Ninth annual report of the mining industry of Idaho for the year 1907, 217 pp., illus. [1908].
 Includes notes on local geology and the occurrence of ores.
 88. Association of igneous intrusions with Idaho ore bodies.—Eng. and Min. Jour., vol. 85, p. 127, January 11, 1908.
 89. Atlanta gold district, Idaho.—Eng. and Min. Jour., vol. 86, pp. 176-177, 1 fig., July 25, 1908.
 Includes notes on the character and occurrence of the ores.

Bendrat, T. A.

90. Physiographic sketch of Lewis County, New York.—Science, new ser., vol. 28, pp. 380-381, September 18, 1908.

Benge, Elmer, and Wherry, E. T.

91. Directory of the mineral localities in and around Philadelphia.—Mineral Collector, vol. 15, pp. 6-17, 26-28, 44-46, 54-56, 69-70, 85-86, 107-109, 1908.

Benjamin, S. W.

92. Foothill copper belt of the Sierra Nevada.—Min. and Sci. Press, vol. 97, p. 490, October 10, 1908.

Bennett, John.

The nomenclature of the Kansas coal measures employed by the Kansas state geological survey.—See Haworth and Bennett, no. 447.

Berkey, Charles P.

93. Quality of bluestone in the vicinity of the Ashokan dam.—School of Mines Quart., vol. 29, no. 2, pp. 149-158, 2 pls., 1 fig., January, 1908.
 Describes the geology and the character of the stone of the region west of Kingston, N. Y.
 94. Notes on the preglacial channels of the lower Hudson Valley as revealed by recent borings.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, p. 294, 1908.
 95. A revised cross-section of the Rondout Valley along the line of the Catskill Aqueduct.—Abstract: Science, new ser., vol. 28, pp. 351-352, September 11, 1908.

Berkey, Charles P.—Continued.

96. Joint meeting of geologists of the northeastern United States with the section of geology and mineralogy of the New York Academy of Sciences.—*Science*, new ser., vol. 28, pp. 573-576, October 23, 1908.

Gives a brief account of the meeting and abstracts and titles of papers presented.

97. The acid extreme of the Cortlandt series near Peekskill, N. Y.—Abstract: *Science*, new ser., vol. 28, p. 575, October 23, 1908.

98. Limestones interbedded with the Fordham gneiss in New York City.—Abstract: *Science*, new ser., vol. 28, p. 936, December 25, 1908.

Berry, Edward W.

99. A Mid-Cretaceous species of *Torreya*.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 382-386, 3 figs., May, 1908.

Describes *Tumion carolinianum* n. sp. from Cumberland county, North Carolina.

100. Some Araucarian remains from the Atlantic coastal plain.—*Torrey Bot. Club, Bull.*, vol. 35, no. 5, pp. 249-260, 6 pls., 2 figs., May, 1908.

101. A new Cretaceous *Bauhinia*.—*Torreya*, vol. 8, no. 9, pp. 218-219, 3 figs., September, 1908.

Describes *Bauhinia marylandica* n. sp. from the Magothy formation at Grove Point, Maryland.

102. A Miocene cypress swamp.—*Torreya*, vol. 8, no. 10, pp. 233-235, October, 1908.

Beyer, Samuel Walker.

103. Mineral production in Iowa in 1907.—*Iowa Geol. Survey*, vol. 18, pp. 11-28, 1908.

Blackman, E. E.

104. Prehistoric man in Nebraska.—*Records of the Past*, vol. 6, pt. 3, pp. 76-79, March, 1907.

Blackwelder, Eliot.

105. Pre-Cambrian rocks in southeastern Wyoming.—*Science*, new ser., vol. 27, pp. 787-788, May 15, 1908.

Blake, William P.

106. Destruction of the salt works in the Colorado Desert by the Salton Sea.—*Am. Inst. Min. Eng., Bi-Mo. Bull.* no. 19, pp. 81-82, January, 1908.

A note in regard to the origin of the salt bed.

107. Tourmaline of Crown Point, N. Y.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 123-124, 1 fig., February, 1908.

108. Note upon the structure of the Santa Catalina gneiss, Arizona.—*Science*, new ser., vol. 28, pp. 379-380, 382 (abstract), September 18, 1908.

Blasdale, W. C.

109. The chemical formula of the mineral benitoite.—*Science*, new ser., vol. 28, pp. 233-234, August 21, 1908.

Benitoite, its mineralogy, paragenesis, and geological occurrence.—See Louderback and Blasdale, no. 681.

Blatchley, Raymond S.

110. The Indiana oolitic limestone industry in 1907.—*Indiana, Dept. Geol. and Nat. Res.*, 32d Ann. Rept., pp. 299-459, 17 pls. (incl. maps), 14 figs, 1908.

Blatchley, W. S.

111. Thirty-second annual report of the department of geology and natural resources [Indiana]. Indianapolis, 1908. 1258 pp., illus.

112. The petroleum industry in Indiana in 1907.—*Indiana, Dept. Geol. and Nat. Res.*, 32d Ann. Rept., pp. 461-478, 1908.

Blodgett, Mildred E.

The stratigraphy of the Mt. Taylor region, New Mexico.—See Shimer and Blodgett, no. 975.

Boehmer, Max.

113. The localization of values in ore bodies and the occurrence of shoots in metaliferous deposits: Secondary enrichment and impoverishment.—Econ. Geology, vol. 3, no. 4, pp. 337-340, 2 figs., 1908.

Böggild, O. B.

114. On gyrolite from Greenland.—Mineral. and Geol. Mus., Univ., Copenhagen, Contr. Mineral, no. 8 (Meddelelser om Grönland, vol. 34), pp. 91-114, 4 figs., 1908.

Bordeaux, Albert F. J.

115. The silver mines of Mexico.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 23, pp. 629-640, September, 1908.

Böse, Emilio, and others.

116. El temblor del 14 de abril de 1907.—Inst. Geol. México, Parerg., t. 2, pp. 131-258, 43 pls., 1908.

Describes the earthquake of April 14, 1907, in Mexico.

Bowman, Isaiah, and Reeds, Chester Albert.

117. Water resources of the East St. Louis district.—Abstract: Illinois State Geol. Survey, Bull. no. 8, pp. 30-40, 1908.

Bownocker, John Adams.

118. Coals of the Monongahela formation or upper productive coal measures.—Ohio, Geol. Survey, 4th ser., Bull. 9, 342 pp., 7 pls., 2 maps, 1908.

Bownocker, John Adams, and Condit, D. D.

119. The Pomeroy coal in Ohio.—Econ. Geol., vol. 3, no. 3, pp. 183-199, 1 fig., 1908.

Branner, John C.

120. The clays of Arkansas.—U. S. Geol. Survey, Bull. 351, 247 pp., 1 pl. (map), 20 figs., 1908.

Branson, E. B.

121. *Cladodus compressus*, a correction.—Science, new ser., vol. 27, pp. 311-312, February 21, 1908.

Proposes this name for *Cladodus striatus*, the specific name *striatus* having been pre-occupied.

122. *Dinichthys intermedius* Newberry, from the Huron shale [of Ohio].—Science, new ser., vol. 28, p. 94, July 17, 1908.

Describes a specimen collected near Huron, Ohio.

123. Notes on *Dinichthys terrelli* Newberry, with a restoration.—Ohio Naturalist, vol. 8, no. 8, pp. 363-369, 2 pls., June, 1908.

Brewer, William M.

124. Some notes on the Copper River district, Alaska.—Canadian Min. Inst., Jour., vol. 11, pp. 415-422, 1 map, 1908.

125. The Copper River district, Alaska.—Min. and Sci. Press, vol. 96, pp. 71-72, 101-102, 1 fig., 1908.

Brinsmade, Robert B.

126. Mines of Tintic district, Utah.—Mines and Minerals, vol. 28, no. 6, pp. 291-295, 5 figs., January, 1908.

Includes an account of the local geology and the occurrence, character, relations, and origin of the lead and copper ores.

Brinsmade, Robert B.—Continued.

127. Daly-West mine and mill [Park City, Utah].—*Mines and Minerals*, vol. 28, no. 8, pp. 353-356, 4 figs., March, 1908.

Includes a brief account of the geology in the vicinity of Park City, Utah, and the occurrence and character of the ore bodies.

128. Mining and milling at Stockton, Utah.—*Eng. and Min. Jour.*, vol. 85, pp. 611-612, 1 fig., March 21, 1908.

Includes a brief account of the local geology and the occurrence and origin of the lead-silver ores.

129. The Utah copper mill near Garfield, Utah.—*Min. World*, vol. 28, pp. 553-556, 6 figs., April 4, 1908.

Describes the occurrence of the ore bodies.

130. Development of San Pedro Mountain, New Mexico.—*Min. World*, vol. 28, pp. 1021-1024, 6 figs., June 27, 1908.

Describes the local geology and the occurrence of gold, lead-silver, and copper deposits.

131. Mining and milling near Silver City, New Mexico.—*Min. World*, vol. 29, pp. 947-950, 6 figs., December 26, 1908.

Includes notes on the local geology and occurrence of the ores carrying gold, silver, copper, lead, and zinc.

British Columbia.

Annual report of the minister of mines for the year ending 31st December, 1907, being an account of mining operations for gold, coal, etc., in the Province of British Columbia. Victoria, B. C., 1908.—See Robertson, no. 903.

Brittain, Doss.

132. The minerals of Joplin and their association.—*Min. World*, vol. 28, pp. 289-291, 9 figs., February 15, 1908.

Describes minerals found in the Joplin, Missouri, lead and zinc districts.

Brock, R. W.

133. Summary report of the Geological Survey of Canada for the calendar year 1907. 132 pp., 1908.

An administrative report. Includes reports by various members of the staff, which have been listed under the individual authors.

134. The Lardeau district, British Columbia.—*Canada Geol. Survey, Summ. Rept.*, 1907, pp. 84-90, 1908.

Describes briefly physiographic features, the general geology, and the economic developments.

The Larder Lake district [Ontario].—*Canadian Min. Jour.*, new ser., vol. 1, no. 20, old ser., vol. 28, no. 22 [vol. 29, no. 1], pp. 621-624; vol. 29, no. 2, pp. 656-659, 3 figs., 1908.

Reprinted from Sixteenth Annual Report of the Ontario Bureau of Mines, 1907. (See no. 308 of Bulletin 372, U. S. Geol. Survey.)

Broili, F.

135. Ein montiertes Skelett von *Labidosaurus hamatus* Cope, einem Cotylosaurier aus dem Perm von Texas.—*Deutsch. Geol. Gesell., Zeitschr.*, Bd. 60, Heft 1, pp. 63-67, 1 pl., 1908.

Describes a mounted skeleton of *Labidosaurus hamatus* Cope, from the Permian of Texas, installed in the paleontological collection at Munich, Bavaria.

Brooks, Alfred H.

136. Investigations of mineral resources of Alaska in 1907. Administrative report.—*U. S. Geol. Survey, Bull.* 345, pp. 5-17, 1908.

Describes the progress of the investigations upon the geology and mineral resources and gives lists of U. S. Geological Survey publications on Alaska in 1907.

Brooks, Alfred H.—Continued.

137. The distribution of mineral resources in Alaska.—U. S. Geol. Survey, Bull. 345, pp. 18–29, 1 pl. (map), 1908.

138. The mining industry [in Alaska] in 1907.—U. S. Geol. Survey, Bull. 345, pp. 30–53, 1908.

Includes notes on the occurrence and geologic relations of various gold deposits.

The gold placers of Seward Peninsula, Alaska.—See Collier and others, no. 241.

Brooks, Alfred H., and Kindle, E. M.

139. Paleozoic and associated rocks of the Upper Yukon, Alaska.—Geol. Soc. America, Bull., vol. 19, pp. 255–314, 2 pls., 2 figs., 1908.

Reviews previous geologic investigation in the area and describes the occurrence, character, relations, and correlations of pre-Ordovician, Ordovician, Silurian, Devonian, Carboniferous, Mesozoic, Tertiary, and Quaternary deposits.

Brooks, Alfred H., and others.

Mineral resources of Alaska. Report on progress of investigations in 1907.—U. S. Geol. Survey, Bull. 345, 294 pp., 5 pls., 7 figs., 1908.

The papers in this report have been listed under the individual authors.

Brooks, William Keith.

140. Joseph Leidy.—Pop. Sci. Monthly, vol. 70, pp. 311–314, 1 pl. (port.), April, 1907.

Brown, Amos P.

Mineralogy simplified.—See Erni and Brown, no. 332.

Brown, Barnum.

141. The Conard fissure, a Pleistocene bone deposit in northern Arkansas: with descriptions of two new genera and twenty new species of mammals.—Am. Mus. Nat. Hist., Memoirs, vol. 9, pt. 4, pp. 155–208, 12 pls., February, 1908.

142. Trachodont, the duck-billed dinosaur. Skeletons of prehistoric reptiles more than three million years old.—Sci. Am., vol. 98, pp. 262–263, 4 figs., April 11, 1908.

143. The *Trachodon* group.—Am. Mus. Jour., vol. 8, no. 4, pp. 51–56, 4 figs., April, 1908.

Describes a mounted skeleton of *Trachodon* and the conditions amid which it lived.

144. The Ankylosauridae, a new family of armored dinosaurs from the upper Cretaceous.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 187–201, 20 figs., 1908.

Brown, Calvin S.

145. The lignite of Mississippi.—Econ. Geol., vol. 3, no. 3, pp. 219–223, 1908.
Abstract: Science, new ser., vol. 27, p. 727, May 8, 1908.

Brown, H. S., and Mudgett, F. G.

146. The De Lamar mine of southwestern Idaho.—California Jour. Tech., vol. 12, no. 4, pp. 35–41, November, 1908.

Includes notes on the local geology, and the occurrence and relations of the ores.

Brown, R. Gilman.

The vein-system of the Standard mine, Bodie, California.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 343–357, 5 figs., 1908.—See no. 330 of Bulletin 372, U. S. Geol. Survey.

Brues, Charles T.

147. New phytophagous Hymenoptera from the Tertiary of Florissant, Colorado.—Harvard Coll., Mus. Comp. Zool., Bull., vol. 51, no. 10, pp. 259–276, 10 figs., March, 1908.

148. Two fossil Phoridae from the Miocene shales of Florissant, Colorado.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 273–275, 2 figs., 1908.

Brues, Charles T., and Brues, Beirne B.

149. A new fossil grass from the Miocene of Florissant, Colorado.—Wisconsin Nat. Hist. Soc., Bull., vol. 6, pp. 170-171, 1 fig., October, 1908.
Describes *Melica primæva* n. sp.

Brumback, A. M.

- The deposits of glass sand at Toboso, Ohio.—See Carney and Brumback, no. 180.

Brumell, H. P. H.

150. Modes of occurrence of Canadian graphite.—Canadian Min. Inst., Jour., vol. 11, pp. 236-250, 1908. Canadian Min. Jour., vol. 29, no. 6, pp. 70-72, March 15, 1908.

Buckley, Ernest Robertson.

151. Lead and zinc resources of Missouri.—Am. Min. Congr., Rept. of Proc., 10th Ann. Sess., pp. 282-297, 1908.
Describes the geology of the Ozark region and discusses the origin of the lead and zinc ores.

Buehler, H. A.

152. The lime and cement resources of Missouri.—Missouri Bur. Geol. and Mines, 2d ser., vol. 6, 255 pp., 36 pls., [1907].

Burchard, Ernest F.

153. An estimate of the tonnage of available Clinton iron ore in the Birmingham district, Alabama.—U. S. Geol. Survey, Bull. 340, pp. 308-317, 1 fig., 1908.

154. Concrete materials produced in the Chicago district.—U. S. Geol. Survey, Bull. 340, pp. 383-410, 1 fig., 1908.

Describes the conditions of occurrence, geological relations, character, and composition of Niagara limestone, glacial sand and gravel, and lake shore sand.

155. Concrete materials produced in the Chicago district.—Illinois State Geol. Survey, Bull. no. 8, pp. 345-372, 1 fig., 1908.

Includes data upon the stratigraphy and character of the Niagara limestone.

156. The Clinton iron-ore deposits in Alabama.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 24, pp. 997-1055, 13 figs., November, 1908.

Gives an outline of the geology, with a detailed account of the Clinton formation, describes the character, composition, and distribution of the ores, discusses their origin, and estimates the amount of ore reserves.

Mineral resources of the United States, 1907: Fluorspar and cryolite; gypsum; barytes and strontium.—See no. 1072.

Burrows, John Shober.

157. Mine sampling and chemical analyses of coals tested at the United States fuel-testing plant, Norfolk, Va., in 1907.—U. S. Geol. Survey, Bull. 362, 23 pp., 1908.

Butler, G. Montague.

158. A pocket handbook of minerals, designed for use in the field or class-room, with little reference to chemical tests. First edition. New York, John Wiley & Sons, 1908. 298 pp., 89 pls.

Butts, Charles.

159. The unconformity between the Mississippian and Pennsylvanian, and its bearing on questions of geologic correlation.—Abstract: Science, new ser., vol. 27, pp. 992-993, June 26, 1908.

160. Pre-Pennsylvanian stratigraphy of southwestern Pennsylvania.—Pennsylvania, Topog. and Geol. Survey Comm., Rept. 1906-1908, pp. 190-204, 2 pls., 1 fig., 1908.

Discusses the occurrence and correlation of Carboniferous and Devonian formations in western Pennsylvania.

Cabot, Godfrey L.

161. Pyritic origin of iron ore deposits.—*Eng. and Min. Jour.*, vol. 86, p. 630, September 26, 1908.

Discusses the genesis of iron-ore deposits.

Cadman, John.

162. Mineral resources of Trinidad.—*Inst. Min. Eng., Trans.*, vol. 35, pt. 4, pp. 453-475, 11 figs., 1908.

Cady, Gilbert H.

163. Cement-making materials in the vicinity of La Salle.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 128-134, 1 pl., 1908.

Cairnes, D. D.

164. Report on portions of the Yukon Territory, chiefly between Whitehorse and Tantalus.—*Canada Geol. Survey, Summ. Rept.*, 1907, pp. 10-15, 1908.

165. Report on a portion of Conrad and Whitehorse mining districts, Yukon.—*Canada, Dept. Mines, Geol. Survey Branch*, 38 pp., 8 pls., 1 map, 1908.

California State Earthquake Investigation Commission.—See Lawson, A. C., and others, no. 643.

California State Mining Bureau.

166. Mineral productions of California.—*California State Min. Bur., Bull.* no. 53, 62 pp., 23 pls., 1908.

The copper resources of California. *Bulletin* no. 50, 366 pp., pls., figs., and maps.—See Aubury, no. 43.

Calkins, Frank Cathcart.

The geology and ore deposits of the Cœur d'Alene district, Idaho.—See Ransome and Calkins, no. 851.

Calvin, Samuel.

167. Sixteenth annual report of the state geologist.—*Iowa Geol. Survey*, vol. 18, pp. 1-5, 1908.

An administrative report. The accompanying papers have been listed under their authors.

Campbell, Marius R.

168. The coal reserves of the United States.—*Sci. Am. Suppl.*, vol. 65, pp. 77-78, 2 figs., February 1, 1908.

169. The origin of limestone breccias.—*Abstract: Science*, new ser., vol. 27, p. 348, February 28, 1908.

170. Coal fields of the United States. Map, with explanation. May, 1908.

171. A practical classification for low-grade coals.—*Econ. Geology*, vol. 3, no. 2, pp. 134-142, 1 pl., 1 fig., 1908. *Mines and Minerals*, vol. 28; no. 11, pp. 535-536, 2 figs., June, 1908.

Camsell, Charles.

172. Preliminary report on a part of the Similkameen district, British Columbia.—*Canada, Geol. Survey*, 41 pp., 1 map, 1907.

173. Observations on the geology and ore deposits of Camp Hedley, British Columbia.—*Canadian Min. Inst., Jour.*, vol. 11, pp. 423-432, 2 pls., 1908.

174. Camp Hedley, Osoyoos mining division, B. C.—*Canada, Geol. Survey, Summ. Rept.*, 1907, pp. 24-31, 1908. *British Columbia, Ann. Rept. minister of mines for 1907*, pp. 121-127, 1908.

Describes the topographic features, the general geology, and the character and occurrence of ore bodies.

Canada, Department of Mines, Mines Branch.

175. Report on the mining and metallurgical industries of Canada, 1907-8, Ottawa, 1908. 972 pp., illus.

Includes notes on geology and the occurrence of ores.

Summary report of the Mines Branch for the fiscal year 1907-8.—See Haanel, no. 426.

Canada, Geological Survey.

176. Summary report for the calendar year 1907, 132 pp., 1908.

The included reports by various members of the survey have been listed under the individual authors.

General index to reports, 1885-1906. Compiled by F. J. Nicolas. Ottawa, 1908. 1014 pp.

Carney, Frank.

177. A possible overflow channel of ponded waters, antedating the recession of Wisconsin ice.—Am. Jour. Sci., 4th ser., vol. 25, pp. 217-223, 2 figs., March, 1908.

178. State geological surveys and practical geography.—Am. Geog. Soc., Bull., vol. 40, pp. 530-535, September, 1908. Denison Univ., Sci. Lab., Bull., vol. 14, pp. 55-60, 1908.

179. The alteration of glacial deposits by later ice invasions.—Abstract: Science, new ser., vol. 27, p. 729, May 8, 1908.

Pre-Wisconsin drift in the Finger Lake region of New York.—Denison Univ., Sci. Lab., Bull., vol. 14, pp. 3-18, 4 figs., 1908.

Reprinted from Journal of Geology, vol. 15, no. 6, 1907. See no. 429, p. 43 of Bull. 372, U. S. Geol. Survey.

Wave-cut terraces in Keuka Valley, older than the recession stage of Wisconsin ice.—Denison Univ., Sci. Lab., Bull., vol. 14, pp. 35-46, 3 figs., 1908.

Reprinted from the American Journal of Science, 4th ser., vol. 23, May, 1907. See no. 431, p. 43 of Bull. 372, U. S. Geol. Survey.

A form of outwash drift.—Denison Univ., Sci. Lab., Bull., vol. 14, pp. 47-53, 1 fig., 1908.

Reprinted from the American Journal of Science, 4th ser., vol. 23, May, 1907. See no. 432, p. 43 of Bull. 372, U. S. Geol. Survey.

Carney, Frank, and Brumback, A. M.

180. The deposits of glass sand at Toboso, Ohio.—Ohio Naturalist, vol. 8, no. 7, pp. 358-361, 2 figs., May, 1908.

Carranco, Alberto.

181. La región minera de Trinidad y Anexas [México].—Soc. Geol. Mexicana, Bol., t. 3, pp. 15-23, 3 pls., 1907.

Describes the local geology and the character and relations of the veins and ore deposits of Trinidad y Anexas, State of Zacatecas, Mexico.

Case, Ermine C.

182. Notes on the skull of *Lysorophus tricarinatus* Cope.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 531-533, 1 fig., 1908.

183. On the value of the evidence furnished by vertebrate fossils of age of certain so-called Permian beds in America.—Jour. Geology, vol. 16, no. 6, pp. 572-580, 1908.

184. Description of vertebrate fossils from the vicinity of Pittsburgh, Pennsylvania.—Carnegie Mus., Annals, vol. 4, pp. 234-241, 1 pl., 8 figs., 1908.

185. A great Permian delta and its vertebrate life, with restorations by the author.—Pop. Sci. Monthly, vol. 73, no. 6, pp. 557-568, 13 figs., December, 1908.

• Catlett, Charles.

186. Barite associated with iron ore in Pinar del Rio Province, Cuba.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 358-359, 1908.

Describes the location, geologic relations, and character of iron ores containing barite.

187. Discussion of paper by H. M. Chance, A new theory of the genesis of brown hematite ores; and a new source of sulphur supply.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 24, pp. 1179-1183, November, 1908.

Quantitative field test for magnesia in cement rock and limestone.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 705-709, 1908.—See no. 446 of Bulletin 372, U. S. Geol. Survey.

Chadwick, George H.

188. Revision of "the New York series."—Science, new ser., vol. 28, pp. 346-348, September 11, 1908.

Presents a tabular classification of upper Ordovician, Silurian, and Devonian formations of New York and sets forth the facts upon which based.

Chalmers, A.

189. Surface geology of the St. Lawrence Valley.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 69-71, 1908.

Chamberlin, Rollin Thomas.

190. Contributions to cosmogony and the fundamental problems of geology. The gases in rocks. Washington, D. C., published by the Carnegie Institution of Washington, 1908. 80 pp., 2 figs.

191. The gases in rocks.—Abstract: Science, new ser., vol. 27, pp. 731-732, May 8, 1908.

Chamberlin, Thomas C.

192. Review of The earth a failing structure, by John F. Hayford (Philos. Soc. Washington, Bull., vol. 15, pp. 57-74, 1907).—Jour. Geology, vol. 16, no. 2, pp. 191-192, 1908.

Suggests that the earth is a generative as well as failing structure.

193. The influence of the tides on the earth's rotation.—Abstract: Science, new ser., vol. 27, pp. 727-728, May 8, 1908.

Chance, H. Martyn.

194. The silver-lead deposits of Eureka, Nevada.—Eng. and Min. Jour., vol. 85, pp. 123-124, January 11, 1908.

195. The origin of coal.—Eng. and Min. Jour., vol. 86, pp. 27-28, July 4, 1908.

196. The pyritic origin of iron ore deposits.—Eng. and Min. Jour., vol. 86, pp. 408-410, August 29, 1908.

197. Rock pressure and metamorphism.—Min. and Sci. Press, vol. 97, pp. 299-302, August 29, 1908.

198. The origin of bombshell ore.—Am. Phil. Soc., Proc., vol. 47, pp. 136-140, 1908. Canadian Min Jour., vol. 29, no. 16, pp. 402-403, August 15, 1908.

199. A new theory of the genesis of brown hematite ores; and a new source of sulphur supply.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 23, pp. 791-808, 2 figs., September, 1908.

Chapman, Henry C.

200. The life and work of Joseph Leidy.—Science, new ser.; vol. 26, pp. 812-814, December 13, 1907.

Chapman, R. H.

201. Earth movements at Butte, Montana.—Min. and Sci. Press, vol. 96, p. 493, April 11, 1908.
202. Preliminary notes on recent earth movements at Butte, Montana, as shown by precise levels of the U. S. Geological Survey.—Abstract: Science, new ser., vol. 27, p. 694, May 1, 1908.

Clapp, Frederick G.

203. Complexity of the Glacial Period in northeastern New England.—Geol. Soc. Am., Bull., vol. 18, pp. 505-556, 4 pls., 9 figs., February, 1908.
204. The Grand Gulf and Lafayette formations in northern Florida.—Abstract: Science, new ser., vol. 27, p. 993, June 26, 1908.

Clarke, Frank Wigglesworth.

205. The data of geochemistry.—U. S. Geol. Survey, Bull. no. 330, 716 pp., 1908.

Clarke, John M.

206. Barachois, bar, and tickle.—New York State Educ. Dept., Bull. 412 (Secondary Educ., Bull. 34), pp. 123-131, 1907.

Discusses the coastal lagoon and its occurrence in Paleozoic strata.

207. Fourth report of the director of the science division, including the 61st report of the State Museum, the 27th report of the state geologist, and the report of the state paleontologist for 1907.—New York State Mus., Bull. 121, 203 pp., 63 pls., 1908.

Includes various notes on the geology and paleontology of New York.

208. Early Devonian history of New York and eastern North America.—New York State Mus., Mem. 9, 366 pp., 72 pls., and text figs., 1908.

Describes the stratigraphy, geologic structure, and Devonian fauna of Gaspé, Quebec.

209. The beginnings of dependent life.—New York State Mus., Bull. 121, pp. 146-169, 13 pls., 7 figs., 1908.

Clarke, John M., and Luther, D. Dana.

210. Geologic map and descriptions of the Portage and Nunda quadrangles.—New York State Mus., Bull. 118, pp. 43-69, 10 pls., geol. maps and section (in pocket), 1908.

Cleland, H. F.

211. A brief history of the geology of the Berkshires. (Reprinted from North Adams Transcript of December 24, 1906.) 8 pp., 3 figs.

Clement, J. K.

- The rôle of water in tremolite and certain other minerals.—See Allen and Clement, no. 12.

Clerc, F. L.

- The ore deposits of the Joplin region, Missouri.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 320-343, 1908.—See no. 507 of Bulletin 372, U. S. Geol. Survey.

Cockerell, Theodore Dru Alison.

212. A new plant (*Ficus*) from the Fox Hills Cretaceous [Colorado].—Univ. Colorado Studies, vol. 4, no. 3, pp. 149-152, April, 1907.

213. A redwood described as a moss.—Torreya, vol. 7, no. 10, pp. 203-204, October, 1907.

Considers *Hypnum haydenii* from Florissant, Colorado, to be the growing tips of *Sequoia*.

214. The fossil sawfly *Perga coloradensis*.—Science, new ser., vol. 27, pp. 113-114, January 17, 1908.

Proposes the new genus *Phenacoperga* for the insect from the Miocene shales of Florissant, Colorado, previously referred to *Perga*.

Cockerell, Theodore Dru Alison—Continued.

215. Descriptions of Tertiary Insects.—Am. Jour. Sci., 4th ser., vol. 25, pp. 51-52, 3 figs., January, 1908; pp. 227-232, 5 figs., March, 1908; pp. 309-312, 1 fig., April, 1908; vol. 26, pp. 69-75, 4 figs., July, 1908.

216. Fossil Cercopidæ (Homoptera).—Wisconsin Nat. Hist. Soc., Bull., vol. 6, nos. 1-2, pp. 35-38, 3 figs., April, 1908.

Discusses the characters of homopterous insects from the Miocene shales of Florissant, Colorado.

217. The fishes of the Rocky Mountain region.—Univ. Colorado Studies, vol. 5, no. 3, pp. 159-178, 9 figs., April, 1908.

Includes notes on fossil forms.

218. A fossil leaf-cutting bee.—Canadian Entomologist, vol. 40, no. 1, pp. 31-32, January, 1908.

Describes *Megachile prædicta* n. sp. from the Miocene shales of Florissant, Colorado.

219. Fossil Chrysopidæ.—Canadian Entomologist, vol. 40, no. 3, pp. 90-91, March, 1908.

Gives notes upon fossil insects from Florissant, Colorado. Supplements Scudder's description of *Palæochrysa vetuscula*.

220. Two fossil Diptera.—Canadian Entomologist, vol. 40, no. 6, pp. 173-175, 1 pl., June, 1908.

Describes *Microstylum wheeleri* n. sp., and *Dialysis revelata* n. sp. from the Miocene shales of Florissant, Colorado.

221. Fossil Osmylidæ (Neuroptera) in America.—Canadian Entomologist, vol. 40, no. 10, pp. 341-342, October, 1908.

Gives notes upon fossil insects from Florissant, Colorado. Proposes the new genus *Osmylidia* for *Osmylus requietus* Scudder.

222. The first American fossil Mantis.—Canadian Entomologist, vol. 40, no. 10, pp. 343-344, 1 pl., October, 1908.

Describes *Lithophotina floccosa* n. gen. and n. sp. from the Miocene of Florissant, Colorado.

223. A fossil Orthopterous insect with the media and cubitus fusing.—Entomological News, vol. 19, no. 3, pp. 126-128, March, 1908.

Describes *Palæorehnia maculata* n. gen. and n. sp. from the Miocene of Florissant, Colorado.

224. Descriptions of Tertiary plants.—Am. Jour. Sci., 4th ser., vol. 26, pp. 65-68, 2 figs., July, 1908; pp. 537-544, 9 figs., December, 1908.

The species described were collected from the Miocene shales of Florissant, Colorado. New names are proposed for several previously described Miocene forms.

225. Fossil Aphididæ from Florissant, Colorado.—Nature, vol. 78, pp. 318-319, August 6, 1908.

226. Florissant; a Miocene Pompeii.—Pop. Sci. Monthly, vol. 73, no. 2, pp. 112-126, 9 figs., August, 1908.

227. Some results of the Florissant expedition of 1908.—Am. Naturalist, vol. 42, pp. 569-581, 12 figs., September, 1908.

Gives notes upon various fossils obtained from Miocene shales near Florissant, Colorado.

228. Fossil insects from Florissant, Colorado.—Am. Mus. Nat., Hist., Bull. vol. 24, pp. 59-69, 1 pl., 1908.

229. The fossil flora of Florissant, Colorado.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 71-110, 5 pls., 1908.

230. A new locality for Miocene mammals.—Science, new ser., vol. 28, p. 683, November 13, 1908.

Describes the finding of remains of *Parahippus* in Middle Park, Colorado.

Cockerell, Theodore Dru Alison—Continued.

231. The Miocene species of *Lymanæa*.—*Nautilus*, vol. 22, no. 7, pp. 69–70, November, 1908.

Describes *Lymanæa florissantica* n. sp., from the Miocene of Florissant, Colorado.

232. A dragon-fly puzzle and its solution.—*Entomological News*, vol. 19, pp. 455–459, December, 1908.

Discusses the identification of a dragon-fly found in the Miocene shales of Florissant, Colorado.

Coleman, Arthur P.

233. The Sudbury nickel ores.—*Geol. Mag.*, dec. 5, no. 1, pp. 18–19, January, 1908.

Discusses the origin of the ores.

234. Glacial periods and their bearing on geological theories.—*Geol. Soc. America, Bull.*, vol. 19, pp. 347–366, 1908. Abstract: *Science*, new ser., vol. 27, p. 406, March 13, 1908.

235. Ancient ice ages and their bearing on astronomical theories.—*Roy. Astron. Soc., Canada, Jour.*, vol. 2, no. 3, pp. 132–135, 1908.

236. The lower Huronian ice age.—*Jour. Geology*, vol. 16, no. 2, pp. 149–158, 5 figs., 1908.

237. The causes of mountain forms in the Canadian Rockies.—*Canadian Alpine Jour.*, vol. 1, no. 2, pp. 224–231, 2 pls., 1908.

Coleman, Arthur P., assisted by **Moore, E. S.**

238. Iron ranges east of Lake Nipigon.—*Ontario Bur. Mines, Rept.*, vol. 17, pp. 136–169, 21 figs., 1908.

Describes the geology of the region.

Coll, H. E.

239. Coal mining in Pictou County, Nova Scotia.—*Eng. and Min. Jour.*, vol. 85, pp. 1101–1103, 4 figs., May 30, 1908.

Gives an account of the local geology and the occurrence and character of the coal seams.

Collier, Arthur J.

240. Tin ore at Spokane, Washington.—*U. S. Geol. Survey, Bull.* 340, pp. 295–305, 3 figs., 1908.

Describes the local geology, and the character and occurrence of tin ore.

Collier, Arthur J., **Hess, Frank L.**, **Smith, Philip S.**, and **Brooks, Alfred H.**

241. The gold placers of parts of Seward Peninsula, Alaska, including the Nome, Council, Kougarak, Port Clarence, and Goodhope precincts.—*U. S. Geol. Survey, Bull.* no. 328, 343 pp., 11 pls., 19 figs., 1908.

Collins, W. H.

242. Explorations along the National Transcontinental Railway location from Sturgeon River westward.—*Canada Geol. Survey, Summ. Rept.*, 1907, pp. 48–54, 1908.

Includes notes on the geology and mineral deposits of the area.

243. Report on a portion of northwestern Ontario traversed by the National Transcontinental Railway between Lake Nipigon and Sturgeon Lake.—*Canada Geol. Survey*, 1908, 23 pp., 3 pls., 1 fig., 1 map.

Describes the physiographic features and the occurrence, character, relations, and petrography of pre-Cambrian rocks.

244. Preliminary geological map of Gowganda mining division, district of Nipissing, Ontario. To illustrate preliminary report by W. H. Collins, 1908. Scale: 1 mile to 1 inch.—*Canada Geol. Survey, Publication* no. 1076, 1908.

Condit, D. D.

The Pomeroy coal in Ohio.—See Bownocker and Condit, no. 119.

Condra, George Evart.

245. Geology and water resources of a portion of the Missouri River Valley in northwestern Nebraska.—U. S. Geol. Survey, W.-S. Paper no. 215, 59 pp., 9 pls., 1908.

Conzatti, C.

246. Los yacimientos fosiliferos del Valle de Oaxaca.—Soc. cient. "Antonio Alzate," Mem. y Rev., t. 26, no. 10, pp. 353-358, 1 pl., April, 1908.

Gives notes upon Quaternary vertebrate fossils found in the State of Oaxaca, Mexico.

Cook, Edward H.

247. The saline deposits of Carmen Islands [Lower California].—Eng. and Min. Jour., vol. 85, pp. 545-546, 4 figs., March 14, 1908.

Includes notes on the local geology.

Cooper, W. F.

248. Pleistocene beaches of Saginaw County.—Michigan Acad. Sci., Tenth Rept., pp. 90-98, 1908. Michigan Miner, vol. 10, no. 6, pp. 9-13, May, 1908.

Cornish, Vaughan.

249. The Jamaica earthquake (1907).—Geog. Jour., vol. 31, no. 3, pp. 245-270, 10 figs., March, 1908.

Cowan, John F.

250. Turquoise mines of New Mexico.—Mineral Collector, vol. 15, no. 7, pp. 110-112, September, 1908.

Crandall, Roderic.

[The California earthquake of April 18, 1906.] The San Francisco Peninsula.—See Lawson, A. C., and others, no. 643.

Crane, Walter R.

251. Gold and silver, comprising an economic history of mining in the United States, the geographical and geological occurrence of the precious metals, with their mineralogical associations, history, and description of methods of mining and extraction of values, and a detailed discussion of the production of gold and silver in the world and the United States. New York, John Wiley & Sons, 1908. 727 pp., illus.

Crosby, William O.

252. Ore deposits of the eastern gold belt of North Carolina.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 19, pp. 171-178, January, 1908; Trans., vol. 38, pp. 849-856, 1908.

Describes the general geology, the different types of auriferous veins, the placers, and the conditions of occurrence of gold in several mines.

253. Outline of the geology of Long Island, New York.—New York Acad. Sci., Annals, vol. 18, pt. 3, pp. 425-429 (author's reprint, 1908). Abstract: Science, new ser., vol. 28, p. 936, December 25, 1908.

Discusses the geologic history of Long Island.

Cross, Whitman.

254. The Triassic portion of the Shinarump group, Powell.—Jour. Geology, vol. 16, no. 2, pp. 97-123, 1908.

255. Wind erosion in the plateau country.—Geol. Soc. America, Bull., vol. 19, pp. 53-62, 2 pls., March, 1908.

Describes the occurrence of a red soil in Colorado and Utah believed to have been formed from material transported by wind and the evidences of eolian erosion in Utah.

256. Laramie formation.—Abstract: Science, new ser., vol. 28, p. 128, July 24, 1908.

Culbertson, Glenn.

257. Some peculiarities in the valley erosion of Big Creek and tributaries.—Indiana Acad. Sci., Proc. 1907, pp. 101–103, 1 fig., 1908.

Cummings, Edgar R.

258. The stratigraphy and paleontology of the Cincinnati series of Indiana.—Indiana, Dept. Geol. and Nat. Res., 32d Ann. Rept., pp. 605–1188, 55 pls., 12 figs., 6 maps and sections, 1908.

Cummins, W. F.

259. The localities and horizons of Permian vertebrate fossils in Texas.—Jour. Geology, vol. 16, no. 8, pp. 737–745, 1908.

Cushing, H. P.

260. Lower portion of the Paleozoic section in northwestern New York.—Geol. Soc. America, Bull., vol. 19, pp. 155–176, 1 pl., 1 fig., July, 1908. Abstract: Science, new ser., vol. 27, p. 407, March 13, 1908.

Daggett, Ellsworth.

- The extraordinary faulting at the Berlin mine, Nevada.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 297–309, 6 figs., 1908.—See no. 619 of Bulletin 372, U. S. Geol. Survey.

Dale, T. Nelson.

261. The granites of Vermont.—Vermont, Sixth Rept. State Geologist, pp. 58–75, 1908.
262. The chief commercial granites of Massachusetts, New Hampshire, and Rhode Island.—U. S. Geol. Survey, Bull. 354, 228 pp., 9 pls., 27 figs., 1908.

Dall, William Healey.

263. Another large Miocene *Scala*.—Nautilus, vol. 22, no. 8, pp. 80–81, December, 1908.

Describes *Epitonium (Acrilla) atwoodi* n. sp. from the Miocene of Alaska.

Daly, Reginald A.

264. The mechanics of igneous intrusion (third paper).—Am. Jour. Sci., 4th ser., vol. 26, pp. 17–50, July, 1908.
265. The origin of augite andesite and of related ultra-basic rocks.—Jour. Geology, vol. 16, no. 5, pp. 401–420, 1908.

Dannenberg, A.

266. Beobachtungen an einigen Vulkanen Mexikos.—Naturh. Ver. preuss. Rheinlande und Westfalens, Verh., Jg. '64, pp. 97–133, 1 fig., 1908.

Describes observations on volcanoes of Mexico.

Darton, Nelson Horatio.

267. Paleozoic and Mesozoic of central Wyoming.—Geol. Soc. America, Bull., vol. 19, pp. 403–470, 10 pls., 1908.
268. Marble of White Pine County, Nevada, near Gandy, Utah.—U. S. Geol. Survey, Bull. 340, pp. 377–380, 2 figs., 1908.

Describes the geological relations, physical characters, and composition of the marble at the locality stated.

Darton, N. H., Bayley, W. S., Salisbury, R. D., and Kummel, H. B.

269. Description of the Passaic quadrangle, New Jersey–New York.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 157, 27 pp., 26 figs., 3 maps, and structure-section and illustration sheets, 1908.

Describes the topography and drainage, the occurrence, character, relations, and structure of pre-Cambrian, Ordovician, Silurian, Triassic, and igneous rocks and Cretaceous and Quaternary deposits, the economic products, and the underground water conditions.

Davis, Charles A.

270. Peat deposits as geological records.—Michigan Acad. Sci., Tenth Rept., pp. 107-112, 1908.

271. Physiography and geology of Walnut Lake [Michigan].—Michigan, State Bd. Geol. Survey, Rept., 1907, pp. 164-173, 1908.

Davis, Darrell H.

272. A study of river meanders on the Middle Rouge [Michigan].—Jour. Geology, vol. 16, no. 8, pp. 755-764, 6 figs., 1908.

Davis, William Morris.

273. Practical exercises in physical geography. Boston, Ginn & Company, 1908. 148 pp., and atlas of 45 pls.

274. Current notes on land forms: The peneplain of north central Wisconsin; Deflection of rivers by the earth's rotation; Deflected rivers in Australia.—Science, new ser., vol. 27, pp. 31-33, January 3, 1908.

275. Die Methoden der amerikanischen geographischen Forschung.—Internationale Wochenschrift für Wissenschaft, Kunst, und Technik, Berlin, November 14, 1908.

An address given at the University of Berlin, November 4, 1908, on the methods of American geographical investigation from a geomorphological standpoint.

Day, Arthur L.

276. Geology and radioactive substances.—Science, new ser., vol. 28, pp. 526-527, October 16, 1908.

Presents an outline of a paper by Dr. George F. Becker (see no. 81).

Dean, Bashford.

277. Chimaeroid fishes and their development. Published by the Carnegie Institution of Washington, Publication no. 32, 1906. 194 pp., 11 pls., 143 figs.

Includes a discussion of the relationships and ancestry of fossil Chimaeroids.

278. Studies on fossil fishes during the year 1907.—Science, new ser., vol. 27, pp. 201-205, February 7, 1908.

Reviews the progress of studies upon the origin and evolution of fishes.

Deere, E. O.

279. A fossil tusk found in the Equus beds in McPherson County [Kansas].—Kansas Acad. Sci., Trans., vol. 21, pt. 1, pp. 115-117, 2 figs., 1908.

De Kalb, Courtenay.

280. Diffusion as a factor in ore deposition.—Min. and Sci. Press, vol. 96, pp. 226-227, February 15, 1908.

Geology of the Exposed Treasure lode, Mojave, California.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 310-319, 3 figs., 1908.—See no. 702 of Bulletin 372, U. S. Geol. Survey.

Delestry, Edmond Louis.

281. Formations west of Platte River, Wisconsin.—Min. World, vol. 28, p. 758, May 9, 1908.

Calls attention to faulting in zinc-bearing formations.

Del Mar, Algernon.

282. Rawhide, Nevada.—Eng. and Min. Jour., vol. 85, pp. 853-854, 2 figs., April 25, 1908.

Gives a short account of the local geology and the occurrence and character of the gold ores.

Depéret, Charles.

283. The evolution of the Tertiary mammals and the importance of their migrations.—*Am. Naturalist*, vol. 42, pp. 109-114, 166-170, 303-307, 1908.

DeWolf, Frank W.

284. Coal investigations in the Saline-Gallatin field, Illinois, and the adjoining area.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 211-229, 1908.

Describes the stratigraphy and geologic structure of the field, and the occurrence and character of the coals.

285. Coal investigations in Saline and Williamson counties, Illinois.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 230-245, 2 pls., 1 fig., 1908.

Describes the stratigraphy and structure of the field, and the occurrence and character of the coals.

286. The coal resources of Illinois.—*Am. Inst. Min. Eng., Bi-Mo. Bull.* no. 24, pp. 1103-1112, 1 fig., November, 1908.

Includes a general account of the structure and stratigraphy of the Illinois coal field, and the distribution and character of the workable seams.

287. Recent work on the Illinois coal field.—*Abstract: Science*, new ser., vol. 27, pp. 958-959, June 19, 1908.

Notes on the Belleville-Breese area.—See Udden and DeWolf, no. 1067.

Dickerson, Roy E.

288. Whitney Creek, its glaciation and present form.—*California Phys. Geog. Club, Bull.*, vol. 2, no. 1, pp. 15-21, December, 1908.

Diller, Joseph Silas.

289. Strata containing the Jurassic flora of Oregon.—*Geol. Soc. America, Bull.*, vol. 19, pp. 367-402, 4 figs., 1908.

Discusses the correlation of Mesozoic formations in California and Oregon upon the evidence of their floras and faunas.

290. Placer mines of the Riddles quadrangle, Oregon.—*U. S. Geol. Survey, Bull.* 340, pp. 147-151, 1908.

291. Geology of the Taylorsville region, California.—*U. S. Geol. Survey, Bull.* 353, 128 pp., 5 pls., 12 figs., 1908.

292. Strata containing the Jurassic flora of Oregon.—*Abstract: Science*, new ser., vol. 27, pp. 410-411, March 13, 1908.

293. Local silicification of the Knoxville.—*Abstract: Science*, new ser., vol. 27, p. 411, March 13, 1908.

Mineral resources of the United States, 1907: Asbestos.—See no. 1072.

Dinsmore, Charles A.

294. The Moctezuma copper deposit in Mexico.—*Min. World*, vol. 29, pp. 475-478, 3 figs., September 26, 1908.

Includes notes on the geology and occurrence of copper ores of the Pilarès mine at Nacozari, Sonora, Mexico.

295. The new gold camp of Sylvanite, New Mexico.—*Min. World*, vol. 29, pp. 670-671, October 31, 1908.

Dodds, Gideon S.

296. Geology and physiography of the mesas near Boulder, Colorado.—*Univ. Colorado, Studies*, vol. 6, no. 1, pp. 11-19, 4 figs., 1908.

Douglass, Earl.

297. Vertebrate fossils from the Fort Union beds.—*Carnegie Mus., Annals*, vol. 5, no. 1, pp. 11-26, 2 pls., 1908.

298. Rhinoceroses from the Oligocene and Miocene deposits of North Dakota and Montana.—*Carnegie Mus., Annals*, vol. 4, pp. 256-266, 2 pls., 7 figs., 1908.

Douglass, Earl—Continued.

299. Fossil horses from North Dakota and Montana.—Carnegie Mus., Annals, vol. 4, pp. 267–277, 4 pls., 1908.
300. Some Oligocene lizards.—Carnegie Mus., Annals, vol. 4, pp. 278–285, 8 figs., 1908.

Dowling, D. B.

301. Explorations in the Rocky Mountains.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 32–34, 1908.
302. Classification of coal.—Canadian Min. Inst., Jour., vol. 11, pp. 220–230, 1908.
303. Classification of coals by the split volatile ratio.—Canadian Min. Jour., vol. 29, no. 8, pp. 143–146, April 15, 1908.

Dresser, John A.

304. Report on the copper deposits of the eastern townships of Quebec with a review of the igneous rocks of the district.—Canada, Geol. Survey, 38 pp., 1 map, 1907.
Describes the character and occurrence of the copper deposits in southeastern Quebec, and the petrography of the associated igneous rocks.
305. The serpentine belt of the eastern townships [Quebec].—Canada, Geol. Survey, Summ. Rept., 1907, pp. 72–73, 1908.
Gives notes upon the geology of the serpentine belt of Quebec.
306. Report on a recent discovery of gold near Lake Megantic, Quebec.—Canada, Dept. Mines, Geol. Survey Branch, 13 pp., 2 maps, 1908.
307. A recent discovery of gold near Lake Megantic, Quebec.—Canadian Min. Jour., vol. 29, no. 11, pp. 234–235, June 1, 1908.
Describes the local geology and the occurrence and source of gold.

Drushel, J. Andrew.

308. Glacial drift under the Saint Louis loess.—Jour. Geology, vol. 16, no. 6, pp. 493–498, 3 figs., 1908.
Describes the occurrence of glacial drift in the city of St. Louis, Mo.

Dryer, Charles R.

309. The Honeoye-Irondequoit kame moraine.—Abstract: Science, new ser., vol. 27, p. 731, May 8, 1908.
310. Glacial Lake Bloomfield [New York].—Abstract: Science, new ser., vol. 27, p. 731, May 8, 1908.

Dumble, Edwin T.

311. Tertiary deposits of northeastern Mexico.—Science, new ser., vol. 27, p. 273, February 14, 1908.

Durst, Fred M.

312. Glacial cirques, Mt. Whitney region.—California Phys. Geog. Club, Bull., vol. 2, no. 1, pp. 8–14, 3 figs., December, 1908.

Eakle, Arthur S.

313. Recent volcanic eruptions in Bering Sea.—Min. and Sci. Press, vol. 96, p. 353, 1 fig., March 14, 1908.
314. Notes on some California minerals.—California Univ., Dept. Geology, Bull., vol. 5, no. 14, pp. 225–233, 2 pls., November, 1908.

Eastman, Charles R.

315. Notice of a new coelacanth fish from the Iowa Kinderhook.—Jour. Geology, vol. 16, no. 4, pp. 357–362, 1 fig., 1908.
Describes *Cœlacanthus welleri* n. sp.
316. Devonian fishes of Iowa.—Iowa Geol. Survey, vol. 18, pp. 29–386, 16 pls., 41 figs., 1908.

Eaton, H. N.

317. Micro-structure and probable origin of flint-like slate near Chapel Hill, North Carolina.—Elisha Mitchell Sci. Soc., Jour., vol. 24, no. 1, pp. 1-8, May, 1908.

318. Micropegmatite at Chapel Hill [North Carolina].—Elisha Mitchell Sci. Soc., Jour., vol. 24, no. 3, pp. 104-105, 1908.

Eckel, Edwin C.

- Mineral resources of the United States, 1907: Iron; cement industry; lime and sand-lime brick.—See no. 1072.

Edson, George E.

319. Geology of the town of Swanton.—Vermont, Sixth Rept. State Geologist, pp. 210-220, 1 fig., 1908.

Ells, R. W.

320. Surveys in southern New Brunswick.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 74-76, 1908.

Outlines his work upon the geology of New Brunswick during the field season 1907.

321. The geology and mineral resources of New Brunswick.—Canada, Dept. Mines, Geol. Survey Branch, 135 pp., 1 map, 1908.

322. Report on the landslide at Notre-Dame de la Salette, Lièvre River, Quebec.—Canada, Dept. Mines, Geol. Survey Branch, 10 pp., 7 pls., 1908.

323. The carbonaceous and bituminous minerals of New Brunswick.—Canadian Min. Inst., Jour., vol. 11, pp. 204-219, 1908.

324. The oil fields of eastern Canada.—Nova Scotian Inst. Sci., Proc. and Trans., vol. 11, pt. 4, pp. 598-622, 1908.

Elmendorf, William J.

325. The White Horse copper belt in the Yukon.—Min. World, vol. 28, pp. 55, 209-210, 253, 335, 1908.

Emerson, B. K.

326. Distribution of diabase in Massachusetts.—Science, new ser., vol. 28, pp. 318-319, September 4, 1908.

Emmons, William H.

327. Geology of the Haystack stock, Cowles, Park County, Montana.—Jour. Geology, vol. 16, no. 3, pp. 193-229, 3 figs., 1908.

Describes the general geology of the region and the petrographic characters of the constituent rocks of the stock and discusses their genesis.

328. A genetic classification of minerals.—Econ. Geology, vol. 3, no. 7, pp. 611-627, 1908.

329. Secondary enrichment in Granite-Bimetallic mine, Philipsburg, Montana.—Abstract: Science, new ser., vol. 27, p. 925, June 12, 1908.

330. Gold deposits of the Little Rocky Mountains, Montana.—U. S. Geol. Survey, Bull. 340, pp. 96-116, 3 figs., 1908.

Describes the geology, the general character, structural relations, and minerals of the ore deposits, the genesis of the ores, and the mining developments.

Engeln, Oscar D. von.

331. The use of a wet laboratory in physiography teaching.—New York, State Educ. Dept., Bull. no. 431, pp. 44-49, September 15, 1908.

Describes laboratory apparatus for teaching physiographic processes.

- Representation of land forms in the physiography laboratory.—See Tarr and Engeln, no. 1042.

Erni, Henry, and Brown, Amos P.

332. Mineralogy simplified. Easy methods of identifying minerals, including ores, by means of the blow-pipe, by flame reactions, by humid chemical analysis, and by physical tests. Fourth edition. Philadelphia, Henry Carey Baird & Co., 1908. 414 pp., 123 figs.

Evans, Horace F.

333. Nickel Plate mines on Striped Mountain, British Columbia.—*Min. World*, vol. 28, p. 63, January 11, 1908.

Gives notes on the geology of the Similkameen Valley.

334. Reconnaissance into Okanogan Mountains, Washington.—*Min. World*, vol. 28, pp. 99-100, 254, 334, 449, 527, 595, 638, 672, 725, 1908.

335. The correlation of the international strata.—*Min. World*, vol. 28, pp. 795-796, 951-952, vol. 29, pp. 17, 245, 319-320, 1908.

336. The copper deposits of Lake Osoyoos, Washington.—*Min. World*, vol. 29, pp. 361-362, 4 figs., September 5, 1908.

Evans, N. Norton, and Bancroft, J. Austen.

337. On the occurrence of gedrite in Canada.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 509-512, June, 1908.

Eve, A. S., and McIntosh, D.

338. The amount of radium present in typical rocks in the immediate neighborhood of Montreal.—*The London, Edinburgh, and Dublin Phil. Mag.*, 6th ser., vol. 14, pp. 231-237, August, 1907.

Everette, Willis Eugene.

339. The geology of the Klondike.—*Sci. Am. Suppl.*, vol. 65, pp. 14-16, January 4, 1908.

340. Genesis of the formation and deposition of the Nevada desert gold, silver, and copper mines.—*Sci. Am. Suppl.*, vol. 65, p. 61, 1 fig., January 25, 1908.

Discusses the occurrence and geologic relations of the ore bodies.

341. Formation of mineral veins.—*Sci. Am. Suppl.*, vol. 65, pp. 287-288, May 2, pp. 302-303, May 9, pp. 318-319, 1 fig., May 16, 1908.

Fairchild, Herman L.

342. Pleistocene history of the Genesee Valley in the Portage district.—*New York State Mus., Bull.* 118, pp. 70-88, 1 pl., 1908.

343. Arched structure in Lockport limestone.—*Abstract: Science*, new ser., vol. 27, p. 729, May 8, 1908.

Faribault, E. Rodolphe.

344. Lunenburg County, Nova Scotia.—*Canada, Geol. Survey, Summ. Rept.*, 1907, pp. 78-83, 1908.

Describes briefly various geological features of the area.

Farrington, Oliver Cummings.

345. Correlation of copper and diamonds in the glacial drift of the Great Lakes region.—*Abstract: Science*, new ser., vol. 27, p. 729, May 8, 1908.

Farrington, Oliver Cummings, and Tillotson, Edwin Ward, jr.

346. Notes on various minerals in the museum collection.—*Field Columbian Mus., Geol. Ser.*, vol. 3, no. 7, pp. 131-163, 11 pls., 6 figs., 1908.

Fay, Albert Hill.

Geology and mining of the tin deposits of Cape Prince of Wales, Alaska.—*Am. Inst. Min. Eng., Trans.*, vol. 38, pp. 664-682, 11 figs., 1908.—See no. 856 of Bulletin 372, U. S. Geol. Survey.

Fenneman, N. M.

347. Some features of erosion by unconcentrated wash.—*Jour. Geology*, vol. 16, no. 8, pp. 746-754, 1908.

Fenner, C. N.

348. Features indicative of physiographic conditions prevailing at the time of the trap extrusions in New Jersey.—*Jour. Geology*, vol. 16, no. 4, pp. 299-327, 16 figs., 1908.
349. Notes on the geology of the first Watchung trap sheet.—*Abstract: New York Acad. Sci., Annals*, vol. 18, pt. 2, pp. 359-360, 1908.
Discusses trap extrusions in New Jersey.

Ferguson, Henry G., and Turgeon, Fremont N.

350. An occurrence of Harney granite in the northern Black Hills.—*Harvard Coll., Mus. Comp. Zool., Bull.*, vol. 49 (Geol. Ser., vol. 8, no. 5), pp. 275-283, 3 pls., February, 1908.

Finlay, George Irving.

351. Colorado Springs. A guide book describing the rock formations in the vicinity of Colorado Springs.—*The Out West Company, Colorado Springs, Colo.* 61 pp., 42 pls., 1 map [1906].

Finlay, J. R.

352. Lead and zinc ores in Missouri.—*Eng. and Min. Jour.*, vol. 86, pp. 605-610, 1 fig., September 26, 1908.

Fisher, Cassius A.

353. Giant Springs at Great Falls, Montana.—*Geol. Soc. America, Bull.*, vol. 19, pp. 339-346, 1 pl., 1 fig., 1908.
Describes the geologic structure in the vicinity of the springs and discusses the source of the water.
354. Southern extension of the Kootenai and Montana coal-bearing formations in northern Montana.—*Econ. Geol.*, vol. 3, no. 1, pp. 77-99, 1908.
355. Clays in the Kootenai formation near Belt, Montana.—*U. S. Geol. Survey, Bull.* 340, pp. 417-423, 1 pl., 1908.
Describes the occurrence, geologic relations, and character of the clays.

Fletcher, Hugh.

356. Summary report on explorations in Nova Scotia, 1907.—*Canada, Dept. Mines, Geol. Survey Branch*, 15 pp., 1908.

Flett, John S.

357. Petrographical notes on the products of the eruptions of May, 1902, at the Soufrière in St. Vincent.—*Royal Soc. London, Phil. Trans., Ser. A.* vol. 208, pp. 305-332, 2 pls., 1908.

Flint, George M.

358. Gahnite from Charlemont, Mass.—*Am. Jour. Sci.*, 4th ser., vol. 26, p. 584, December, 1908.

Flynn, F. N.

359. Metallurgical conditions at Cobalt, Ontario, Canada, 1908.—*Canadian Min. Inst., Jour.*, vol. 11, pp. 293-334, 1908.
Includes notes on the occurrence and character of the cobalt-silver ores.

Foos, F. Julius.

360. Fluorspar deposits of Kentucky, with notes on the production, mining, and technology of the mineral in the United States; also some data concerning barite deposits.—*Kentucky Geol. Survey, Bull.* no. 9, 296 pp., 26 pls., 1907.

Ford, W. E.

361. Stephanite crystals from Arizpe, Sonora, Mexico.—Am. Jour. Sci., 4th ser., vol. 25, pp. 244-248, 5 figs., March, 1908. *Zeitschr. Krystal. und Mineral.*, Bd. 45, H. 4, pp. 321-325, 6 figs., 1908.

Describes the occurrence and crystallographic features of stephanite from Arizpe, Mexico.

Ford, W. E., and Tillotson, E. W., jr.

362. On orthoclase twins of unusual habit.—Am. Jour. Sci., 4th ser., vol. 26, pp. 149-154, 6 figs., August, 1908.

Forstner, William.

363. Copper deposits in the western foothills of the Sierra Nevada.—Min. and Sci. Press, vol. 96, pp. 743-748, 1 fig., May 30, 1908.

364. The genesis of the copper ores in Shasta County, west of the Sacramento River.—Min. and Sci. Press, vol. 97, pp. 261-262, August 22, 1908.

Fowke, Gerard.

365. Surface deposits along the Mississippi between the Missouri and the Ohio Rivers.—Missouri Historical Society Collections, vol. 3, no. 1, pp. 31-52, 4 pls., 1908.

Describes glacial and other quaternary deposits in the vicinity of St. Louis, Mo., Grand Tower, Ill., and Thebes, Ill., and indicates drainage changes and their cause.

Fritsch, Anton.

366. *Miscellanea Palæontologica. I. Palæozoica.* Prag, 1907. 23 pp., 12 pls.

Includes descriptions of the following American forms: *Proscorpius osborni* Whitfield, from the Silurian of New York; *Palæocampa anthrax* Meek and Worthen; *Propolynoe laccoei* Fritsch; *Hesionites bioculata* Fritsch; and *Latzelia primordialis* Seudder, from Mazon Creek, Illinois.

Froehling & Robertson.

367. A handbook on the minerals and mineral resources of Virginia. Prepared for the Virginia Commission to the St. Louis Exposition. Richmond, Virginia [1904]. 159 pp., illus.

Fuller, John T.

368. Report on the property of the Arkansas Diamond Company, 38 pp., 1908.

Includes an account of the geology of the locality in Pike County, Arkansas, where diamonds have been found.

Fuller, Myron L.

369. Summary of the controlling factors of artesian flows.—U. S. Geol. Survey, Bull. no. 319, 44 pp., 7 pls., 17 figs., 1908. Abstract: Geol. Soc. America, Bull., vol. 18, pp. 626-634, 1908.

Gale, Hoyt S.

370. Gold placer deposits near Lay, Routt County, Colorado.—U. S. Geol. Survey, Bull. 340, pp. 84-95, 1 fig., 1908.

Describes the general geology, the distribution of auriferous deposits, and the character and source of the gold.

371. Carnotite and associated minerals in western Routt County, Colorado.—U. S. Geol. Survey, Bull. 340, pp. 256-262, 1908.

Describes the geologic structure and stratigraphy of the region and the occurrence and character of the ores.

372. Geology of the Rangely oil district, Rio Blanco County, Colorado, with a section on the water supply.—U. S. Geol. Survey, Bull. 350, 61 pp., 4 pls. (incl. maps), 1 fig., 1908.

Describes the stratigraphy and structure of the field and the character and occurrence of oil. Discusses the correlation of Cretaceous and Tertiary formations of western Colorado,

Ganong, W. F.

373. Notes on the natural history and physiography of New Brunswick.—New Brunswick, Nat. Hist. Soc., Bull., no. 26 (vol. 6, pt. 1), pp. 17-39, 2 maps, 1908.

Gardner, James H.

374. The physical origin of certain concretions.—*Jour. Geology*, vol. 16, no. 5, pp. 452-458, 1 fig., 1908.

Garrey, George H.

Economic geology of the Georgetown quadrangle, Colorado.—See Spurr and Garrey, no. 1008.

Ore deposits of the Velardeña district, Mexico.—See Spurr and Garrey, no. 1009.

Garrison, F. Lynwood.

375. Zinc and lead deposits of southwestern Missouri.—*Min. and Sci. Press*, vol. 96, pp. 291-294, 325-328, 6 figs., 1908.

Gibson, Thomas W.

376. Report of the [Ontario] Bureau of Mines, 1908, vol. 17, 356 pp., illus., 1908.

Gidley, James Williams.

377. Descriptions of two new species of Pleistocene ruminants of the genera *Ovibos* and *Boötherium*, with notes on the latter genus.—*U. S. Nat. Mus., Proc.*, vol. 34, pp. 681-684, 3 pls., 1 fig., 1908.

Describes *Ovibos yukonensis* n. sp. from Alaska and *Boötherium sargenti* n. sp. from Michigan.

378. Notes on a collection of fossil mammals from Virgin Valley, Nevada.—*California Univ., Dept. Geology, Bull.*, vol. 5, no. 15, pp. 235-242, 9 figs., December, 1908.

The material consists principally of fossil horse remains.

Gilbert, Grove Karl.

379. Lake ramparts.—*Sierra Club Bulletin*, vol. 6, no. 4, pp. 225-234, 1 pl., 4 figs., January, 1908.

Explains the origin of lake ramparts.

380. The United States Geological Survey's hydraulic laboratory at Berkeley, California.—*Abstract: Science*, new ser., vol. 27, p. 469, March 20, 1908.

Outlines briefly experimentation to determine quantitatively the laws controlling the transportation of detritus by running water.

381. Transportation of detritus by Yuba River.—*Abstract: Geol. Soc. America, Bull.*, vol. 19, pp. 657-659, 1908.

382. Evolution of Niagara Falls.—*Science*, new ser., vol. 28, pp. 148-151, July 31, 1908.

[The California earthquake of April 18, 1906. The earth movement on the fault of April, 1906], Tomales Bay to Bolinas Lagoon.—See Lawson, A. C., and others, no. 643.

Gilbert, J. Z.

383. Ancestors of our whales. Miocene.—*Southern California Acad. Sci., Bull.*, vol. 7, no. 1, pp. 20-22, 2 pls., January, 1908.

Describes the remains of a Miocene whale found at Los Angeles, California.

Gilder, Robert F.

384. The Nebraska loess man.—*Records of the Past*, vol. 6, pt. 2, pp. 35-39, 5 figs., February, 1907.

Gilmore, Charles W.

385. Smithsonian exploration in Alaska in 1907 in search of Pleistocene fossil vertebrates.—Smithsonian Misc. Coll., vol. 51, pp. 1-38, 13 pls., 1908.

Describes exploration for fossil vertebrate remains in Alaska, the localities where fossils were found, and the fossils collected.

Girty, George H.

386. The Guadalupian fauna.—U. S. Geol. Survey, Prof. Paper 58, 651 pp., 31 pls., 1908.

387. On some new and old species of Carboniferous fossils.—U. S. Nat. Mus., Proc., vol. 34, pp. 281-303, 8 pls., 1908.

Goldschmidt, V., and Wright, F. E.

388. Ein Projections-Transporteur.—Zeitschr. Krystal und Mineral., Bd. 45, H. 6, pp. 569-572, 3 figs., 1908.

Describes an apparatus for the construction of gnomonic and stereographic projections of crystals.

Goldthwait, James Walter.

389. A reconstruction of water planes of the extinct glacial lakes in the Lake Michigan basin.—Jour. Geol., vol. 16, no. 5, pp. 459-476, 1 pl., 5 figs., 1908. Abstract: Science, new ser., vol. 27, pp. 724-725, May 8, 1908.

390. The altitude of the Algonquin beach and its significance.—Abstract: Science, new ser., vol. 28, pp. 382-383, September 18, 1908.

Physical geography of the Evanston-Waukegan region.—See Atwood and Goldthwait, no. 41.

Gould, Charles N.

391. The Oklahoma Geological Survey.—Science, new ser., vol. 28, p. 438, October 2, 1908.

Describes briefly the organization and the field work of the season.

392. Notes on the oil and gas industry of Oklahoma.—Min. World, vol. 29, pp. 807-809, November 28, 1908.

393. The coal resources of Oklahoma.—Min. World, vol. 29, p. 880, 1 fig., December 12, 1908.

394. The tripoli deposits in Oklahoma.—Min. World, vol. 29, p. 922, December 19, 1908.

Gould, Charles N., Hutchison, L. L., and Nelson, Gaylord.

395. Preliminary report on the mineral resources of Oklahoma.—Oklahoma Geol. Survey, Bull. no. 1, 84 pp., 11 figs., 1908.

Grabau, Amadeus W.

396. Discovery of the Schoharie fauna in Michigan.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, p. 267, 1908.

Notes the occurrence in the basal portion of the Dundee formation in the Mackinaw region of the Schoharie fauna.

397. Notes on the character and origin of the Pottsville formation of the Appalachian region.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, p. 294, 1908.

398. The scenery and geology of the gorges and falls [of central New York].—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, pp. 322-323, 1908.

Discusses the drainage of central New York in late Tertiary time and the evidences indicating the drainage southward.

399. The Sylvania sandstone, a study in paleogeography.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, p. 344, 1908.

Gives notes upon the stratigraphy of southern Michigan.

Grabau, Amadeus W.—Continued.

- 400. A revised classification of the North American Siluric system.—Abstract: Science, new ser., vol. 27, pp. 622–623, April 17, 1908.
- 401. Notes on the Traverse group of Michigan.—Abstract: Science, new ser., vol. 27, p. 726, May 8, 1908.
- 402. Preglacial drainage in central-western New York.—Science, new ser., vol. 28, pp. 527–534, October 16, 1908.
- 403. Continental formations of the North American Paleozoic.—Abstract: Science, new ser., vol. 28, p. 936, December 25, 1908.
A new Siluric fauna from Michigan.—See Sherzer and Grabau, no. 968.

Grabau, Amadeus W., and Sherzer, William H.

- 404. Devonian elements in the late Siluric fauna of southern Michigan.—Abstract: Science, new ser., vol. 27, p. 726, May 8, 1908.

Graham, T. C.

- 405. Mining camp of Topia, State of Durango, Mexico.—Min. World, vol. 29, pp. 157–159, 2 figs., August 1, 1908.
Describes the occurrence of silver-lead deposits.

Granger, Walter.

- 406. A revision of the American Eocene horses.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 221–264, 4 pls., 5 figs., 1908.

Grant, Madison.

- 407. The origin and relationship of the large mammals of North America.—New York Zool. Soc., 8th Ann. Rept., pp. 182–207, 1904.

Grant, Ulysses S., and Perdue, M. J.

- 408. Milbrig sheet of the lead and zinc district of northern Illinois.—Illinois State Geol. Survey, Bull. no. 8, pp. 335–343, 1 pl., 1 fig., 1 geol. map, 1908.
Gives an outline of the geology of the area and discusses the occurrence of the lead and zinc ores.

Gratacap, L. P.

- 409. The state museum of minerals at Atlanta, Georgia.—Mineral Collector, vol. 15, no. 9, pp. 129–132, November, 1908.

Graton, Louis Caryl.

- Mineral resources of the United States, 1907: Copper.—See no. 1072.

Greene, F. C.

- 410. Fauna of the Florena shale of the Grand Summit section of Kansas, and remarks on the development of *Derbya multistriata* Meek and Hayden.—Indiana Acad. Sci., Proc. 1907, pp. 114–127, 3 pls., 1908.
- 411. The development of a Carboniferous brachiopod, *Chonetes granulifer* Owen.—Jour. Geology, vol. 16, no. 7, pp. 654–663, 4 pls., 1908.

Greger, Darling K.

- 412. A new Devonian brachiopod retaining the original color markings.—Am. Jour. Sci., 4th ser., vol. 25, pp. 313–314, 7 figs., April, 1908.
Describes *Cranæna morsii* n. sp.

Gregory, J. W.

- 413. Geology of the inner earth; igneous ores.—Smithsonian Inst., Ann. Rept., 1907, pp. 311–330, 1908. Sci. Am. Suppl., vol. 65, pp. 158–160, March 7, 1908.
- 414. Niagara as a geological chronometer.—Nature, vol. 79, pp. 11–12, November 5, 1908.

Griggs, Jorge.

415. Mines of Chihuahua, 1907: History, geology, statistics, mining companies directory, 349, xii pp., illus., [1907(?)].

Grimsley, G. P.

416. Limestone in West Virginia.—Eng. and Min. Jour., vol. 85, p. 1144, June 6, 1908.

Grinnell, Fordyce, jr.

417. Quaternary myriopods and insects of California.—California, Univ., Dept. Geology, Bull., vol. 5, no. 12, pp. 207-215, 2 pls., 1908.

Describes Quaternary Arthropoda from Potter Creek and Samwel caves and from asphalt beds near Los Angeles.

Griswold, W. T.

418. Structure of the Berea oil sand in the Flushing quadrangle, Harrison, Belmont, and Guernsey counties, Ohio.—U. S. Geol. Survey, Bull. 346, 28 pp., 2 pls., 1908.

Describes the stratigraphic geology of the quadrangle, the method employed to determine the horizon of the Berea oil sand, and the structural conditions controlling the occurrence of oil.

Grout, Frank F.

419. The oxidation of pyrite.—Econ. Geology, vol. 3, no. 6, pp. 532-534, 1908.
420. The classification of low-grade coals.—Econ. Geology, vol. 3, no. 7, pp. 647-649, 1908.

Gulliver, F. P.

421. Graded surfaces.—Abstract: Geol. Soc. America, Bull., vol. 18, pp. 609-610, 1908.

Discusses nomenclature for use in physiographic descriptions.

422. Ice present during the formation of glacial terraces.—Abstract: Geol. Soc. America, Bull., vol. 18, pp. 640-641, 1908.

Guppy, R. J. Lechmere.

423. On some fossil shells from Comparo Road, Trinidad.—Geol. Mag., dec. 5, vol. 5, no. 10, pp. 471-472, October, 1908.
424. On the cement-producing materials of Naparima, Trinidad.—Geol. Mag., dec. 5, vol. 5, no. 10, pp. 472-473, October, 1908.

Gwillim, J. C.

425. A partial bibliography of publications referring to the geology and mineral industry of Alberta, British Columbia, and the Yukon.—Canadian Min. Inst., Jour., vol. 11, pp. 433-444, 1908. Canadian Min. Jour., vol. 29, pp. 210-211, 242-243, 1908.

Haanel, Eugene.

426. Summary report of the Mines Branch of the Department of Mines [of Canada] for the fiscal year 1907-8, 100 pp., 1 fig., 1908.

Report on the mining and metallurgical industries of Canada, 1907-8.—See no. 175.

Hadley, Arthur T.

427. James Dwight Dana.—Pop. Sci. Monthly, vol. 70, pp. 306-308, 1 pl. (port.), April, 1907.

Haertter, John H.

428. The southern anthracite coal field [Pennsylvania].—Eng. and Min. Jour., vol. 85, pp. 653-656, 8 figs., March 28, 1908.

Hall, Charles M.

429. A brief history of glacial Lake Agassiz.—North Dakota, Agric. Coll. Survey, 2d Bienn. Rept., pp. 27-30, 1904.

Hall, Christopher W.

430. The red sandstone series of southeastern Minnesota.—Abstract: Science, new ser., vol. 27, p. 722, May 8, 1908.

Harboe, E. G.

431. Das Erdbeben von Charleston am 31. August 1886.—Beiträge zur Geophysik (Gerland), Bd. 9, Heft 1, pp. 105-110, 1 pl., 1907.

Discusses earthquake lines of the Charleston, South Carolina, earthquake.

Harder, Edmund Cecil.

The iron ores of the Iron Springs district, southern Utah.—See Leith and Harder, no. 657.

Mineral resources of the United States, 1907: Manganese.—See no. 1072.

Hardman, John E.

432. A new iron ore field in the Province of New Brunswick.—Canadian Min. Inst., Jour., vol. 11, pp. 156-164, 1908. Canadian Min. Jour., vol. 29, pp. 303-305, 336-337, 1908.

Harper, Joseph H.

433. The San Francisco earthquake of April 18, 1906.—Assoc. Eng. Soc., Jour., vol. 40, pp. 87-101, February, 1908.

Harrington, B. J.

434. Isomorphism as illustrated by certain varieties of magnetite.—Mineral. Mag., vol. 14, pp. 373-377, 1907.

Harris, Gilbert Dennison.

435. [The salt domes of Louisiana and Texas.]—Abstract: Science, new ser., vol. 27, pp. 347-348, February 28, 1908.

436. Note on the "Lafayette beds" of Louisiana.—Science, new ser., vol. 27, p. 351, February 28, 1908.

437. Salt in Louisiana, with special reference to its geologic occurrence.—Louisiana, Geol. Survey, Bull. no. 7, pp. 5-59, 22 pls., 12 figs., 1908.

438. Domes; or, structural peculiarities of the salt-bearing localities of Louisiana and southeast Texas.—Louisiana, Geol. Survey, Bull. no. 7, pp. 59-83, 1908.

Discusses the structure of the domes, and the various explanations offered in regard to their structure, origin, and distribution.

Harris, G. D., assisted by Maury, C. J., and Reinecke, L.

439. Rock salt, its origin, geological occurrences, and economic importance in the State of Louisiana, together with brief notes and references to all known salt deposits and industries of the world.—Louisiana, Geol. Survey, Bull. no. 7, 259 pp., 48 pls., 21 figs., 1908.

Harrison, J. B.

440. Geological formation of Barbados.—Barbados, Bulletin Publishing Co., 1908, 16 pp.

Hartnagel, C. A.

Iron ores of the Clinton formation in New York State.—See Newland and Hartnagel, no. 762.

Hastings, John B.

441. Primary gold in a Colorado granite.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 21, pp. 311-317, 1 fig., May, 1908.
442. Origin of pegmatite.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 21, pp. 319-343, May, 1908.
443. Volcanic waters.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 21, pp. 345-354, May, 1908. Abstract: Min. and Sci. Press, vol. 97, pp. 229-231, August 15, 1908.
444. Association of magnetite with sulphides in mineral deposits.—Min. and Sci. Press, vol. 97, pp. 333-334, 358-359, 1908.

Hatch, F. H.

445. The classification of the plutonic rocks.—Science Progress, vol. 3, no. 10, pp. 244-264, 8 figs., October, 1908.
- Includes notes upon and analyses of American rocks.

Haworth, Erasmus.

446. Prospecting for oil and gas.—Am. Min. Congr., Rept. of Proc., 10th Ann. Sess., pp. 247-255, 1908. Abstract: Min. World, vol. 28, pp. 25-26, January 4, 1908.
- Discusses the conditions of occurrence of petroleum and natural gas and their origin.

Haworth, Erasmus, and Bennett, John.

447. The nomenclature of the Kansas coal measures employed by the Kansas state geological survey.—Kansas Acad. Sci., Trans., vol. 21, pt. 1, pp. 71-85, 1908.

Hay, Oliver Perry.

448. Descriptions of five species of North American fossil turtles, four of which are new.—U. S. Nat. Mus., Proc., vol. 35, pp. 161-169, 2 pls., 3 figs., 1908.
449. On certain genera and species of carnivorous dinosaurs, with special reference to *Ceratosaurus nasicornis* Marsh.—U. S. Nat. Mus., Proc., vol. 35, pp. 351-366, 4 figs., 1908.
450. Dr. W. J. Holland on the skull of *Diplodocus*.—Science, new ser., vol. 28, pp. 517-519, October 16, 1908.
451. On the habits and pose of the sauropodous dinosaurs, especially of *Diplodocus*.—Am. Naturalist, vol. 42, pp. 672-681, October, 1908.
452. The fossil turtles of North America.—Carnegie Institution of Washington, Publication no. 75, 568 pp., 113 pls., 704 figs., 1908.

Hayes, Charles Willard.

453. Introduction to contributions to economic geology, 1907, Part I.—U. S. Geol. Survey, Bull. 340, pp. 7-11, 1908.
- A brief statement in regard to publications of the U. S. Geological Survey on economic geology.
454. Investigations relating to nonmetallic mineral resources.—U. S. Geol. Survey, Bull. 340, pp. 12-17, 1908.
- A brief statement of work in progress on economic resources by the U. S. Geological Survey.

Hayes, C. W., and Lindgren, Waldemar.

455. Contributions to economic geology, 1907, Part I. Metals and nonmetals, except fuels.—U. S. Geol. Survey, Bull. 340, 482 pp., 6 pls., 26 figs., 1908.
- The papers in this bulletin have been listed under the individual authors. Interspersed with the papers are lists of the Survey publications on various economic products.

Hayes, C. W., and Phalen, W. C.

456. A commercial occurrence of barite near Cartersville, Georgia.—U. S. Geol. Survey, Bull. 340, pp. 458–462, 1 fig., 1908.

Describes the geology, and the occurrence and character of the barite deposit.

457. Graphite deposits near Cartersville, Georgia.—U. S. Geol. Survey, Bull. 340, pp. 463–465, 1908.

Hayford, John F.

458. The earth a failing structure.—Sci. Am. suppl., vol. 65, pp. 121–123, February 22, 1908. Abstract: Science, new ser., vol. 27, pp. 695–697, May 1, 1908.

Hayward, A. A.

459. Salt: its history, occurrence, and manufacture.—Nova Scotia, Min. Soc., Jour., vol. 11, pp. 99–116, 1908.

Headden, William P.

460. Meteoric iron from Currant Creek, Colorado.—Colorado Sci. Soc., Proc., vol. 9, pp. 79–80, 1908.

Heikes, V. C.

Notes on the Fort Hall mining district, Idaho.—See Weeks and Heikes, no. 1119.

Heilprin, Angelo.

461. The eruption of Pelée, a summary and discussion of the phenomena and their sequels. Philadelphia, 1908. 72 pp., 43 pls.

Henderson, Junius.

462. Scientific expedition to northeastern Colorado. Paleontology. Account of collections made.—Univ. Colorado Studies, vol. 4, no. 3, pp. 149–152, April, 1907.

Gives notes upon various fossils and the localities from which obtained and lists of the species identified.

463. The red beds of northern Colorado.—Jour. Geology, vol. 16, no. 6, pp. 491–492, 1908.

Discusses the stratigraphic position and correlation of the red beds of Colorado, which are determined as Carboniferous.

464. The sandstone of Fossil Ridge in northern Colorado and its fauna.—Univ. Colorado Studies, vol. 5, no. 3, pp. 179–192, 3 figs., April, 1908.

Discusses the stratigraphic position and evidences for its correlation with the Hygiene sandstone of Boulder district.

465. New species of Cretaceous invertebrates from northern Colorado.—U. S. Nat. Mus., Proc., vol. 34, pp. 259–264, 1 pl., 1908.

Henning, Karl L.

466. Der Carnotite.—Globus, Bd. 93, no. 10, pp. 155–157, March 12, 1908.

Discusses the occurrence of carnotite in various parts of Colorado.

467. Streifzüge in den Rocky Mountains. Der Mittelpark und der Gore Canyon.—Globus, Bd. 93, no. 20, pp. 312–318, 5 figs., May 28, 1908.

Includes notes upon the physiographic features and geology of Middle Park and Gore Canyon, Colorado.

468. Die geologische Landesdurchforschung der Vereinigten Staaten von Nordamerika während der letzten Jahrzehnte.—Globus, Bd. 94, no. 22, pp. 341–346, December 10, 1908.

Reviews the work of the U. S. Geological Survey, with particular reference to its publications.

Hermann, Adam.

469. Modern methods of excavating, preparing, and mounting fossil skeletons.—Am. Naturalist, vol. 42, pp. 43–47, January, 1908.

Herrick, R. L.

470. Mining and reduction of Ely ores.—*Mines and Minerals*, vol. 29, no. 1, pp. 22-25, 2 figs.; no. 2, pp. 80-84, 6 figs., 1908.

Describes the geology of the Ely, Nevada, mining district and the occurrence, character, and relations of the copper deposits.

471. Routt County, Colorado, coals.—*Mines and Minerals*, vol. 29, no. 5, pp. 230-234, 4 figs., December, 1908.

Hershey, Oscar H.

472. Mining in Panama.—*Min. and Sci. Press*, vol. 96, pp. 255-256, 1 fig., February 22, 1908.

Includes notes on the geology of Panama.

473. Primary chalcocite in California.—*Min. and Sci. Press*, vol. 96, pp. 429-430, March 28, 1908.

Gives notes on the occurrence of copper ores in California.

474. Foothill copper belt of the Sierra Nevada.—*Min. and Sci. Press*, vol. 96, pp. 591-592, May 2; vol. 97, pp. 322-323, September 5, 1908.

475. Amarilla iron and phosphate deposits [Eureka County, Nevada].—*Min. and Sci. Press*, vol. 97, pp. 535-536, October 17, 1908.

Includes a short account of the local geology and the occurrence, character, and origin of the iron and phosphate deposits.

Hess, Frank L.

476. The Baringer Hill (Texas) pegmatite dike.—*Abstract: Science*, new ser., vol. 27, p. 537, April 3, 1908.

477. Placers of the Rampart region [Alaska].—*U. S. Geol. Survey, Bull.* no. 337, pp. 64-98, 1 pl., 1 fig., and 1 map, 1908.

478. Some molybdenum deposits of Maine, Utah, and California.—*U. S. Geol. Survey, Bull.* 340, pp. 231-240, 1908.

479. The Arkansas antimony deposits.—*U. S. Geol. Survey, Bull.* 340, pp. 241-252, 1 fig., 1908.

Describes the local geology and the occurrence and character of the ore bodies.

480. Note on a tungsten-bearing vein near Raymond, California.—*U. S. Geol. Survey, Bull.* 340, p. 271, 1908.

481. Minerals of the rare-earth metals at Baringer Hill, Llano County, Texas.—*U. S. Geol. Survey, Bull.* 340, pp. 286-294, 1908.

482. The magnesite deposits of California.—*U. S. Geol. Survey, Bull.* 355, 67 pp., 12 pls., 4 figs., 1908.

The gold placers of Seward Peninsula, Alaska.—See Collier and others, no. 241.

Mineral resources of the United States, 1907: Antimony; tungsten, nickel, cobalt, etc.; tin; arsenic; graphite.—See no. 1072.

Hibbard, V. H.

483. The water supply of the Tower quadrangle [North Dakota].—*North Dakota, Agric. Coll. Survey*, 2d Bienn. Rept., pp. 152-157, 1904.

484. Description of the plateau region of North Dakota.—*North Dakota, Agric. Coll. Survey*, 3d Bienn. Rept., pp. 133-142, 7 pls., 1906.

Describes the physiographic characters of the region.

The Quaternary (drift) formations of the Tower quadrangle.—See Willard and Hibbard, no. 1158.

Late glacial and post-glacial deposits of the Sheyenne and Maple rivers.—See Willard and Hibbard, no. 1159.

A peculiar type of hills.—See Willard and Hibbard, no. 1160.

Higgins, Edwin.

485. Stripping Clinton iron ore in New York State.—Eng. and Min. Jour., vol. 86, pp. 1150-1152, 5 figs., December 12, 1908.

Includes notes on the Clinton formation in New York, and the character and occurrence of the ores.

Hilgard, Eugene W.

486. Biographical memoir of Joseph Le Conte, 1823-1901. (Read before the National Academy of Sciences, April 18, 1907.) Washington, 1906.—[Nat. Acad. Sci., Biog. Mem., vol. 6, pp. 147-218, 1 pl. (port.).]

Includes a list of his writings.

Hill, Robert T.

487. Growth and decay of the Mexican Plateau.—Eng. and Min. Jour., vol. 85, pp. 681-688, 12 figs., April 4, 1908.
488. The geology of the Sierra Almaloya, Mexico.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, p. 328, 1908.
489. The Goldfield [Nevada] type of ore occurrence.—Eng. and Min. Jour., vol. 86, pp. 1096-1099, 2 figs., December 5, 1908.

Discusses the character, mode of occurrence, and geologic relations of the Goldfield ores.

490. A scientific search for a new gold field.—Eng. and Min. Jour., vol. 86, pp. 1157-1160, 6 figs., December 12, 1908.

Discusses the general geology of Nevada and its relation to the occurrence of ore deposits.

491. Camp Alunite, a new Nevada gold district.—Eng. and Min. Jour., vol. 86, pp. 1203-1206, 4 figs., December 19, 1908.

Describes the geology in the vicinity of Camp Alunite in Lincoln County, Nevada.

Hille, F.

492. Contribution to the discussion on the genesis of the graphite in Argenteuil and Labelle counties, in the Province of Quebec.—Can. Min. Jour., vol. 29, pp. 361-363, August 1, 1908.
493. [Iron ores of Ontario].—Canadian Min. Jour., vol. 29, pp. 247-249, June 1; no. 19, pp. 506-508, October 1, 1908.
494. Report on the examination of some iron ore deposits in the districts of Thunder Bay and Rainy River, Province of Ontario.—Canada, Dept. Mines, Mines Branch, 1908. 65 pp., 12 pls., 13 figs.

Hitchcock, C. H.

495. Geology of the Hanover, N. H., quadrangle.—Vermont, Sixth Rept. State Geologist, pp. 139-186, 15 pls., 1 fig., 1908.
496. Glacial lake, Memphremagog.—Abstract: Geol. Soc. America, Bull., vol. 18, pp. 641-642, 1908.
497. News from Kilauea.—Science, new ser., vol. 28, pp. 19-20, July 3, 1908.
498. Local geology of Hanover, New Hampshire.—Abstract: Science, new ser., vol. 28, pp. 381-384, September 18, 1908.

Hitchcock, C. H., and Patten, W.

499. Studies of the tracks of *Climaticnites*.—Abstract: Science, new ser., vol. 28, p. 382, September 18, 1908.

Hixon, Hiram W.

500. A theory of ore deposition.—Min. and Sci. Press, vol. 96, pp. 800-801, June 13, 1908.
501. Waters, meteoric and magmatic.—Min. and Sci. Press, vol. 97, pp. 82-83, July 18, 1908.
502. The origin of coal.—Eng. and Min. Jour., vol. 86, pp. 238-239, August 1, 1908.

Hobbs, William Herbert.

503. A study of the damage to bridges during earthquakes.—*Jour. Geology*, vol. 16, no. 7, pp. 636-653, 23 figs., 1908.
504. Earth movements in the Laurentian basin since its occupation by the ice.—*Abstract: Science*, new ser., vol. 27, p. 725, May 8, 1908.
505. Apparatus for instruction in geography and structural geology.—*Scottish Geog. Mag.*, vol. 24, no. 12, pp. 643-652, 8 figs., December, 1908.
- The earthquake of 1872 in the Owens Valley, California.—See Johnson and Hobbs, no. 564.

Hodge, James M.

506. Summary of report on the region drained by the three forks of the Kentucky River.—*Kentucky Geol. Survey, Report of Progress for 1906 and 1907*, pp. 36-45, 1908.

Includes an account of the distribution and character of the coal beds in this area.

Holland, W. J.

507. An undetermined element in the osteology of the Mosasauridæ.—*Carnegie Mus., Annals*, vol. 4, pp. 162-167, 5 figs., 1908.
508. A preliminary account of the Pleistocene fauna discovered in a cave opened at Frankstown, Pennsylvania, in April and May, 1907.—*Carnegie Mus., Annals*, vol. 4, pp. 228-233, 2 pls., 1 fig., 1908.
509. *Baptanodon* not a "toothless" ichthyosaur.—*Science*, new ser., vol. 27, pp. 191-192, January 31, 1908.
510. Dr. O. P. Hay on the skull of *Diplodocus*.—*Science*, new ser., vol. 28, pp. 644-645, November 6, 1908.

Hollick, Arthur.

511. Drift boulders from the shore at Tottenville.—*Staten Island Assoc. Arts and Sci., Proc.*, vol. 2, pt. 1, p. 9, 1908.
- Gives a list of fossils found in drift boulders on Staten Island, N. Y.
512. Discovery of lignitic and bituminous coal at Kreischerville.—*Staten Island Assoc. Arts and Sci., Proc.*, vol. 2, pt. 1, p. 13, 1908.
- Records the discovery of a small deposit of coal of no economic value in Cretaceous clay on Staten Island, N. Y.
513. Chemical analysis of Cretaceous amber from Kreischerville [Staten Island, N. Y.].—*Staten Island Assoc. Arts and Sci., Proc.*, vol. 2, pt. 1, p. 34, 1908.
514. The museum collection of fossil plants.—*New York Botanical Garden, Jour.*, vol. 9, pp. 214-226, 2 figs., December, 1908.

Hopkins, Thomas C.

515. General structural and economic features of the Indiana oolitic limestone.—*Indiana, Dept. Geol. and Nat. Res.*, 32d Ann. Rept., pp. 310-335, 1908.

Hore, Reginald E.

516. Origin of cobalt-silver ores of northern Ontario.—*Econ. Geology*, vol. 3, no. 7, pp. 599-610, 1908. *Canadian Min. Inst., Jour.*, vol. 11, pp. 275-286, 1908. *Min. and Sci. Press*, vol. 97, pp. 874-876, 1 fig., December 26, 1908. *Abstract: Canadian Min. Jour.*, vol. 29, no. 13, pp. 300-301, July 1, 1908.

Hotchkiss, W. O.

517. A table of index of refraction and birefringence of rock-making minerals.—*Jour. Geology*, vol. 16, no. 5, pp. 421-427, 1 pl., 1908.

Hovey, Edmund Otis.

518. The Albuquerque geological meeting. A résumé of the proceedings.—*Sci. Am. Suppl.*, vol. 65, pp. 126-127, February 22, 1908.
- Gives an account of the meeting of the Geological Society of America at Albuquerque, New Mexico, December 30 and 31, 1907, and abstracts of papers presented.

Hovey, Edmund Otis—Continued.

519. The Geological Society of America.—*Science*, new ser., vol. 27, pp. 405-413, March 13, 1908.

Gives an account of the twentieth annual meeting held at Albuquerque, New Mexico, December 30 and 31, 1907, and titles and abstracts of papers presented.

520. The petroleum and manjak industry of Barbados.—*Min. World*, vol. 29, pp. 237-238, August 15, 1908.

Includes notes on the geology of the island and on the occurrence of oil.

521. Ten days in camp on Mt. Pelé, Martinique. The volcano six years after the great eruption.—*Am. Geog. Soc., Bull.*, vol. 40, pp. 662-679, 11 figs., November, 1908.

522. The Chester, New York, mastodon.—*New York Acad. Sci., Annals*, vol. 18, pt. 2, p. 147, 1 pl., 1908.

523. Notes on the geology and geography of the western Sierra Madre [Mexico].—Abstract: *New York Acad. Sci., Annals*, vol. 18, pt. 2, pp. 266-267, 1908.

524. Volcanoes of Colima, Toluca, and Popocatepetl.—Abstract: *Geol. Soc. America, Bull.*, vol. 18, p. 635, 2 pls., 1908.

525. Notes on the volcanoes of Toluca, Colima, and Popocatepetl.—Abstract: *New York Acad. Sci., Annals*, vol. 18, pt. 2, p. 314, 1908.

Hovey, Horace C.

526. Recent explorations in Mammoth Cave, with a revised map of the cave.—Abstract: *Science*, new ser., vol. 28, p. 381, September 18, 1908.

Howe, Ernest.

527. The geology of the Isthmus of Panama.—*Am. Jour. Sci.*, 4th ser., vol. 26, pp. 212-237, September, 1908.

528. Panama stratigraphy.—Abstract: *Science*, new ser., vol. 27, p. 959, June 19, 1908.

Howell, Edwin E.

529. Two new meteorites.—*Science*, new ser., vol. 27, pp. 27-28, January 3, 1908.

Names and describes meteorites from near Ainsworth, Nebr., and Williamstown, Ky.

530. Description of the Williamstown meteorite.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 49-50, 1 fig., January, 1908.

531. The Ainsworth meteorite.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 105-107, 1 fig., February, 1908.

Hubbard, George D.

532. Some high-level terraces in southeastern Ohio.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 108-112, February, 1908.

Explains the origin of various terraces.

533. Ancient finger lakes in Ohio.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 239-243, 2 figs., March, 1908.

534. Two notable landslides.—*Ohio Naturalist*, vol. 8, no. 5, pp. 287-289, March, 1908.

Describes landslides near Waverly and in Monroe County, Ohio.

535. Stream diversion near Lakeville, Ohio.—*Ohio Naturalist*, vol. 8, no. 7, pp. 349-355, 1 fig., May, 1908.

536. Rock terraces along the streams near Columbus, Ohio.—*Ohio Naturalist*, vol. 9, no. 2, pp. 397-403, December, 1908.

Huene, Friedrich von.

537. Die Dinosaurier der europäischen Triasformation mit Berücksichtigung der aussereuropäischen Vorkommnisse.—*Geologische und palaeontologische Abhandlungen (Koken)*, Supplement-Band 1, xii, 419 pp., 111 pls., 351 figs., 1907-1908.

Includes notes on the occurrence of American forms and comparisons with foreign forms. On p. 317 gives a table of the Newark red series by Schuchert.

Huene, F. R. von, and Lull, R. S.

538. On the Triassic reptile *Hallopus victor* Marsh.—Am. Jour. Sci., 4th ser., vol. 25, pp. 113-118, 6 figs., February, 1908.

539. Neubeschreibung des Originals von *Nanosaurus agilis* Marsh.—Neues Jahrb., Bd. 1, Heft 3, pp. 134-144, 1 pl., 10 figs., July, 1908.

Redescribes the original material upon which *Nanosaurus agilis* Marsh is based.

Hunter, A. F.

540. Shore-lines between Georgian Bay and the Ottawa River.—Canada, Geol. Survey, Summ. Rept., 1907, p. 55, 1908.

Huntington, Ellsworth.

541. Coincident activities of the earth and the sun.—Pop. Sci. Monthly, vol. 72, pp. 492-502, 17 figs., June, 1908. Abstract: Science, new ser., vol. 28, pp. 575-576, October 23, 1908.

Presents, with explanations, curves illustrating coincident volcanic, seismic, and solar phenomena.

Hus, Henri.

542. An ecological cross section of the Mississippi River in the region of St. Louis, Missouri.—Missouri Botanical Garden, 19th Ann. Rept., pp. 127-258, 12 pls., 1908.

Includes a general account of the geology of the region and its physiographic features.

Hussakof, Louis.

543. Catalogue of the type and figured specimens of fossil vertebrates in the American Museum of Natural History. Part I. Fishes.—Am. Mus. Nat. Hist., Bull., vol. 25, pp. 1-103, 6 pls., 49 figs., 1908.

544. Review of Devonian fishes of the New York formations, by C. R. Eastman.—Science, new ser., vol. 28, pp. 311-313, September 4, 1908.

Discusses the relationships of the Arthrodira.

Hutchins, John Power.

545. Prospecting and mining gold placers in Alaska.—U. S. Geol. Survey, Bull. 345, pp. 54-77, 1908.

Hutchison, L. L.

Preliminary report on the mineral resources of Oklahoma.—See Gould and others, no. 395.

Hyde, Jesse E.

546. Desiccation conglomerates in the coal measures limestone of Ohio.—Am. Jour. Sci., 4th ser., vol. 25, pp. 400-408, 1 fig., May, 1908.

Describes the occurrence of an intraformational conglomerate and discusses the mode of its formation.

547. *Camarophorella*, a Mississippian meristelloid brachiopod.—Boston Soc. Nat. Hist., Proc., vol. 34, no. 3, pp. 35-65, 5 pls., 1908.

Describes *Camarophorella mutabilis* n. sp., from the Waverly of Sciotoville, Ohio, and discusses its structural features and relationships.

Iddings, Joseph P.

548. Memoir of Samuel Lewis Penfield.—Geol. Soc. America, Bull., vol. 18, pp. 572-582, 1 pl. (port.), 1908.

Includes a list of his writings.

Ingall, Elfric Drew.

549. Note on a system of conventional signs for mineral occurrence maps.—Canadian Min. Inst., Jour., vol. 11, pp. 487-503, 1908.

Ingalls, Walter Renton.

550. Lead and zinc in the United States, comprising an economic history of the mining and smelting of the metals and the conditions which have affected the development of the industries.—New York, Hill Publishing Co., 1908, 368 pp.

Includes an account of their occurrence.

Irvine, C. D.

551. The beach placers of the south Pacific coast.—*Min. World*, vol. 29, pp. 321-322, August 29, 1908.
552. Fine gold of Snake River, Idaho.—*Min. World*, vol. 29, p. 916, December 19, 1908.

Discusses the source of the placer gold.

Irving, John Duer.

553. The localization of values or occurrence of shoots in metalliferous deposits.—*Econ. Geology*, vol. 3, no. 2, pp. 143-154, 1908.

Jaggard, Thomas Augustus, jr.

554. Experiments illustrating erosion and sedimentation.—*Harvard Coll., Mus. Comp. Zool., Bull.*, vol. 49 (Geol. ser., vol. 8, no. 6), pp. 285-305, 6 pls., 5 figs., March, 1908.
555. A theory of ore deposition: Discussion of a review by F. L. Ransome, of paper by J. E. Spurr.—*Econ. Geology*, vol. 3, no. 6, pp. 529-532, 1908.
556. The evolution of Bogoslof Volcano.—*Am. Geog. Soc., Bull.*, vol. 40, pp. 385-400, 8 figs., July, 1908. Abstract: *Science*, new ser., vol. 28, p. 575, October 23, 1908.

Jennings, E. P.

557. Secondary copper ores of the Ludwig mine, Yerington, Nevada.—*Canadian Min. Inst., Jour.*, vol. 11, pp. 463-466, 1908.

Includes notes on the local geology.

Jensen, Joseph, and others.

558. Some salient features of the geology of Newhouse, Utah, and vicinity, 35 pp., 1908. (Presented . . . for the degree of Bachelor of Science in Mining Engineering at the University of Utah.)

Describes the stratigraphy and structural features of the region, the petrographic characters of igneous and metamorphic rocks, and the occurrence and relations of silver-lead, copper, and iron ores.

Johannsen, Albert.

559. A key for the determination of rock-forming minerals in thin sections. New York, John Wiley & Sons, 1908. 542 pp., 106 figs., 1 pl.
560. Notes on the igneous rocks of western Arizona.—*U. S. Geol. Survey, Bull.* 352, pp. 81-92, 1908.

Johnson, B. L.

561. Contributions to the geology of Rhode Island: Notes on the history and geology of Iron Mine Hill, Cumberland.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 1-12, 1 fig., January, 1908.

Johnson, Douglas Wilson.

562. The origin of beach cusps.—Abstract: *Science*, new ser., vol. 28, p. 574, October 23, 1908.

Johnson, Douglas Wilson, and Matthes, François E.

563. The relation of geology to topography. Reprinted from "Principles and Practice of Surveying," vol. 2, chap. 7, by Charles B. Breed and George L. Hosmer. New York, John Wiley & Sons, 1908. Pp. 246-266, 14 figs.

Johnson, H. R.

The so-called volcano in the Santa Monica Mountains, near Los Angeles, California.—See Arnold and Johnson, no. 33.

Johnson, Willard D., and Hobbs, W. H.

564. The earthquake of 1872 in the Owens Valley, California.—Abstract: Science, new ser., vol. 27, p. 723, May 8, 1908.

Johnston, W. A.

565. Peterborough and Simcoe sheets.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 56–58, 1908.

Includes various geological data upon this portion of Ontario.

Joly, John.

566. Uranium and geology.—Nature, vol. 78, pp. 456–466, September 10, 1908. Science, new ser., vol. 28, pp. 697–713, 737–743, 1908. Sci. Am. Suppl., vol. 66, pp. 318, 358–359, 1908.

Jones, Fayette A.

567. Epitome of the economic geology of New Mexico. Published by direction of the New Mexico Bureau of Immigration, 1908. 47 pp.

568. Sylvanite, New Mexico, the new gold camp.—Eng. and Min. Jour., vol. 86, pp. 1101–1103, 5 figs., December 5, 1908.

Describes the geology of the district and the character and occurrence of the ores.

Jones, J. Claude.

569. Drainage about Springfield.—Illinois State Geol. Survey, Bull. no. 8, pp. 68–71, 1 fig., 1908.

Gives physiographic notes upon the area, and discusses its preglacial condition.

Jordan, David Starr.

570. Note on a fossil stickleback fish from Nevada.—Smithsonian Misc. Coll., vol. 52 (Quart. Issue, vol. 5, pt. 1), p. 117, 1908.

Notes that *Gasterosteus williamsoni leptosomus* Hay is a synonym of *Gasterosteus doryssus* Jordan, described under the name *Merriamella doryssa* Jordan.

Judd, Edward K.

571. An arsenic mine in Putnam County, New York.—Eng. and Min. Jour., vol. 85, p. 306, February 8, 1908.

Julien, Alexis A.

572. On determination of mineral constitution through recasting of analyses.—New York Acad. Sci., Annals, vol. 18, pt. 2, pp. 129–146, 1908. Abstract: Science, new ser., vol. 28, p. 351, September 11, 1908.

573. Evidence of the stability of the rock foundations of New York City.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, pp. 328–329, 1908.

574. On the pebbles at Harwick (Cape Cod), Mass., and on rude arrowheads found among them.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, pp. 343–344, 1908.

Describes the composition of pebbles in the glacial deposits and their source.

575. A study of the mineral constitution of the chloritic group termed delessite.—Abstract: Science, new ser., vol. 27, pp. 623–624, April 17, 1908.

Kay, G. F.

576. Gold-quartz mines of the Riddles quadrangle, Oregon.—U. S. Geol. Survey, Bull. 340, pp. 134–147, 1 fig., 1908.

Describes the geology, the ore deposits, and the mines.

577. Notes on copper prospects of the Riddles quadrangle, Oregon.—U. S. Geol. Survey, Bull. 340, p. 152, 1908.

Keffer, Frederic.

578. Mining in the Boundary district of British Columbia.—*Inst. Min. Eng. (England)*, Trans., vol. 35, pp. 580-588, 1908.

Describes the occurrence and composition of copper ores.

Keller, Hermann A.

579. The Copper River district, Alaska.—*Eng. and Min. Jour.*, vol. 85, pp. 1273-1278, 13 figs., June 27, 1908.

Describes the geology of the district and the occurrence of the copper ores.

Kemp, James Furman.

580. Geology. A lecture delivered at Columbia University, November 13, 1907. New York, The Columbia University Press, 1908. 35 pp.—*School of Mines Quart.*, vol. 29, no. 2, pp. 125-148, January, 1908. Abstract: *Min. and Sci. Press*, vol. 96, pp. 497-500, 533-536, 1908; *Sci. Am. Suppl.*, vol. 65, pp. 345-346, May 30, 1908.

581. The Mineville-Port Henry mine group.—*New York State Mus.*, Bull. 119, pp. 57-88, 5 pls., 10 figs., 1908.

Describes the geology of the region, the occurrence, character and relations of the iron-ore bodies, and the mines in the vicinity of Port Henry, N. Y.

582. Waters, meteoric and magmatic.—*Min. and Sci. Press*, vol. 96, pp. 705-708, May 23, 1908.

Discusses the part taken by the two kinds of underground water in the deposition of ores.

583. Buried channels beneath the Hudson and its tributaries.—*Am. Jour. Sci.*, 4th ser., vol. 26, pp. 301-323, 18 figs., October, 1908.

584. Present trend of investigation on underground waters.—Abstract: *Science*, new ser., vol. 28, p. 352, September 11, 1908.

Discusses the depth of water of meteoric origin.

585. The production of low-grade copper ore in the West.—Abstract: *Science*, new ser., vol. 28, p. 936, December 25, 1908.

Kemp, J. F., and Gunther, C. G.

- The White Knob copper deposits, Mackay, Idaho.—*Am. Inst. Min. Eng.*, Trans., vol. 38, pp. 269-296, 14 figs., 1908.—See no. 1372 of Bulletin 372, U. S. Geol. Survey.

Keyes, Charles Rollin.

586. Genesis of the Lake Valley silver deposits.—*Am. Inst. Min. Eng.*, Bi-Mo. Bull., no. 19, pp. 1-31, 8 figs., January, 1908.

Describes the general geologic features, the geologic formations represented, the geologic structure, the relations of the ore bodies, and the character and origin of the ores.

587. Rock-floor of intermont plains of the arid region.—*Geol. Soc. America*, Bull., vol. 19, pp. 63-92, 1 pl., 7 figs., May, 1908.

Discusses the detrital character of the intermont plains in the arid regions of the Southwest, the mode of formation of these plains, the relative importance of various erosional agencies in this work, and the geographical cycle in an arid climate.

588. Geotectonics of the Estancia Plains [New Mexico].—*Jour. Geology*, vol. 16, no. 5, pp. 434-451, 12 figs., 1908.

589. Arid monadnocks.—*Jour. Geol.*, vol. 7, no. 2, pp. 30-33, October, 1908.

Discusses eolian erosion in arid regions.

590. Geographic distribution of lead and zinc deposits of the Mississippi Valley.—*Eng. and Min. Jour.*, vol. 86, pp. 1004-1005, November 21, 1908.

Discusses the geology of the Ozark uplift with reference to the ore deposits.

591. Eolian origin of certain lake basins of the Mexican tableland.—*Iowa Acad. Sci., Proc.*, vol. 15, pp. 137-141, 1908.

Keyes, Charles Rollin—Continued.

592. Stratigraphic position of western red beds.—*Iowa Acad. Sci., Proc.*, vol. 15, pp. 143-144, 1908.
593. Some relations of the older and younger tectonics of the Great Basin region.—*Abstract: Iowa Acad. Sci., Proc.*, vol. 15, pp. 145-146, 1908.

Kindle, Edward M.

594. Occurrence of the Silurian fauna in western America.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 125-129, February, 1908. *Abstract: Science*, new ser., vol. 27, p. 348, February 28, 1908.
595. Geologic reconnaissance of the Porcupine Valley, Alaska.—*Geol. Soc. America, Bull.*, vol. 19, pp. 315-338, 1 fig., 1908.
596. The fauna and stratigraphy of the Jefferson limestone in the northern Rocky Mountain region.—*Bulletins of Amer. Paleontology*, vol. 4, no. 20, 39 pp., 4 pls., June 5, 1908.
- Paleozoic and associated rocks of the upper Yukon, Alaska.—See Brooks and Kindle, no. 139.

Kinney, B. A.

597. Report of the state natural gas supervisor for the year 1907.—*Indiana, Dept. Geol. and Nat. Res.*, 32d Ann. Rept., pp. 587-603, 1908.

Klotz, Otto.

598. Earthquakes and the interior of the earth.—*Roy. Astron. Soc. Canada, Jour.*, vol. 2, no. 2, pp. 51-69, 1908.

Knight, Cyril W.

599. The annual meeting of the Geological Society of America, at Albuquerque, New Mexico.—*Canadian Min. Jour.*, vol. 29, no. 3, pp. 675-679, 5 figs., February 1, 1908.
- Granville-Hastings unconformity.—See Miller and Knight, no. 748.

Knight, Nicholas.

600. The decomposition of dolomite.—*Iowa Acad. Sci., Proc.*, vol. 15, pp. 107-108, 1908.
601. Some Iowa waters.—*Iowa Acad. Sci., Proc.*, vol. 15, pp. 109-110, 1908.
- Gives analyses of waters from wells and springs.

Knopf, Adolph.

602. The Seward Peninsula tin deposits.—*U. S. Geol. Survey, Bull.* 345, pp. 251-267, 3 figs., 1908.
- Describes the occurrence, geologic relations, and economic importance of tin deposits at various localities in Seward Peninsula, Alaska.
603. The mineral deposits of the Lost River and Brooks Mountain region, Seward Peninsula, Alaska.—*U. S. Geol. Survey, Bull.* 345, pp. 268-271, 1908.
- Describes occurrences of silver-lead, tungsten-lead, and copper deposits.
604. Geology of the Seward Peninsula tin deposits, Alaska.—*U. S. Geol. Survey, Bull.* 358, 71 pp., 9 pls., 7 figs., 1908.
605. Wolframite-topaz ore from Alaska.—*Abstract: Science*, new ser., vol. 27, p. 924, June 12, 1908.

Knopf, Adolph, and Schaller, Waldemar T.

606. Two new boron minerals of contact-metamorphic origin.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 323-331, 2 figs., April, 1908.
- The new minerals, named hulsite and paigeite, were found in Alaska.

Knowlton, Frank Hall.

607. Description of new fossil liverwort from the Fort Union beds of Montana.—*U. S. Nat. Mus., Proc.*, vol. 35, pp. 157-159, 1 pl., 1908.

Knox, H. H.

608. Diffusion as a factor in ore deposition.—*Min. and Sci. Press*, vol. 97, pp. 149–150, August 1, p. 421, September 26, 1908.

Köhler, H.

609. Die Vulcane von Colima.—*Prometheus*, Berlin, Jahrg. 17, pp. 214–219, 2 figs., 1906.

Describes the volcano Colima in the State of Jalisco, Mexico.

Kraus, Edward H.

610. Interpretation of the chemical composition of the mineral benitoite.—*Science*, new ser., vol. 27, pp. 710–711, May 1, 1908.

Kümmel, Henry B.

611. Iron ore in New Jersey.—*Eng. and Min. Jour.*, vol. 85, p. 1193, June 13, 1908.

612. Administrative report [of the state geologist].—*New Jersey, Geol. Survey, Ann. Rept. for 1907*, pp. 3–19, 1908.

613. Notes on the mineral industry, with mineral statistics [New Jersey].—*New Jersey Geol. Survey, Ann. Rept. for 1907*, pp. 169–181, 1908.

614. Paleozoic sedimentary rocks of the Franklin Furnace quadrangle, New Jersey.—*U. S. Geol. Survey, Geol. Atlas U. S.*, folio no. 161, pp. 10–12, 1908.

Description of the Passaic quadrangle, New Jersey-New York.—See Darton and others, no. 269.

Kunz, George F.

615. [The cause of the San Francisco earthquake.]—Abstract: *New York Acad. Sci., Annals*, vol. 18, pt. 2, pp. 289–290, 1908.

Suggests the filling of Salton Sink by water from the Colorado River as a possible or contributory cause of the San Francisco earthquake.

Kunz, George F., and Washington, Henry S.

616. Diamonds in Arkansas.—*Am. Inst. Min. Eng., Bi-Mo. Bull.* no. 20, pp. 187–194, March, 1908. *Mines and Minerals*, vol. 28, no. 12, pp. 552–553, July, 1908. *Min. World*, vol. 28, p. 443, March 14, 1908.

Describes the local geology, the character of the peridotite, and the occurrence and character of the diamonds.

Lacroix, A.

617. La Montagne Pelée après ses éruptions. Ouvrage publié par l'Académie des Sciences. Paris, 1908. 136 pp., 83 figs.

Describes the history of Mont Pelé subsequent to the eruptions of 1902. Includes a discussion of the formation of volcanic domes and of certain rock types.

La Forge, Laurence.

618. The structure of the marble belt of Fannin County, Georgia.—Abstract: *Science*, new ser., vol. 27, p. 537, April 3, 1908.

Lahee, Fred. H.

619. The filling of Emerald Lake [British Columbia] by an alluvial fan.—*Science*, new ser., vol. 27, pp. 752–753, May 8, 1908.

620. An alluvial fan, near Field, in British Columbia.—*Am. Geog. Soc., Bull.*, vol. 40, pp. 340–344, 3 figs., June, 1908.

Describes an alluvial fan in process of formation.

621. A fault in an esker.—*Science*, new ser., vol. 28, pp. 654–655, November 6, 1908.

The esker is located near East Templeton, Mass.

Lakes, Arthur.

622. The Breckenridge gold placers, Colorado.—*Min. World*, vol. 28, pp. 15-16, 2 figs., January 4, 1908.
623. The coals and coal fields of Colorado.—*Min. World*, vol. 28, pp. 525-526, 565-566, 1 fig., 1908.
624. Geology and economics of Rio San Juan, Utah.—*Min. World*, vol. 28, pp. 761-762, 1 fig., May 9, 1908.
- Describes the geology of the region and the occurrence of placer gold.

Lamb, H. Mortimer.

625. Canadian graphite.—*Eng. and Min. Jour.*, vol. 85, pp. 360-361, February 15, 1908.

Lambe, Lawrence M.

626. Vertebrate paleontology.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 110-112, 1908.
- Outlines the work upon vertebrate fossils in 1907 of the Geological Survey of Canada.
627. The vertebrata of the Oligocene of the Cypress Hills, Saskatchewan.—Canada, Geol. Survey Branch, Contr. Paleont., vol. 3, pt. 4, 65 pp., 8 pls., 13 figs., 1908.

Lane, Alfred C.

628. Ninth annual report of the state geologist to the Board of Geological Survey for the year 1907.—Michigan, State Bd. Geol. Survey, Rept., 1907, pp. 1-31, 1908.
- An administrative report, but includes various notes upon the geology of Michigan.
629. State geologist's annual report [Michigan].—Michigan Miner, vol. 10, no. 2, pp. 9-14, no. 3, pp. 9-13, 1908.
630. Summary of the surface geology of Michigan.—Michigan, State Bd. Geol. Survey, Rept., 1907, pp. 89-152, 7 pls., 14 figs., 1908.
631. Genetic relations of some granitic dikes.—*Geol. Soc. America, Bull.*, vol. 18, pp. 644-648, 1 fig., 1908.
632. Ophitic texture.—Abstract: *Geol. Soc. America, Bull.*, vol. 18, pp. 648-649, 2 pls., 1908.
- Explains the term and summarizes the conditions under which this texture is produced.
633. Mine waters.—Lake Superior Min. Inst., Proc., vol. 13, pp. 63-152, 5 figs., 1908.
- Discusses the composition and circulation of water in mines, giving numerous chemical analyses, with particular reference to the origin of copper ores.
634. Mine waters and their field assay.—*Geol. Soc. America, Bull.*, vol. 19, pp. 501-512, 1 fig., 1908. Abstract: *Science*, new ser., vol. 27, p. 406, March 13, 1906.
635. Mine waters, their composition and value.—*Min. World*, vol. 28, pp. 899-900, June 6, 1908.
636. Schaeberle, Becker, and the cooling earth.—*Science*, new ser., vol. 27, pp. 589-592, April 10, 1908.
637. Shepard on the underground waters of Missouri.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 452-455, 1 fig., May, 1908.
638. [Representation of culture features upon geological maps.].—*Econ. Geology*, vol. 3, no. 5, pp. 431-432, 1908.
639. Van Hise on the division of the pre-Cambrian.—*Geol. Mag.*, dec. 5, vol. 5, no. 11, pp. 481-486, November, 1908.

Lane, Alfred C., Prosser, Charles S., Sherzer, W. H., and Grabau, A. W.

640. The nomenclature and subdivisions of the upper Siluric strata of Michigan, Ohio, and western New York.—Abstract: Science, new ser., vol. 27, p. 409, March 13, 1908.

Lang, Herbert.

641. The copper belt of California.—Eng. and Min. Jour., vol. 85, pp. 420-421, February 22, 1908.

Langley, Ralph W.

642. The determination of small amounts of barium in rocks.—Am. Jour. Sci., 4th ser., vol. 26, pp. 123-124, August, 1908.

Lawson, Andrew C., and others.

643. The California earthquake of April 18, 1906. Report of the State Earthquake Investigation Commission. Published by the Carnegie Institution of Washington, 1908 (Publication no. 87). Vol. 1, pt. 1, pp. xviii, 254; pt. 2, pp. 255-451, 146 pls.; atlas, 25 maps, 15 sheets of seismograms.

Leach, Norman L.

644. The Moose Mountain iron range, with special reference to the properties of Moose Mountain, Limited.—Canadian Min. Inst., Jour., vol. 11, pp. 147-150, 1908.

Leach, W. W.

645. The Bulkley Valley, B. C.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 19-23, 1908. British Columbia, Ann. Rept. Minister of Mines, for 1907, pp. 77-81, 1908.

Describes the topography, geology, mineral claims, and coal deposits.

Le Conte, Joseph N.

646. The High Sierra of California.—Alpina Americana, no. 1 (published by the American Alpine Club, Philadelphia, 1907), 16 pp., 5 pls., and 1 map.

Lee, Willis T.

647. Water resources of Beaver Valley, Utah.—U. S. Geol. Survey, W.-S. Paper no. 217, 57 pp., 1 pl., 3 figs., 1908.

Includes an account of the geology of the region.

648. Geologic reconnaissance of a part of western Arizona.—U. S. Geol. Survey, Bull. 352, pp. 9-80, 11 pls., 16 figs., 1908.

649. Notes on the lower Paleozoic rocks of central New Mexico.—Am. Jour. Sci., 4th ser., vol. 26, pp. 180-186, September, 1908.

650. [Fossils from the red beds of New Mexico and their age.]—Abstract: Science, new ser., vol. 27, p. 347, February 28, 1908.

651. Local upturning sedimentary rocks at their outcrop.—Abstract: Science, new ser., vol. 27, p. 891, June 5, 1908.

Lees, James H.

652. Report of the assistant state geologist.—Iowa Geol. Survey, vol. 18, pp. 6-9, 1908.

An administrative report.

Leffingwell, Ernest de Koven.

653. Flaxman Island [Alaska], a glacial remnant.—Jour. Geology, vol. 16, no. 1, pp. 56-63, 4 figs., 1908.

Leighton, Henry, and Bastin, Edson S.

654. Road materials of southern and eastern Maine.—U. S. Dept. Agric., Office of Public Roads, Bull. no. 33, 56 pp., 4 pls., 1908.

Includes a brief account of the general geology of southern and eastern Maine, and an account of the petrographic characters of the rocks.

Leith, Charles Kenneth.

- 655.** The iron ores of Canada.—Canadian Min. Inst., Jour., vol. 11, pp. 91-105, 1908. Econ. Geology, vol. 3, no. 4, pp. 276-291, 1908. Can. Min. Jour., vol. 29, pp. 370-374, August 1, 1908.

Describes various types of iron ores, their character, occurrence, availability, and distribution in Canada.

- 656.** Iron ore reserves.—Sci. Am. Suppl., vol. 65, pp. 162-163, March 14, 1908.

Leith, C. K., and Harder, E. C.

- 657.** The iron ores of the Iron Springs district, southern Utah.—U. S. Geol. Survey, Bull. 338, 102 pp., 21 pls., 11 figs., 1908.

Describes the geography and general geology of the district, the distribution and relations of Carboniferous, Cretaceous, Tertiary, and Quaternary strata, and of igneous rocks, and the occurrence, character, and origin of the iron ores.

Leroy, O. E.

- 658.** Preliminary report on a portion of the main coast of British Columbia and adjacent islands included in New Westminster and Nanaimo districts.—Canada, Dept. Mines, Geol. Survey Branch, 56 pp., 4 pls., 2 figs., 1 map, 1908 [Publication no. 996].

Describes the stratigraphy and the extent and value of the mineral deposits.

Leuchs, Kurt.

- 659.** Ueber einige Invertebraten aus dem Perm von Texas.—Centralbl. für Mineral., etc., no. 22, pp. 684-690, 1908.

Gives various notes upon invertebrates, mostly Mollusca, from the Permian of Texas, with a list of species identified from several localities.

Leverett, Frank.

- 660.** Geschichte der Eiszeit in Nord-amerika.—Abstract: Naturwissenschaftliche Wochenschrift, Bd. 23, no. 40, pp. 635-637, 2 figs., October 4, 1908.

Gives a general account of the glacial period in North America.

Description of the Ann Arbor quadrangle, Michigan.—See Russell and Leverett, no. 928.

Lewis, J. Volney.

- 661.** The Palisade diabase of New Jersey.—Am. Jour. Sci., 4th ser., vol. 26, pp. 155-162, August, 1908.

- 662.** Petrography of the Newark igneous rocks of New Jersey.—New Jersey Geol. Survey, Ann. Rept., 1907, pp. 97-167, 41 pls., 1908.—Abstract: Science, new ser., vol. 28, p. 574, October 23, 1908.

- 663.** The correlation of the Newark (Triassic) trap rocks of New Jersey.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, p. 336, 1908.

Liebenam, W. A.

- 664.** Kupfervorkommen in Kalifornien und ihre wirtschaftliche Bedeutung.—Zeitschr. Berg-Hütten- u. Salinen-Wesen, Jg. 1907 (Bd. 55), Heft 4, pp. 522-546, 2 pls., 3 figs., 1907.

Describes the occurrence, character, and development of the copper deposits of California.

Lincoln, Francis Church.

- 665.** The Promontorio silver mine, Durango, Mexico.—Am. Inst. Min. Eng., Bi-mo. Bull. no. 19, pp. 83-99, 9 figs., January, 1908; Trans., vol. 38, pp. 734-750, 9 figs., 1908. Eng. and Min. Jour., vol. 85, pp. 756-759, 3 figs., April 11, 1908.—Abstract: Min. World, vol. 28, pp. 835-836, May 23, 1908.

Includes an account of the local geology and of the character and occurrence of the ores.

Lindeman, Einar.

666. Preliminary report on the iron-ore deposits of Vancouver and Texada Islands.—Canada, Dept. Mines, Mines Branch, Summ. Rept., 1907-8, pp. 35-43, 1908.

Lindgren, Waldemar.

667. Will the production of gold in the world keep pace with the increasing demands of commerce and trade?—Am. Min. Congr., Rept. of Proc., 10th Ann. sess., pp. 265-271, 1908.
668. Tendencies in the study of ore deposits.—Min. and Sci. Press, vol. 96, pp. 567-571, April 25, 1908.
669. Investigations relating to deposits of metalliferous ores.—U. S. Geol. Survey, Bull. 340, pp. 18-22, 1908.
 Outlines the progress of work by the U. S. Geological Survey upon metalliferous deposits.
670. A geological analysis of the silver production of the United States in 1906.—U. S. Geol. Survey, Bull. 340, pp. 23-35, 1908.
671. Notes on copper deposits in Chaffee, Frémont, and Jefferson counties, Colorado.—U. S. Geol. Survey, Bull. 340, pp. 157-174, 1 fig., 1908.
 Discusses the geologic relations and origin of the deposits.
672. A recent vein at Ojo Caliente, New Mexico.—Abstract: Science, new ser., vol. 27, pp. 348-349, February 28, 1908.
673. Present tendencies in the study of ore deposits.—Abstract: Science, new ser., vol. 27, pp. 349-350, February 28, 1908.
674. New occurrence of willemite and anhydrite.—Abstract: Science, new ser., vol. 28, pp. 933-934, December 25, 1908.
 Notes the occurrence of anhydrite at Newhouse, Utah, and willemite in southern New Mexico.
- Contributions to economic geology, 1907. Part I. Metals and nonmetals, except fuels.—See Hayes and Lindgren, no. 455.
- Mineral resources of the United States, 1907: Gold and silver.—See no. 1072.

Logan, William N.

675. Clays of Mississippi, Part II. Brick clays and clay industry of southern Mississippi.—Mississippi State Geol. Survey, Bull. no. 4, 72 pp., 17 pls., 1 map, 1908.

Loomis, Frederic B.

676. The American Society of Vertebrate Paleontology.—Science, new ser., vol. 27, pp. 254-256, February 14, 1908.
 Gives an account of the seventh annual meeting held at Yale University, December, 1907, and abstracts of the papers presented.
677. Rhinocerotidæ of the lower Miocene.—Am. Jour. Sci., 4th ser., vol. 26, pp. 51-64, 15 figs., July, 1908.
 Describes various species of *Diceratherium* and *Aceratherium* from Sioux County, Nebraska.
678. A new horse from the lower Miocene.—Am. Jour. Sci., 4th ser., vol. 26, pp. 163-165, 1 fig., August, 1908.
 Describes *Parahippus tyleri* n. sp. from the lower Harrison beds of Sioux Co., Nebraska.

Louderback, George D.

679. General geological features of the Truckee region east of the Sierra Nevada.—Abstract: Geol. Soc. America, Bull., vol. 19, pp. 662-669, 3 pls., 1908.
680. The chief features of the stratigraphy and structure of Mount Diablo, California.—Abstract: Science, new ser., vol. 27, p. 406, March 13, 1908.
 [The California earthquake of April 18, 1906.] East of the Sierra Nevada.—See Lawson, A. C.; and others, no. 643.

Louderback, George D., and Blasdale, W. C.

681. Benitoite, its mineralogy, paragenesis, and geological occurrence.—Abstract: Science, new ser., vol. 27, p. 411, March 13, 1908.

Louderback, George D., and Sharwood, Wm. J.

682. Crocidolite-bearing rocks of the California coast ranges.—Abstract: Geol. Soc. America, Bull., vol. 19, p. 659, 1908.

Love, A. E. H.

683. The origin of continents and oceans.—Sci. Am. Suppl., vol. 65, pp. 268-270, 15 figs., April 25, 1908.

Lucas, Frederic A.

684. Is *Alabamornis* a bird?—Science, new ser., vol. 27, p. 311, February 21, 1908.
685. The size of the mammoth.—Nature, vol. 78, p. 443, September 10, 1908.

Lull, Richard S.

686. The evolution of the elephant.—Am. Jour. Sci., 4th ser., vol. 25, pp. 169-212, 27 figs., March, 1908; Yale Univ., Peabody Mus. Nat. Hist., Guide no. 2, 44 pp.

687. The cranial musculature and the origin of the frill in the Ceratopsian dinosaurs.—Am. Jour. Sci., 4th ser., vol. 25, pp. 387-399, 3 pls., 10 figs., May, 1908.

On the Triassic reptile *Hallopus victor* Marsh.—See Huene and Lull, no. 538.
Neubeschreibung des Originals von *Nanosaurus agilis* Marsh.—See Huene and Lull, no. 539.

Luquer, Lea McIlvaine.

688. Fusion table of minerals in the oxy-gas blowpipe flame.—School of Mines Quart., vol. 29, no. 2, pp. 179-182, January, 1908.

Luther, D. Dana.

Geologic map and descriptions of the Portage and Nunda quadrangles.—See Clarke and Luther, no. 210.

McCallie, S. W.

689. A preliminary report on the underground waters of Georgia.—Georgia Geol. Survey, Bull. no. 15, 370 pp., 29 pls., 5 figs., 1 map, 1908.

Includes a general account of the physiographic features and geology of the State.

690. Report on the fossil iron ores of Georgia.—Georgia Geol. Survey, Bull. no. 17, 199 pp., 24 pls., 3 figs., 3 maps, 1908.

McCallum, A. L.

691. A review of some recent schemes for the classification of coals.—Nova Scotia, Min. Soc., Jour., vol. 12, pp. 113-116, 1908.

692. An interesting occurrence of scheelite in Nova Scotia.—Canadian Min. Jour., vol. 29, no. 18, pp. 456-457, September 15, 1908.

McCaskey, H. D.

693. Notes on some gold deposits of Alabama.—U. S. Geol. Survey, Bull. 340, pp. 36-52, 1908.

Describes the geology, occurrence, character, and productiveness of the gold deposits in northeastern Alabama.

Mineral resources of the United States, 1907: Gold and silver; quicksilver.—See no. 1072.

McClung, C. E.

694. Ichthyological notes of the Kansas Cretaceous.—Kansas Univ. Sci. Bull., vol. 4, no. 9, pp. 233-243, 4 pls., 10 figs., 1908.

Describes anatomical features of the cretaceous fishes *Xiphactinus*, *Gillicus*, and *Protosphyrapna*.

695. Restoration of the skeleton of *Bison occidentalis*.—Kansas Univ. Sci. Bull., vol. 4, no. 10, pp. 247-252, 1 pl., 1908.

MacDougal, D. T.

696. Changes in the delta of the Colorado River.—Abstract: Science, new ser., vol. 27, pp. 266-267, February 14, 1908.

McGee, W J

697. Outlines of hydrology.—Geol. Soc. America, Bull., vol. 19, pp. 193-200, 1908.
698. Lafayette deposits in Louisiana.—Science, new ser., vol. 27, p. 472, March 20, 1908.

Discusses the age and mode of formation of the Lafayette deposits.

McInnes, W.

699. Pasquia Hills and lower Carrot River region.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 41-47, 1908.

Includes notes on the geology of the region examined.

Mackenzie, George Cleghorn.

700. The iron and steel industry of Ontario.—Ontario Bur. Mines, Rept., vol. 17, pp. 190-342, illus., 1908.

Includes notes on the geologic distribution of iron ores in Ontario.

Maclaren, J. Malcolm.

701. Gold, its geological occurrence and geographical distribution.—London, The Mining Journal, 1908. 687 pp., 38 pls., 213 figs.

Includes an account of the occurrence of gold in North America.

Maddren, A. G.

- The mineral resources of the Kotsina and Chitina valleys, Copper River region, Alaska.—See Moffit and Maddren, no. 753.

Malloch, G. S.

702. The Cascades, Palliser, and Costigan coal basins.—Canada, Geol. Survey, Summ. Rept., 1907, pp. 35-40, 1908.

Describes the general geology, the extent of the coal basins named, and the character and occurrence of the coal seams.

Mansfield, George Rogers.

703. Glaciation in the Crazy Mountains of Montana.—Abstract: Science, new ser., vol. 27, pp. 409-410, March 13, 1908.

704. The Baraboo region of Wisconsin.—Jour. Geog., vol. 6, no. 9, pp. 286-292, 2 figs., April, 1908.

Describes the physiographic history of the region.

705. Glacial and normal erosion in Montana and Wisconsin.—Jour. Geog., vol. 6, no. 10, pp. 306-312, 3 figs., May, 1908.

Describes the geological map of Montana, and the Baraboo region, Wisconsin, and contrasts the characteristics of glaciated and unglaciated surfaces.

Marbut, Curtis F.

706. The geology of Morgan County.—Missouri Bur. Geol. and Mines, 2d ser., vol. 7, 97 pp., 19 pls., 19 figs., [1908].

Margerie, Emm. de.

707. La carte géologique internationale de l'Amérique du Nord.—Annales de Géographie, t. 17, pp. 56-70, 1908.

Describes the geological map of North America prepared for the tenth session, in Mexico, of the International Geological Congress.

Martin, Al. H.

708. A new copper district in California.—Min. World, vol. 28, p. 24, January 4, 1908.

Gives notes upon the geology and occurrence of copper ores in the western part of Tehama County, California.

709. Mining and smelting on Shasta copper belt [California].—Min. World, vol. 29, pp. 309-311, 4 figs., August 20, 1908.

Includes notes on the geology and occurrence of copper ores.

Martin, D. S.

710. A beryl from Haddam Neck, Connecticut.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, pp. 294-295, 1908.

Martin, George Curtis.

711. Geology and mineral resources of the Controller Bay region, Alaska.—U. S. Geol. Survey, Bull. no. 335, 141 pp., 10 pls., 2 figs., 1908

The mineral resources considered are coal and petroleum.

712. Description of the Accident and Grantsville quadrangles, Maryland-Pennsylvania-West Virginia.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 160, 14 pp., 4 maps, and section-sheet, 1908.

Describes the physiographic features and relief, the distribution, character, and relations of Devonian and Carboniferous strata, the geologic structure, the geologic history, and the mineral resources, chiefly coal.

Marvin, C. F.

713. A design for a universal seismograph with duplex recorders for horizontal motion.—Abstract: Science, new ser., vol. 27, pp. 723-724, May 8, 1908.

Matamoros, Luis.

714. Discussion of paper by J. H. Harper: The San Francisco earthquake of April 18, 1906.—Assoc. Eng. Soc., Jour., vol. 40, pp. 318-319, June, 1908.

A brief note as to the cause of earthquakes.

Mathey, C. C.

715. Platte River geology.—Min. World, vol. 28, p. 875, May 30, 1908.

Discusses the geology and occurrence of zinc deposits in southwestern Wisconsin.

Matthes, François E.

716. The mapping of landforms.—Abstract: Science, new ser., vol. 27, pp. 893-894, June 5, 1908.

The relation of geology to topography.—See Johnson and Matthes, no. 563.

Matthew, George F.

717. The physical evolution of Acadia. Part I. The insular stage, or pre-Devonian development.—New Brunswick, Nat. Hist. Soc., Bull. no. 26 (vol. 6, pt. 1), pp. 3-16, 2 maps, 1908.

Matthew, William D.

718. *Allosaurus*, a carnivorous dinosaur, and its prey.—Am. Mus. Jour., vol. 8, no. 1, January, 1908, pp. 3-5, 1 pl.

Describes the history of a skeleton and its mounting.

719. The new *Ichthyosaurus*.—Am. Mus. Jour., vol. 8, no. 1, pp. 7-8, 1 pl., January, 1908.

720. Mammalian migrations between Europe and North America.—Am. Jour. Sci., 4th ser., vol. 25, pp. 68-70, January, 1908.

721. A four-horned pelycosaurian from the Permian of Texas.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 183-185, 1 fig., 1908.

722. Osteology of *Blastomeryx* and phylogeny of the American Cervidæ.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 535-562, 15 figs., 1908.

Maury, Carlotta Joaquina.

723. An interglacial fauna found in Cayuga Valley and its relation to the Pleistocene of Toronto.—Jour. Geology, vol. 16, no. 6, pp. 565-567, 1908.

Maynard, George W.

724. The mines of northwestern Altar, Sonora, Mexico.—Eng. and Min. Jour., vol. 86, pp. 71-72, 1 fig., July 11, 1908.

Includes notes on the geology, and occurrence and character of the ores.

Mead, Warren J.

725. The relation of density, porosity, and moisture to the specific volume of ores.—Econ. Geology, vol. 3, no. 4, pp. 319-325, 1 pl., 1908.

Mendenhall, Walter Curran.

726. Two mountain ranges of southern California.—Abstract: Geol. Soc. America, Bull., vol. 19, pp. 660-661, 1908.
Notes similar and dissimilar physiographic features of the San Bernardino and San Gabriel ranges.
727. Ground waters and irrigation enterprises in the foothill belt, southern California.—U. S. Geol. Survey, Water-Supply Paper 219, 180 pp., 9 pls., 16 figs., 1908.
Includes a discussion of the general geologic conditions and physiographic features of the region.
728. Preliminary report on the ground waters of San Joaquin Valley, California.—U. S. Geol. Survey, Water-Supply Paper 222, 52 pp., 1 pl., 1908.
Gives a brief account of the geography and geology of the region and a detailed account of the underground water resources.

Merriam, John C.

729. Triassic Ichthyosauria, with special reference to the American forms.—California Univ., Mem., vol. 1, no. 1, pp. 1-196, 18 pls., 154 figs., 1908.
730. Notes on the osteology of the Thalattosaurian genus *Nectosaurus*.—California Univ., Dept. Geol., vol. 5, no. 13, pp. 217-223, 2 pls., May, 1908.
731. Primitive characters of American Triassic ichthyosaurs.—Abstract: Geol. Soc. America, Bull., vol. 19, p. 659, 1908.

Merrill, Frederick J. H.

732. Memoir of William Buck Dwight.—Geol. Soc. America, Bull., vol. 18, pp. 571-572, 1908.
733. The mineral resources of Sonora [Mexico].—Min. and Sci. Press, vol. 96, pp. 33-40, 2 figs., January 4, 1908.

Merrill, F. J. H.

734. Surface enrichment in Sonora.—Min. and Sci. Press, vol. 96, pp. 802-803, June 13, 1908.
Discusses the character and concentration of ores with regard to depth from surface.
735. Metamorphic ranges in Sonora, Mexico.—Min. and Sci. Press, vol. 97, p. 296, August 29, 1908.
Gives geological notes upon mountain ranges of Sonora, Mexico.
736. Dry placers of northern Sonora [Mexico].—Min. and Sci. Press, vol. 97, pp. 360-361, September 12, 1908.
Discusses the occurrence of placer gold.
737. Ore bodies without walls.—Min. and Sci. Press, vol. 97, p. 455, October 3, 1908.
738. Mineral resources of Sonora. Reprinted from the Mining and Scientific Press of San Francisco, California, by authority of the governor of Sonora, Mexico. 1908. 23 pp., 1 pl.

Merrill, George P.

739. The meteor crater of Canyon Diablo, Arizona; its history, origin, and associated meteoric irons.—Smithsonian Misc. Coll., vol. 50 (Quart. Issue, vol. 4, pt. 4), pp. 461-498, 15 pls., 6 figs., 1908.
740. Carl Ludwig Rominger.—Smithsonian Misc. Coll., vol. 52 (Quart. Issue, vol. 5, pt. 1), pp. 79-82, 1 fig. (port.), 1908.
Gives an account of his life and a list of his writings.
741. Edward Travers Cox.—Smithsonian Misc. Coll., vol. 52 (Quart. Issue, vol. 5, pt. 1), pp. 83-84, 1 fig. (port.), 1908.

Merwin, Herbert E.

742. Some late Wisconsin and post-Wisconsin shore-lines of northwestern Vermont.—Vermont, Sixth Rept. State Geologist, pp. 113-138, 2 pls., 2 figs., 1908.

743. Some late Wisconsin and post-Wisconsin shore-lines of northwestern Vermont.—Harvard Coll., Mus. Comp. Zool., Bull., vol. 49 (Geol. Ser., vol. 8, no. 7), pp. 309-330, 3 pls., June, 1908.

Mesler, R. D.

Tripoli deposits near Seneca, Missouri.—See Siebenthal and Mesler, no. 980.

Métin, Albert.

744. La Colombie britannique, étude sur la colonisation au Canada. Paris, Armand Colin, 1908. 431 pp., 16 pls.

Includes an account of the physiographic features and mineral resources of British Columbia.

Milch, L.

745. Ueber den Kaolinit von der National Belle mine bei Silverton, Colorado.—Centralbl. Mineral., etc., no. 1, pp. 1-3, 1908.

Describes optical properties of the mineral kaolinite from Colorado.

Miller, Arthur M.

746. Abstract of report on the lower (or "conglomerate") measures along the western border of the eastern coal field.—Kentucky Geol. Survey, Report of Progress for 1906 and 1907, pp. 27-35, 1908.

Discusses the distribution and character of the coal seams in this area.

Miller, W. J.

747. Highly folded between non-folded strata at Trenton Falls, N. Y.—Jour. Geology, vol. 16, no. 5, pp. 428-433, 2 figs., 1908

Describes the folding and discusses its cause.

Miller, Willet G., and Knight, Cyril W.

748. Grenville-Hastings unconformity.—Abstract: Science, new ser., vol. 27, pp. 407-408, March 13, 1908.

Mills, Frank S.

749. The economic geology of northern New York.—Eng. and Min. Jour., vol. 85, pp. 306-308, 2 figs., February 22, 1908.

Describes the general geology and the occurrence and geologic relations of pyrites, graphite, and iron ore.

Mills, James Cooke.

750. The graphite mines of Santa Maria [Sonora, Mexico].—Mines and Minerals, vol. 29, no. 3, pp. 98-100, October, 1908.

Mitchell, Evelyn Groesbeeck.

751. An apparently new Protoblattid family from the Lower Cretaceous [of Montana].—Smithsonian Misc. Coll., vol. 52 (Quart. Issue, vol. 5, pt. 1), pp. 85-86, 1 fig., 1908.

Describes *Lygobidæ* n. fam., *Lygobius*, n. gen., and *knowltoni* n. sp. from the Kootanie formation (Lower Cretaceous) of the Great Falls coal field, Montana.

Moffit, Fred H.

752. Notes on copper prospects of Prince William Sound, Alaska.—U. S. Geol. Survey, Bull. 345, pp. 176-178, 1 fig., 1908.

Moffit, Fred H., and Maddren, A. G.

753. The mineral resources of the Kotsina and Chitina valleys, Copper River region, Alaska.—U. S. Geol. Survey, Bull. 345, pp. 127-175, 1 pl. (map), 1908.

Describes the general geology of the region and the various locations where copper has been observed or mined and placer gold obtained.

Moodie, Roy L.

754. The relationship of the turtles and plesiosaurs.—*Kansas Univ. Sci. Bull.*, vol. 4, no. 15, pp. 317-327, 2 figs., 1908.

755. The ancestry of the caudate Amphibia.—*Am. Naturalist*, vol. 42, pp. 361-373, 10 figs., June, 1908.

756. The dawn of quadrupeds in North America.—*Pop. Sci. Monthly*, vol. 72, no. 6, pp. 558-566, 5 figs., June, 1908.

Gives a general account of early Amphibia and progress in the investigation of these fossils.

Moore, E. S.

757. Iron ranges east of Lake Nipigon. The Onaman iron ranges.—*Ontario Bur. Mines, Rept.*, vol. 17, pp. 170-189, 13 figs., 1908.

Describes the general character of the region, its geology, and the occurrence of deposits of iron ore.

Iron ranges east of Lake Nipigon.—See Coleman and Moore, no. 238.

Morse, Fremont.

758. The recession of the glaciers of Glacier Bay, Alaska.—*Nat. Geog. Mag.*, vol. 19, no. 1, pp. 76-78, 1 fig., January, 1908.

Mudgett, F. G.

The De Lamar mine of southwestern Idaho.—See Brown and Mudgett, no. 146.

Munn, M. J.

759. Petroleum and gas [in western Pennsylvania].—*Pennsylvania, Topog. and Geol. Survey Comm., Rept.* 1906-1908, pp. 266-306, 1 fig., 1908.

Narraway, J. E.

Notes on Ordovician trilobites: *Illænidæ* from the Black River limestone near Ottawa, Canada.—See Raymond and Narraway, no. 855.

Nelson, Gaylord.

Preliminary report on the mineral resources of Oklahoma.—See Gould and others, no. 395.

Newland, David H.

760. Geology of the Adirondack magnetic iron ores.—*New York State Mus., Bull.* 119, pp. 5-182, 17 pls., 22 figs., 1908.

761. The mining and quarry industry of New York State: Report of operations and production during 1907.—*New York State Mus., Mus. Bull.* 120, 82 pp., 1908.

Newland, D. H., and Hartnagel, C. A.

762. Iron ores of the Clinton formation in New York State.—*New York State Mus., Mus. Bull.* 123, 76 pp., 17 pls., 4 figs., 1908.

Includes an account of the stratigraphy, relations, and character of the Clinton formation.

Newsom, John F.

763. Notes on the structure of the Santa Cruz Range, California.—*Abstract: Geol. Soc. America, Bull.*, vol. 19, p. 657, 1908.

764. Notes on the topography of the Seward Peninsula, Alaska.—*Abstract: Geol. Soc. America, Bull.*, vol. 19, p. 657, 1908.

Nicholas, Francis C.

765. The Douglas copper properties in Mexico.—*Min. World*, vol. 28, pp. 245-246, 6 figs., February 8, 1908.

Gives notes upon the geology and ore deposits in the vicinity of Fundicion, State of Sonora, Mexico.

Nicholas, Francis C.—Continued.

766. Properties of the New York & Honduras Rosario Mining Co. [at San Juancito, in Honduras, Central America].—*Min. World*, vol. 28, no. 9, pp. 367-369, 6 figs., February 29, 1908.

Discusses the occurrence, geologic relations, and origin of the ores.

767. South Extension Homestake mineral formations.—*Min. World*, vol. 29, pp. 121-124, 6 figs., July 25, 1908.

Discusses the occurrence of ore deposits in the northern Black Hills of South Dakota.

768. Mineral deposits of Jamaica in West Indies.—*Min. World*, vol. 29, pp. 883-884, 1 fig., December 12, 1908.

Includes an account of the geology of the island.

Nicolas, F. J.

769. General index to reports, 1885-1906.—Canada, Geol. Survey, Ottawa, 1908. 1014 pp.

Nordenskjöld, Otto.

770. On the geology and physical geography of east Greenland.—*Meddelelser om Grönland*, vol. 28, pp. 151-284, 11 pls., 1 geol. map, 33 figs., 1908.

Norwood, Charles J.

771. Report on the progress of the [Kentucky geological] survey for the years 1906 and 1907. Lexington, Kentucky, 1908. 88 pp.

An administrative report, but includes various notes on the geology and economic resources of Kentucky.

Nystrom, Erik.

772. Peat and lignite, their manufacture and uses in Europe.—Canada, Dept. of Mines, Mines Branch, 1908. 247 pp., 33 pls., 228 figs.

Obalski, J.

773. Mining operations in the Province of Quebec for the year 1907.—Quebec, Dept. of Colonization, Mines, and Fisheries, 63 pp., 5 pls., 1908.

Includes notes on the occurrence of various mineral deposits.

774. Gold in the eastern townships of the Province of Quebec.—*Canadian Min. Inst., Jour.*, vol. 11, pp. 251-255, 3 pls., 1908.

Ogilvie, Ida H.

775. Some igneous rocks from the Ortiz Mountains, New Mexico.—*Jour. Geology*, vol. 16, no. 3, pp. 230-238, 1908.

O'Harra, Cleophas C.

776. The geology of Black Hills cement material.—South Dakota School of Mines, Bull. no. 8, pp. 9-27, 5 pls., 1908.

Describes the distribution, character, and relations of limestone and shale formations of the Black Hills region of South Dakota adapted to the manufacture of cement.

Oklahoma Geological Survey.

777. The Oklahoma geological survey, its origin, scope, and purpose. Circular no. 1. Norman, Okla., October, 1908. 12 pp.

Oldham, A. D.

778. Note on the duration of the first preliminary tremor in the San Francisco and Colombian earthquakes.—*British Assoc. Adv. Sci., Rept. 77th Meeting*, p. 93, 1908.

Olsson-Seffer, Pehr.

779. Relation of wind to topography of coastal drift sands.—*Jour. Geology*, vol. 16, no. 6, pp. 549-564, 2 figs., 1908.

Omori, F.

Note on the comparison of the faults in the three earthquakes of Mino-Owari, Formosa, and California.—See Lawson, A. C., and others, no. 643.

Ordóñez, Ezequiel.

780. El Valle de Cerritos, Estado de San Luis Potosí.—México, Inst. Geol., Parerg., t. 2, no. 7, pp. 263-273, 1908.

Describes the physiographic features, geologic structure, and underground-water resources of this valley.

781. Coal in Coahuila [Mexico].—Min. and Sci. Press, vol. 96, pp. 363-364, 1 fig., March 14, 1908.

782. Hostotipaquillo and the Lerma River [State of Jalisco, Mexico].—Min. and Sci. Press, vol. 97, pp. 705-708, 3 figs., November 21, 1908. Can. Min. Jour., vol. 29, no. 24, pp. 662a-665a, 2 figs., December 15, 1908.

Gives notes on the physiographic features, geologic structure, and mineral resources of the region.

783. A brief review of the mining industry of Mexico.—Econ. Geology, vol. 3, no. 8, pp. 677-687, 1908.

Orr, William.

784. An outline of eight excursions for the study of the physical geography and geology of Springfield and vicinity [Massachusetts]. Published for the Springfield Geological Club by the City Library Association, Springfield, Mass., 1901. 16 pp., 2 pls.

Osborn, Henry Fairfield.

785. Discovery of a supposed primitive race of men in Nebraska.—The Century Magazine vol. 73, no. 3, pp. 371-375, 7 figs., January, 1907.

786. Edward Drinker Cope.—Pop. Sci. Monthly, vol. 70, pp. 314-316, 1 pl. (port.), April, 1907.

787. Evolution of mammalian molar teeth to and from the triangular type. New York, The Macmillan Company, 1907. vi, 250 pp., 215 figs.

788. The four inseparable factors of evolution: Theory of their distinct and combined action in the transformation of the Titanotheres, an extinct family of hoofed animals in the order Perissodactyla.—Science, new ser., vol. 27, pp. 148-150, January 24, 1908.

789. Coincident evolution through rectigradations and fluctuations (third paper).—Science, new ser., vol. 27, pp. 749-752, 3 figs., May 8, 1908.

The discussion is based upon vertebrate fossils.

790. New or little known titanotheres from the Eocene and Oligocene.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 599-617, 21 figs., 1908.

791. A paleontological trip to northwestern Nebraska.—Abstract: New York Acad. Sci., Annals, vol. 18, pt. 2, pp. 351-352, 1908.

Gives notes upon the stratigraphy and vertebrate faunas of Tertiary strata in northwestern Nebraska.

O'Sullivan, Owen.

792. Explorations along the National Transcontinental Railway location from La Tuque westward [Quebec].—Canada, Geol. Survey, Summ. Rept., 1907, pp. 67-68, 1908.

Paige, Sidney.

Copper deposits on Kasaan Peninsula, Prince of Wales Island.—See Wright and Paige, no. 1195.

Palache, Charles.

793. Mineralogy of the Franklin Furnace quadrangle, New Jersey.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 161, pp. 8-10, 1908.

Papke, Hermann.

794. A visit to the mineral localities at Paterson and Great Notch, New Jersey.—
Mineral Collector, vol. 15, no. 8, pp. 113-118, 1 pl., 3 figs., October, 1908.

Paredes, Trinidad.

795. Apuntes para la geologia de la region lagunera del Tlahualilo.—Soc. Geol. Mexicana, Bol., t. 4, pp. 37-42, 5 pls., 1908.

Describes the geology of the lake region of Tlahualilo, State of Durango, Mexico.

Paré, A. A.

796. Mining and mining methods of the Yukon.—Canadian Min. Inst., Jour., vol. 11, pp. 545-565, 4 pls., 3 figs., 1908.

Includes notes on the geology of Yukon and the occurrence of placer gold and of copper.

Parker, Edward W.

797. How long will our coal supplies meet the increasing demands of commerce?—
Am. Min. Congr., Rept. of Proc., 10th Ann. Sess., pp. 239-246, 2 figs., 1908.

Parks, William Arthur.

798. Niagara stromatoporoids.—Toronto Univ., Studies, Geol. Series, no. 5, 68 pp., 9 pls., 1908.

799. Notes on the ophiurian genus *Protaster*, with description of a new species.—
Canadian Inst., Trans., vol. 8, pp. 363-372, 1 pl., 1908.

800. On an occurrence of *Hybocystis* in Ontario.—Ottawa Naturalist, vol. 21, no. 12, pp. 232-236, 1 pl., March, 1908.

Gives an amended description of *Hybocystis problematica* Wetherby, and describes *Hybocystis eldonensis* n. sp. from Victoria County, Ontario.

801. Notes on Silurian stromatoporoids from Hudson's Bay.—Ottawa Naturalist, vol. 22, no. 1, pp. 25-29, April, 1908.

Parsons, Arthur L.

802. Geology of Thunder Bay-Algoma boundary.—Ontario Bur. Mines, Rept., vol. 17, pp. 95-135, 13 pls., 1908.

Parsons, Floyd W.

803. The coal mines of southern Wyoming.—Eng. and Min. Jour., vol. 85, pp. 118-120, 2 figs., January 11, 1908.

Pate, William F., and Bassler, Ray S.

804. The late Niagaran strata of West Tennessee.—U. S. Nat. Mus., Proc., vol. 34, pp. 407-432, 1908.

Patten, W.

Studies of the tracks of *Climaticolmites*.—See Hitchcock and Patten, no. 499.

Patton, Horace B.

805. Topaz-bearing rhyolite of the Thomas Range, Utah.—Geol. Soc. America, Bull., vol. 19, pp. 177-192, 2 pls., 1908. Abstract: Science, new ser., vol. 27, p. 410, March 13, 1908.

Describes the location and character of the rhyolite and the topaz and other minerals occurring in its cavities.

Peabody, Charles.

806. The exploration of Bushey cavern, near Cavetown, Maryland.—Phillips Academy, Andover, Massachusetts, Dept. of Archæology, Bull. 4, pt. 1, pp. 3-25, 8 pls., 1908.

Pearson, Herbert W.

807. The place of the great raised beaches in geology.—Abstract: Science, new ser., vol. 27, pp. 189–190, January 31, 1908.
 808. The basis for a new geology. Raised beaches and their cause.—Sci. Am. Suppl., vol. 65, pp. 186–188, 3 figs., March 21; pp. 202–204, 3 figs., March 28; pp. 218–220, 2 figs., April 4; pp. 234–236, April 11, 1908.

Peck, Frederick B.

809. Geology of the cement belt, in Lehigh and Northampton counties, Pa., with brief history of the origin and growth of the industry and a description of the methods of manufacture.—Econ. Geol., vol. 3, no. 1, pp. 37–76, 1 pl., 9 figs., 1908.

Penhallow, D. P.

810. Some fossil plants from the middle Devonian of Milwaukee, Wisconsin.—Wisconsin Nat. Hist. Soc., Bull., vol. 6, nos. 1–2, pp. 8–12, 2 pls., April, 1908.

Describes *Nematophycus milwaukeeensis* n. sp. and *Fucus berthelensis* n. sp.

811. Report on a collection of fossil woods from the Cretaceous of Alberta.—Ottawa Naturalist, vol. 22, no. 4, pp. 82–85, 6 figs., July, 1908.
 812. Report on Tertiary plants of British Columbia collected by Lawrence M. Lambe in 1906, together with a discussion of previously recorded Tertiary floras.—Canada, Geol. Survey, 1908, 167 pp., 33 figs.

Pennsylvania Topographic and Geological Survey Commission.

813. Report, 1906–1908. Harrisburg, 1908. 375 pp., 24 pls., 21 figs.

Peola, Paolo.

814. Impronte vegetali del Carbonifero dell' Illinois (Stati Uniti d'America).—Soc. Geol. Italiana, Boll., vol. 26, pp. 323–332, 1 pl., 1908.

Describes fossil plants from the Mazon Creek locality, Morris County, Illinois.

Perdue, M. J.

- Millbrig sheet of the lead and zinc district of northern Illinois.—See Grant and Perdue, no. 408.

Perkins, George H.

815. Report of the state geologist on the mineral industries and geology of certain areas of Vermont, 1907–1908. Sixth of this series. Concord, 1908. 302 pp., 59 pls., 6 figs.

The various papers have been listed under the individual authors.

816. Mineral resources [of Vermont].—Vermont, Sixth Rept. State Geologist, pp. 1–57, 9 pls., 1908.
 817. Fossil Cetacea of the Pleistocene of the United States and Canada, with special reference to *Delphinapterus vermontanus* Thompson.—Vermont, Sixth Rept. State Geologist, pp. 76–112, 11 pls., 1 fig., 1908.
 818. Preliminary report on the geology of Franklin County.—Vermont, Sixth Rept. State Geologist, pp. 189–209, 1908.
 819. Preliminary report on the geology of Chittenden County.—Vermont, Sixth Rept. State Geologist, pp. 221–264, 16 pls., 1908.
 820. Talc and soapstone in Vermont.—Eng. and Min. Jour., vol. 86, p. 753, October 17, 1908.
 821. The Cambrian rocks of Vermont.—Abstract: Science, new ser., vol. 28, p. 573, October 23, 1908.
 822. On a skeleton of a whale in the provincial museum, Halifax, Nova Scotia, with notes on the fossil Cetacea of North America.—Nova Scotian Inst. Sci., vol. 12, pt. 2, pp. 139–163, 8 pls. (author's separates, 1908).

Perret, Frank A.

823. Some conditions affecting volcanic eruptions.—*Science*, new ser., vol. 28, pp. 277-287, August 28, 1908.

Peterson, O. A.

824. Description of the type specimen of *Stenomylus gracilis* Peterson.—*Carnegie Mus., Annals*, vol. 4, pp. 286-300, 12 figs., 1908.

Phalen, William Clifton.

825. Iron ores near Ellijay, Georgia.—*U. S. Geol. Survey, Bull.* 340, pp. 330-334, 1908.

Describes the geology, and the occurrence, character, and origin of the iron ores.

826. Economic geology of the Kenova quadrangle, Kentucky, Ohio, and West Virginia.—*U. S. Geol. Survey, Bull.* 349, 158 pp., 6 pls., 21 figs., 1908.

Describes the physiographic features, the stratigraphy, and in detail the mineral resources, coal, clay, iron, stone, oil, and gas.

A commercial occurrence of barite near Cartersville, Georgia.—See Hayes and Phalen, no. 456.

Graphite deposits near Cartersville, Georgia.—See Hayes and Phalen, no. 457.
Mineral resources of the United States, 1907: Bauxite and aluminum; abrasive materials; salt and bromine; sulphur and pyrite.—See no. 1072.

Phillips, William Battle.

827. Geology of quicksilver deposits.—*Min. World*, vol. 29, p. 131, July 25, 1908.

Tabulates the geologic relations and associated rocks and minerals of quicksilver deposits.

Piers, H.

828. Discovery of tin in Nova Scotia.—*Nova Scotia, Min. Soc., Jour.*, vol. 12, pp. 159-161, 1908.

Pirsson, Louis Valentine.

829. Rocks and rock minerals, a manual of the elements of petrology without the use of the microscope. First edition. New York, John Wiley & Sons, 1908. 414 pp., 36 pls.

Platen, Paul.

830. Untersuchungen fossiler Hölzer aus dem Westen der Vereinigten Staaten von Nordamerika.—*Naturf. Gesellsch. Leipzig, Sitzungsab.*, Jg. 34, pp. 1-164, 3 pls., 1908.

Describes investigations upon fossil woods from Western States.

Plotts, William.

831. Two kinds of classification for rock strata.—*The Humanitarian Review*, Los Angeles, Cal., vol. 7, no. 3, pp. 133-137, October, 1908.

Discusses an "isogeotherm hypothesis of mineral origin."

Pratt, Joseph Hyde.

832. The mining industry in North Carolina during 1906.—*North Carolina Geol. and Econ. Survey, Econ. Paper* no. 14, 144 pp., 20 pls., 5 figs., 1907.

Pratt, Joseph Hyde, and Sterrett, Douglas B.

833. Monazite and monazite mining in the Carolinas.—*Elisha Mitchell Sci. Soc., Jour.*, vol. 24, no. 3, pp. 61-86, 1908.

Prescott, Basil.

834. Ilvaite from Shasta Co., California.—*Am. Jour. Sci.*, 4th ser., vol. 26, pp. 14-16, 2 figs., July, 1908.

835. The occurrence and genesis of the magnetite ores of Shasta Co., California.—*Econ. Geology*, vol. 3, no. 6, pp. 465-480, 3 figs., 1908.

Prindle, Louis M.

836. The Fairbanks and Rampart quadrangles, Yukon-Tanana region, Alaska.—U. S. Geol. Survey, Bull. no. 337, pp. 9-63, 2 pls., 2 figs., and map, 1908.
Describes the geography, the stratigraphy, and the gold deposits.

837. Occurrence of gold in the Yukon-Tanana region, Alaska.—U. S. Geol. Survey, Bull. 345, pp. 179-186, 1 pl. (map), 1908.

Describes alluvial deposits and discusses the source of the gold.

838. The Fortymile gold-placer district, Alaska.—U. S. Geol. Survey, Bull. 345, pp. 187-197, 1908.

Gives a sketch of the geology of the district, discusses the source of the gold, and describes the mining developments.

Prouty, Wm. F.

839. The meso-Silurian deposits of Maryland.—Am. Jour. Sci., 4th ser., vol. 26, pp. 563-574, 3 figs., December, 1908.

Pryor, Jose T.

840. A theory of ore deposition.—Min. and Sci. Press, vol. 97, p. 323, September 5, 1908.

Purdue, A. H.

841. A new discovery of peridotite in Arkansas.—Econ. Geology, vol. 3, no. 6, pp. 525-528, 2 figs., 1908.

Purington, Chester Wells.

842. Treasure Mountain, Colorado.—Min. and Sci. Press, vol. 97, pp. 23-25, 4 figs., July 4, 1908.

Describes the local geology and the character and relations of the veins.

Quin, John T.

843. The building of an island, being a sketch of the geological structure of the Danish West Indian island of St. Croix, or Santa Cruz. Published by the author in Christiansted, St. Croix, 1907. 106 pp., 6 pls., 32 figs.

Rand, J. C.

844. Notes on some minerals occurring near Boston, Massachusetts.—Mineral Collector, vol. 15, no. 4, pp. 57-58, June, 1908.

Ransome, Frederick Leslie.

845. A comparison of some Paleozoic and pre-Cambrian sections in Arizona.—Abstract: Science, new ser., vol. 27, pp. 68-69, January 10, 1908.

846. The association of alunite with gold at Goldfield, Nevada.—Abstract: Science, new ser., vol. 27, p. 189, January 31, 1908.

847. Pre-Cambrian sediments and faults in the Grand Canyon of the Colorado.—Science, new ser., vol. 27, pp. 667-669, 2 figs., April 24, 1908.

848. The localization of values in ore bodies and the occurrence of shoots in metaliferous deposits: The relation between certain ore-bearing veins and gouge-filled fissures.—Econ. Geology, vol. 3, no. 4, pp. 331-337, 1908.

849. A theory of ore deposition.—Econ. Geology, vol. 3, no. 5, pp. 420-425, 1908.

850. An apatitic minette from northeastern Washington.—Am. Jour. Sci., 4th ser., vol. 26, pp. 337-341, October, 1908.

Ransome, Frederick Leslie, and Calkins, Frank Cathcart.

851. The geology and ore deposits of the Cœur d'Alene district, Idaho.—U. S. Geol. Survey, Prof. Paper 62, 203 pp., 29 pls., 23 figs., 1908.

Rathbun, Mary J.

852. Descriptions of fossil crabs from California.—U. S. Nat. Mus., Proc., vol. 35, pp. 341-349, 5 pls., 1908.

Raymond, Percy E.

853. The Gastropoda of the Chazy formation.—Carnegie Mus., Annals, vol. 4, pp. 168-225, 10 pls., 6 figs., 1908.
854. On the discovery of vertebrate fossils in the Pennsylvanian, near Pittsburg, Pa.—Abstract: Science, new ser., vol. 27, p. 727, May 8, 1908.

Raymond, Percy E., and Narraway, J. E.

855. Notes on Ordovician trilobites: *Illænidæ* from the Black River limestone near Ottawa, Canada.—Carnegie Mus., Annals, vol. 4, pp. 242-255, 3 pls., 1908.

Raymond, Rossiter W.

856. Dip and pitch.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 20, pp. 195-196, March, 1908; *ibid.*, no. 22, pp. 609-614, July, 1908. Min. World, vol. 28, p. 373, February 28, 1908.

Discusses the application of these terms to the position of ore bodies.

Read, Thomas T.

857. The San Juan region, Colorado.—Min. and Sci. Press, vol. 97, pp. 632-635, 668-672, 13 figs., 1908.

Reagan, Albert B.

858. A probable origin of the small mounds of the lower Mississippi and Texas coast.—Indiana Acad. Sci., Proc. 1907, pp. 99-100, 1908.
859. Summary of glacial literature relating to glacial deposits.—Kansas Acad. Sci., Trans., vol. 21, pt. 1, pp. 86-110, 1908.
- Defines the various kinds of glacial drift.
860. The blowing of soils.—Science, new ser., vol. 28, pp. 653-654, November 6, 1908.

Reed, Wm. G., jr.

861. The form of Nantasket beach.—Abstract: Science, new ser., vol. 28, pp. 574-575, October 23, 1908.

Reeds, Chester Albert.

- Water resources of the East St. Louis district.—See Bowman and Reeds, no. 117.

Reid, Harry Fielding.

862. The variations of glaciers. XII.—Jour. Geology, vol. 16, no. 1, pp. 46-55, 1908.
863. Les variations périodiques des glaciers. XII^{me} rapport, 1906. États Unis.—Zeitschr. Gletscherkunde, Bd. 2, H. 3, pp. 181-185, March, 1908.
864. The variations of glaciers. XIII.—Jour. Geology, vol. 16, no. 7, pp. 664-668, 1908.
865. Report of Seismological Committee of the International Seismological Association.—Abstract: Science, new ser., vol. 27, p. 724, May 8, 1908.
866. Mechanics of the Californian earthquake, 1906.—Abstract: Science, new ser., vol. 27, pp. 991-992, June 26, 1908.
867. On the internal and basal melting of the ice of glaciers.—Zeitschr. Gletscherkunde, Bd. 3, H. 1, pp. 68-70, October, 1908.
868. A proof of Kurowski's rule for determining the height of the névé line on glaciers.—Zeitschr. Gletscherkunde, Bd. 3, H. 2, pp. 142-144, 1 fig., December, 1908.

Reid, John A.

- 869. A note on the geology of the Coso Range, Inyo County, California.—*Jour. Geology*, vol. 16, no. 1, pp. 64-72, 5 figs., 1908.
- 870. The ore deposits of Copperopolis, California.—*Econ. Geol.*, vol. 3, no. 4, pp. 340-342, 1908.
- 871. The copper belt of California.—*Eng. and Min. Jour.*, vol. 85, p. 420, February 22, 1908.
- 872. Foothill copper belt of the Sierra Nevada.—*Min. and Sci. Press*, vol. 96, pp. 388-393, 5 figs., March 21, 1908.
- 873. A Tertiary river channel near Carson City, Nevada.—*Min. and Sci. Press*, vol. 96, pp. 522-525, 8 figs., April 18, 1908.
- 874. Foothill copper belt of the Sierra Nevada.—*Min. and Sci. Press*, vol. 97, pp. 48-49, July 11, 1908.

Rice, Claude T.

- 875. The ore deposits of Santa Eulalia, Mexico.—*Eng. and Min. Jour.*, vol. 85, pp. 1229-1233, 9 figs., June 20, 1908.
- 876. Ores and mines of Santa Eulalia, Mexico.—*Eng. and Min. Jour.*, vol. 85, pp. 1283-1286, 7 figs., June 27, 1908.
- 877. El Rayo gold mine, near Santa Barbara, Mexico.—*Eng. and Min. Jour.*, vol. 86, pp. 78-80, 3 figs., July 11, 1908.
Gives notes on the local geology and the occurrence of the ores.
- 878. The silver-lead mines of Santa Barbara, Mexico.—*Eng. and Min. Jour.*, vol. 86, pp. 207-211, 9 figs., August 1, 1908.
Includes notes on the occurrence and character of the ores and the local geology.
- 879. The silicious silver mines of Parral, Mexico.—*Eng. and Min. Jour.*, vol. 86, pp. 276-280, 6 figs., August 8, 1908.
Includes notes on the local geology and the occurrence and character of the ores.
- 880. Zacatecas, a famous silver camp of Mexico.—*Eng. and Min. Jour.*, vol. 86, pp. 401-407, 14 figs., August 29, 1908.
Includes notes on the geology of the district and the occurrence and character of the silver and copper ores.
- 881. Pachuca and Real del Monte silver district [Hidalgo, Mexico].—*Eng. and Min. Jour.*, vol. 86, pp. 519-525, 12 figs., September 12, 1908.
Contains notes on the local geology, the vein system, and the occurrence and character of the ore.
- 882. Guanajuato, the great silver camp of Mexico.—*Eng. and Min. Jour.*, vol. 86, pp. 669-672, 4 figs., October 3, 1908.
Describes the geology of the district, the ore zones, and the character of the ores.

Rice, William North.

- 883. Third biennial report of the commissioners of the State Geological and Natural History Survey of Connecticut, 1907-1908 (Bull. no. 12), Hartford, 1908. 30 pp.
An administrative report outlining the progress of the work.

Rich, John L.

- 884. Marginal glacial drainage features in the Finger Lake region [New York].—*Jour. Geology*, vol. 16, no. 6, pp. 527-548, 9 figs., 1908.

Richardson, C. H.

- 885. The geology of Newport, Troy, and Coventry.—*Vermont, Sixth Rept. State Geologist*, pp. 265-291, 6 pls., 1 fig., 1908.

Richardson, George Burr.

886. Paleozoic formations in trans-Pecos Texas.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 474-484, 1 fig., June, 1908.

887. Antimony in southern Utah.—*U. S. Geol. Survey, Bull.* 340, pp. 253-256, 1908.

Describes the general geology of the region, the occurrence of the ore, and the mining developments.

888. Petroleum in southern Utah.—*U. S. Geol. Survey, Bull.* 340, pp. 343-347, 1908.

Gives an outline of the geology in the vicinity of Virgin City, Utah, and describes the occurrence of petroleum and the character of the oil.

889. Portland cement materials near El Paso, Texas.—*U. S. Geol. Survey, Bull.* 340, pp. 411-414, 1908.

Describes the general geology of the region and the occurrence and character of clays and limestones.

Richter, C. M., and McAdie, Alexander G.

890. Phenomena connected with the San Francisco earthquake.—*Monthly Weather Review*, vol. 35, no. 11, pp. 505-506, November, 1907.

Rickard, T. A.

891. The historical development of Colorado viewed from a geological standpoint.—*Min. and Sci. Press*, vol. 96, pp. 295-296, 2 figs., February 29, 1908.

892. Goldfield, Nevada. Geological notes.—*Min. and Sci. Press*, vol. 96, pp. 738-742, 5 figs., May 30, 1908.

893. Waters, meteoric and magmatic.—*Min. and Sci. Press*, vol. 96, pp. 872-875, 3 figs., June 27, 1908.

Discusses the distribution of underground water.

894. Copper deposits of White Horse [Yukon Territory].—*Min. and Sci. Press*, vol. 97, pp. 778-779, 1 fig., December 5, 1908.

895. Geological distribution of gold.—*Mineral Collector*, vol. 15, no. 9, pp. 133-136, no. 10, pp. 149-152, 1908.

Ries, Heinrich.

896. The clays of Texas.—*Texas, Univ., Bull.* no. 102 (*Sci. Series*, vol. 2, no. 12), 316 pp., 10 pls., 5 figs., 1908.

Ries, Heinrich, and Rosen, J. A.

897. Report on foundry sands.—*Michigan, State Bd. Geol. Survey, Rept.*, 1907, pp. 33-85, 5 pls., 3 figs., 1908.

Ritter, Etienne A.

898. The Evergreen copper deposit, Colorado.—*Am. Inst. Min. Eng., Bi-Mo. Bull.*, no. 19, pp. 33-47, 12 figs., January, 1908; *Trans.*, vol. 38, pp. 751-765, 13 figs., 1908.

899. The Montezuma mining district, Colorado.—*Eng. and Min. Jour.*, vol. 85, pp. 241-244, 4 figs., February 1, 1908.

Includes notes on the local geology, the vein system, and the occurrence and character of the lead-silver-zinc ores.

900. The Evergreen copper deposits of Colorado [Apex, Gilpin County].—*Min. World*, vol. 28, pp. 485-486, March 21, 1908.

901. The Montezuma mining district [Summit County, Colorado].—*Mines and Minerals*, vol. 28, no. 11, pp. 501-504, 4 figs., June, 1908.

Describes the occurrence and character of the ore bodies.

902. Le gisement de cuivre d'Evergreen.—*Acad. d. Sci., Paris, Compt. rend.*, t. 145, pp. 1187-1188, December 9, 1907.

Describes the occurrence of a copper deposit at Evergreen, Gilpin County, Colorado.

Robertson, William Fleet.

903. Report of [British Columbia] Bureau of Mines.—British Columbia, Ann. Rept. Minister of Mines, for 1907, Victoria, B. C., 1908. 235 pp., pls. and maps.

Includes notes on the geology and occurrence of various ores in British Columbia.

Robinson, H. H.

904. Ancient water planes and crustal deformation.—Jour. Geology, vol. 16, no. 4, pp. 347-356, 1908.

Discusses sources of error in locating water-planes with respect to ancient shore-lines and the character of the crustal movements which have deformed the ancient shore-lines.

Rogers, Austin F.

905. A simple reflection goniometer.—Science, new ser., vol. 27, pp. 929-930, 1 fig., June 12, 1908.

906. Note on the crystal form of benitoite.—Science, new ser., vol. 28, p. 616, October 30, 1908.

Rohwer, S. A.

907. A fossil larrid wasp.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 519-520, 1908.

Describes *Pison cockerellæ* n. sp. from the Miocene of Florissant, Colo.

908. On the Tenthredinoidea of the Florissant shales.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 521-530, 1908.

909. The Tertiary Tenthredinoidea of the expedition of 1908 to Florissant, Colo.—Am. Mus. Nat. Hist., Bull., vol. 24, pp. 591-595, 1 fig., 1908.

910. A fossil mellinid wasp.—Am. Mus. Nat. Hist., Bull., vol. 24, p. 597, 1908.

Describes *Mellinus handlirschi* n. sp. from the Miocene of Florissant, Colo.

Rolfe, Charles W.

911. Geology of clays.—Illinois State Geol. Survey, Bull. no. 9, pp. 1-35, 1908.

A general account of the origin and classification of clays.

912. Geological distribution of paving brick material in Illinois.—Illinois State Geol. Survey, Bull. no. 9, pp. 36-46, 1908.

Rosen, J. A.

- Report on foundry sands.—See Ries and Rosen, no. 897.

Rowe, Jesse Perry.

913. Some economic geology of Montana.—Montana, Univ., Bull. no. 50 (Geol. Ser. no. 3), 70 pp., 46 pls., 20 figs., 1908.

Describes the extent, character, relations, and industrial development of various non-metallic economic deposits of the State.

914. Mining in the Cœur d'Alene district, Idaho.—Mines and Minerals, vol. 28, no. 12, pp. 549-551, 1 fig., July, 1908.

Includes notes on the occurrence of the ores and the geology of the district.

915. Barytes deposits in Montana.—Min. World, vol. 28, p. 637, April 18, 1908.

916. The coal and lignite deposits of Montana.—Min. World, vol. 28, pp. 673-676, 717-718, 7 figs., 1908.

917. Graphite deposits in Montana.—Min. World, vol. 28, p. 839, May 23, 1908.

918. The coal industry of Montana.—Eng. and Min. Jour., vol. 85, pp. 1055-1058, 7 figs., May 23, 1908.

919. Gypsum deposits of Montana.—Eng. and Min. Jour., vol. 85, p. 1243, June 20, 1908.

920. The Cœur d'Alene mining district, Idaho.—Min. World, vol. 29, pp. 739-740, 777-778, 843-845, 10 figs., 1908.

Rowley, R. R.

921. The geology of Pike County.—Missouri Bur. Geol. and Mines, 2d ser., vol. 8, 122 pp., 20 pls., 13 figs., [1908].

Ruedemann, Rudolph.

922. Graptolites of New York. Part 2, Graptolites of the higher beds.—New York State Mus., Mem. 11, 583 pp., 31 pls., 482 figs., 1908.

Ruhl, Otto.

923. The calamine deposits of southwest Missouri.—Min. World, vol. 28, pp. 787-788, 2 figs., May 16, 1908.

924. Unconformity and deposits.—Min. and Sci. Press, vol. 96, pp. 778-780, 2 figs., June 6, 1908.

Discusses the origin of the lead and zinc ore deposits in the Missouri-Kansas district.

925. Miami lead and zinc district in Oklahoma.—Eng. and Min. Jour., vol. 86, pp. 910-912, 3 figs., November 7, 1908.

Includes notes on the occurrence of the ores.

Russell, B. E.

926. Nacozari mining district, Sonora, Mexico.—Eng. and Min. Jour., vol. 86, pp. 657-662, 8 figs., October 3, 1908.

Includes notes on the occurrence, geological relations and character of the copper-ore deposits.

927. Las Chispas mines, Sonora, Mexico.—Eng. and Min. Jour., vol. 86, pp. 1006-1007, November 21, 1908.

Includes notes on the geology of the district and the occurrence of the silver ores.

Russell, Israel C., and Leverett, Frank.

928. Description of the Ann Arbor quadrangle, Michigan.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 155, 15 pp., 13 figs., 3 maps, 1908.

Describes the geography and physiographic features, the distribution, character, and relations of Silurian, Devonian, and Carboniferous strata and surficial deposits, the geologic history, the deposits of economic value, and the water resources.

Rutledge, J. J.

929. The Clinton iron-ore deposits of Stone Valley, Huntingdon County, Pa.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 24, pp. 1057-1087, 4 figs., November, 1908.

Describes the local geology and the character, occurrence, and relations of the ores, and discusses their origin.

Sales, Reno H.

930. The localization of values in ore bodies and the occurrence of shoots in metaliferous deposits: Ore shoots at Butte, Montana.—Econ. Geology, vol. 3, no. 4, pp. 326-331, 1908. Eng. and Min. Jour., vol. 86, pp. 226-227, August 1, 1908. Abstract: Min. and Sci. Press, vol. 97, pp. 190-191, August 8, 1908.

Salisbury, Rollin D.

931. Quaternary system of the Franklin Furnace quadrangle, New Jersey.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 161, pp. 13-18, 1908.

Description of the Passaic quadrangle, New Jersey—New York.—See Darton and others, no. 269.

Salisbury, Rollin D., and Atwood, Wallace W.

932. The interpretation of topographic maps.—U. S. Geol. Survey, Prof. Paper 60, 84 pp., 170 pls., 34 figs., 1908.

Sardeson, Frederick W.

933. Beginning and recession of Saint Anthony Falls.—Geol. Soc. America, Bull., vol. 19, pp. 29–52, 2 pls., March, 1908. Abstract: Science, new ser., vol. 27, p. 729, May 8, 1908.

Describes terraces and other evidences of drainage changes in the vicinity of St. Paul and Minneapolis, Minnesota, and discusses the rate of recession of the falls and the factors by which the rate was determined.

934. Geological history of the Redstone quartzite [Minnesota].—Geol. Soc. America, Bull., vol. 19, pp. 221–242, 1 fig., 1908.

935. Discoid crinoidal roots and *Camarocrinus*.—Jour. Geology, vol. 16, no. 3, pp. 239–254, 31 figs., 1908.

Reviews previous observations upon crinoidal bases, describes several forms under the new generic term *Podolithus*, and discusses the structure and relationships of *Camarocrinus*.

Savage, T. E.

936. On the lower Paleozoic stratigraphy of southwestern Illinois.—Am. Jour. Sci., 4th ser., vol. 25, pp. 431–443, May, 1908.

937. Lower Paleozoic stratigraphy of southwestern Illinois.—Illinois State Geol. Survey, Bull. no. 8, pp. 103–116, 1908.

Schaeberle, J. M.

938. The earth as a heat-radiating planet.—Science, new ser., vol. 27, pp. 392–393, March 6, 1908.

939. Geological climates.—Science, new ser., vol. 27, p. 894, June 5, 1908.

940. On the origin and age of the sedimentary rocks.—Science, new ser., vol. 28, pp. 562–565, October 23, 1908.

Schaller, Waldemar T.

941. Notes on powellite and molybdate.—Am. Jour. Sci., 4th ser., vol. 25, pp. 71–75, January, 1908.

942. Calcitkrystalle mit neuen Formen.—Zeitschr. Krystal. und Mineral., Bd. 44, H. 4–5, pp. 321–331, 1908.

Describes crystallographic characters of calcite from California, New Mexico, Rhode Island, Texas, and other sources.

Two new boron minerals of contact-metamorphic origin.—See Knopf and Schaller, no. 606.

Scheffel, Earl R.

943. An esker group south of Dayton, Ohio.—Ohio Naturalist, vol. 8, no. 3, pp. 231–242, 6 figs., January, 1908. Denison Univ., Sci. Lab., Bull., vol. 14, pp. 19–33, 6 figs., 1908.

Schneider, Philip F.

944. The formation of the diamond.—Abstract: Science, new ser., vol. 27, p. 822, May 22, 1908.

945. A unique collection of peridotite.—Science, new ser., vol. 28, pp. 92–93, July 17, 1908.

946. Geology and mining in Arkansas diamond field.—Abstract: Min. World, vol. 28, pp. 255–257, February 8, 1908.

Schrader, Frank Charles.

947. Description of the Independence quadrangle, Kansas.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 159, 7 pp., 2 figs., 3 maps, and section sheet, 1908.

Describes the geography and general geology, the occurrence, character, and relations of Carboniferous strata and Quaternary deposits, the structure, the geologic and physiographic history, and the economic resources, petroleum, gas, coal, stone, and less important products.

Schrader, Frank Charles—Continued.

948. The mineral deposits of the Cerbat Range, Black Mountains, and Grand Wash Cliffs, Mohave County, Arizona.—U. S. Geol. Survey, Bull. 340, pp. 53-83, 1 fig., 1908.

Describes the general geology, the character, occurrence, and relations of gold, silver, copper, lead, zinc, and tungsten deposits, and the mining developments.

949. Mineral deposits of the Cerbat Range and Black Mountains, Mohave County, Arizona.—Abstract: Science, new ser., vol. 27, pp. 957-958, June 19, 1908.

Schuchert, Charles.

950. Newark red series of Connecticut.—Geologische und palaeontologische Abhandlungen (Koken), Supplement Band 1, Lief. 5, p. 317, 1908.

A section of the Triassic of Connecticut, showing succession, character, thickness, and fossils of the rocks.

Schultz, Alfred R.

951. The Labarge oil field, central Uinta County, Wyoming.—U. S. Geol. Survey, Bull. 340, pp. 364-373, 1 pl., 1908.

Describes the stratigraphy and geologic structure of the field, and the occurrence, character, and origin of the oil.

Schuster, Julius.

952. Ueber ein pliocänes Eichenholz aus Idaho.—Neues Jahrb., Bd. 2, Heft. 1, pp. 49-54, 2 pls., August, 1908.

Describes *Quercinium pliocenicum* n. sp., a fossil oak wood from the Pliocene, near Lincoln City, Idaho.

Schwarz, Manuel.

953. Coal mines of Mexico.—Mines and Minerals, vol. 29, no. 1, pp. 33-34, 5 figs., August, 1908.

Scott, D. H.

954. The present position of Paleozoic botany.—Smithsonian Inst., Ann. Rept., 1907, pp. 371-405, 2 pls., 13 figs., 1908.

See, T. J. J.

955. Further researches on the physics of the earth, and especially on the folding of mountain ranges and the uplift of plateaus and continents produced by movements of lava beneath the crust arising from the secular leakage of the ocean bottoms.—Am. Philos. Soc., Proc., vol. 47, pp. 157-275, 2 pls., 16 figs., 1908.

956. How the mountains were made in the depths of the sea. The new theory of earthquakes.—Pacific Monthly, vol. 20, pp. 256-270, 11 figs., September, 1908.

957. Outline of the new theory of earthquakes.—Popular Astronomy, vol. 16, no. 4, pp. 199-217, 6 pls., April, 1908.

Seely, Henry M.

958. Stellae and rhabdoliths of the genus *Strephochetus*.—Vermont, Sixth Rept. State Geologist, pp. 187-188, 1 pl., 1908.

959. Cryptozoön. Reply to the review of C. W. W.—Jour. Geol., vol. 16, no. 3, p. 298, 1908.

Seismological Society of America.

960. Annual report, San Francisco, Cal., April, 1908. 11 pp.

An administrative report.

Sellards, E. H.

961. First annual report of the Florida State Geological Survey, 1907-08, 114 pp., 6 pls., 1908.

An administrative report, but includes a sketch of the geology of Florida, its mineral industries, and a bibliography of the geology of Florida.

962. A preliminary report on the underground water supply of central Florida.—Florida State Geol. Survey, Bull. no. 1, 103 pp., 6 pls., 6 figs., 1908.

Selwyn-Brown, A.

933. Mining developments in Nevada.—Eng. Mag., vol. 34, no. 4, pp. 643-651, January, 1908.

Includes notes on the geology of Nevada.

964. The Nevada copper fields.—Eng. Mag., vol. 34, no. 5, pp. 763-780, 14 figs., February, 1908.

Sewell, Henry De Q.

965. Is belief in a Glacial Period justified?—Canadian Inst., Trans., vol. 8, pt. 2, pp. 279-289, 1906.

Shannon, Charles W., and others.

966. A soil survey of seventeen counties of southern Indiana.—Indiana, Dept. Geol. and Nat. Res., 32d Ann. Rept., pp. 15-298, 35 figs., 12 pls. (maps), 1908.

Sharwood, Wm. J.

Crocidolite-bearing rocks of the California coast ranges.—See Louderback and Sharwood, no. 682.

Sherzer, William Hittell.

967. The nature and activity of Canadian glaciers.—Canadian Alpine Jour., vol. 1, no. 2, pp. 249-263, 7 pls., 1908.

Devonic elements in the late Siluric fauna of southern Michigan.—See Grabau and Sherzer, no. 404.

Sherzer, W. H., and Grabau, A. W.

968. A new Siluric fauna from Michigan.—Abstract: Science, new ser., vol. 27, p. 408, March 13, 1908.

Shimek, B.

969. Nebraska "loess man."—Geol. Soc. America, Bull., vol. 19, pp. 243-254, 4 pls., 1 fig., 1908.

Describes the structure and material of the mound near Florence, Nebr., in which human remains were found and discusses their age.

970. The loesses of the Mississippi Valley.—Abstract: Science, new ser., vol. 27, p. 731, May 8, 1908.

971. Aftonian sands and gravel in western Iowa.—Science, new ser., vol. 28, p. 923, December 25, 1908.

972. The genesis of loess a problem in plant ecology.—Iowa Acad. Sci., Proc., vol. 15, pp. 57-75, 5 pls., 1908.

973. The loess of the paha and river-ridge.—Iowa Acad. Sci., Proc., vol. 13, pp. 117-135, 5 pls., 1908.

Discusses the distribution, relations, and origin of loess deposits in Iowa.

Shimer, Hervey Woodburn.

974. Dwarf faunas.—Am. Naturalist, vol. 42, pp. 472-490, July, 1908.

Discusses the chief agencies in dwarfing faunas and the probable causes of dwarfing of certain fossil dwarf faunas.

Shimer, H. W., and Blodgett, Mildred E.

975. The stratigraphy of the Mt. Taylor region, New Mexico.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 53–67, 4 figs., January, 1908.

Also describes Cretaceous Mollusca collected in the region.

Shippen, John P.

976. Mining coal in Big Stone Gap field, Kentucky.—*Eng. and Min. Jour.*, vol. 85, pp. 1287–1290, 9 figs., June 27, 1908.

Gives a condensed geologic section in Big Stone Gap coal field.

Shurick, A. T.

977. The Diamondville coal field, Wyoming.—*Eng. and Min. Jour.*, vol. 85, pp. 116–118, 1 fig., January 11, 1908.

Includes notes on the local geology.

Siebenthal, Claude E.

978. General geographical and stratigraphical features of the Indiana oolitic limestone.—*Indiana, Dept. Geol. and Nat. Res.*, 32d Ann. Rept., pp. 303–309, 1908.

979. Mineral resources of northeastern Oklahoma.—*U. S. Geol. Survey, Bull.* 340, pp. 187–228, 1 pl., 1908.

Describes the stratigraphy, the geological structure, and the mineral resources; lead, zinc, oil, gas, coal, cement materials, building stone, and water resources.

Mineral resources of the United States, 1907: Zinc.—See no. 1072.

Siebenthal, C. E., and Mesler, R. D.

980. Tripoli deposits near Seneca, Missouri.—*U. S. Geol. Survey, Bull.* 340, pp. 429–437, 1 fig., 1908.

Describes the local geology, the character, origin, and composition of the tripoli deposits, and their development.

Simpson, James F.

981. The relation of copper to pyrite in the lean copper ores of Butte, Montana.—*Econ. Geology*, vol. 3, no. 7, pp. 628–636, 2 pls., 2 figs., 1908.

Sinclair, Wm. J.

982. Recent investigations bearing on the question of the occurrence of Neocene man in the auriferous gravels of the Sierra Nevada.—*California, Univ., Publ. in Amer. Archaeology and Ethnology*, vol. 7, no. 2, pp. 107–131, 2 pls., February, 1908.

Sjögren, Hjalmar.

983. The localization of values in ore bodies and the occurrence of shoots in metalliferous deposits.—*Econ. Geology*, vol. 3, no. 7, pp. 637–643, 2 figs., 1908.

Sloan, Earle.

984. Catalogue of the mineral localities of South Carolina.—*South Carolina Geol. Survey*, ser. 4, *Bull.* no. 2, 505 pp., 10 pls., 18 figs., 1 map, 1908.

Smith, F. C.

985. Localization of values in ore bodies and occurrence of "shoots" in metalliferous deposits.—*Econ. Geol.*, vol. 3, no. 3, pp. 224–229, 1908.

Smith, George Otis.

986. Twenty-ninth annual report of the Director of the United States Geological Survey to the Secretary of the Interior for the fiscal year ended June 30, 1908. Washington, 1908. 99 pp., 2 pls. (maps).

An administrative report outlining the work of the U. S. Geological Survey.

987. The possibilities and limitations of Geological Survey work as applied to the mining industry.—*Am. Min. Cong., Rept. of Proc.* 10th Ann. Sess., pp. 138–148, 1908.

Smith, Leonard S.

988. The water powers of Wisconsin.—Wisconsin Geol. and Nat. Hist. Survey, Bull. no. 20, 354 pp., 54 pls., 17 figs., 1908.

Includes notes on the geology of various river basins of the State.

Smith, Philip S.

989. Investigations of the mineral deposits of Seward Peninsula, Alaska.—U. S. Geol. Survey, Bull. 345, pp. 206–250, 1 pl., 2 figs., 1908.

Describes placer deposits, lode mining for gold, and various occurrences of copper, antimony, galena, rarer metals, and nonmetallic mineral resources.

990. Notes on recent changes in the Bogoslof Islands.—Abstract: Science, new ser., vol. 27, p. 695, May 1, 1908.

The gold placers of Seward Peninsula, Alaska.—See Collier and others, no. 241.

Smyth, Henry Lloyd.

991. Magnetic observations in geological and economic work. II.—Econ. Geol., vol. 3, no. 3, pp. 200–218, 14 figs., 1908.

Spencer, Arthur Coe.

992. Three deposits of iron ore in Cuba.—U. S. Geol. Survey, Bull. 340, pp. 318–329, 1 fig., 1908.

Describes the extent of the deposits, and the character and origin of the ores.

993. Magnetite deposits of the Cornwall type in Pennsylvania.—U. S. Geol. Survey, Bull. 359, 102 pp., 20 pls., 21 figs., 1908.

994. Review of the geology and origin of the Lapland iron ores, by O. Stutzer.—Econ. Geology, vol. 3, no. 6, pp. 545–553, 1908.

Includes notes on the magnetite deposits of New Jersey and New York.

995. Deposits of residual iron ore in Cuba.—Abstract: Science, new ser., vol. 27, pp. 468–469, March 20, 1908.

Spencer, Arthur C., and Arnold, Ralph.

996. The cause of the great earthquake.—The World's Work, vol. 12, no. 2, pp. 7678–7681, 3 figs., June, 1906.

Explains how the California earthquake of April 18, 1906, was produced.

Spencer, A. C., Kümmel, H. B., Wolff, J. E., Salisbury, R. D., and Palache, Charles.

997. Description of Franklin Furnace quadrangle, New Jersey.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 161, 27 pp., 15 figs., 6 maps, 1908.

Describes the geography, the general geology, the distribution, character, and relations of pre-Cambrian, Cambrian, Ordovician, Silurian, Devonian, and igneous rocks, and Quaternary deposits; the geologic structure, the geologic history, and deposits of iron, zinc, graphite, limestone, and clay.

Spencer, Joseph William Winthrop.

998. Soundings under Niagara Falls and in the gorge.—Abstract: Science, new ser., vol. 27, pp. 587–589, April 10, 1908.

999. Revision of the age of Niagara Falls.—Abstract: Science, new ser., vol. 27, pp. 925–926, June 12, 1908.

1000. High-level terraces of New England.—Abstract: Science, new ser., vol. 28, p. 382, September 18, 1908.

1001. Changes in the recession of the Falls of Niagara.—Abstract: Science, new ser., vol. 28, pp. 383–384, September 18, 1908.

1002. Preglacial Erie outlet.—Abstract: Science, new ser., vol. 28, p. 384, September 18, 1908.

1003. Side issues bearing on the age of Niagara Falls.—Science, new ser., vol. 28, pp. 754–759, November 27, 1908.

Spencer, Joseph William Winthrop—Continued.

1004. Soundings in Niagara Gorge and under the falls.—*Sci. Am.*, vol. 99, pp. 76-77, August 1, 1908.

1005. Recession of the Niagara Falls.—*British Assoc. Adv. Sci.*, Rept. 77th Meeting, pp. 572-573, 1908.

Spurr, Josiah Edward.

1006. A theory of ore deposition.—*Min. and Sci. Press*, vol. 96, pp. 261-265, February 22, pp. 662-663, May 16, 1908.

1007. A theory of the origin of ore deposits.—*Min. World*, vol. 28, pp. 489-490, 519, 560, 1908.

Spurr, Josiah E., and Garrey, George H.

1008. Economic geology of the Georgetown quadrangle (together with the Empire district), Colorado, with general geology by Sydney H. Ball.—*U. S. Geol. Survey, Prof. Paper* 63, 422 pp., 87 pls., 155 figs., 1908.

1009. Ore deposits of the Velardeña district, Mexico.—*Econ. Geology*, vol. 3, no. 8, pp. 688-725.

Describes the general geologic history of the region, the geologic formations and structure, the types of rocks, metamorphism produced by intrusions, and the relations and character of the ore deposits.

Stauffer, Clinton R.

1010. The Devonian section on Ten Mile Creek, Lucas County, Ohio.—*Ohio Naturalist*, vol. 8, no. 5, pp. 271-276, March, 1908.

Includes a list of the Devonian fauna found in the Ten Mile Creek section.

Stearns, Robert E. C.

1011. Dr. John B. Trask, a pioneer of science on the west coast.—*Science*, new ser., vol. 28, pp. 240-243, August 21, 1908.

Steidtmann, Edward.

1012. A graphic comparison of the alteration of rocks by weathering with their alteration by hot solutions.—*Econ. Geology*, vol. 3, no. 5, pp. 381-409, 9 figs., 1908.

Sternberg, Charles H.

1013. My expedition to the Kansas chalk for 1907.—*Kansas Acad. Sci., Trans.*, vol. 21, pt. 1, pp. 111-114, 1 fig., 1908.

Gives notes upon various vertebrates from the Cretaceous of western Kansas.

Sterrett, Douglas B.

1014. The discovery of meerschaum in New Mexico.—*Abstract: Science*, new ser., vol. 27, p. 892, June 5, 1908.

1015. Monazite deposits of the Carolinas.—*U. S. Geol. Survey, Bull.* 340, pp. 272-285, 2 figs., 1908.

Describes the geologic formations and structure of the monazite-yielding area, the occurrence of the gravels and monazite-bearing rock, and the origin of the monazite.

1016. Meerschaum in New Mexico.—*U. S. Geol. Survey, Bull.* 340, pp. 466-473, 1908.

Describes the location, geology, and occurrence of the deposits in Grant County, and the chemical and physical properties of the mineral.

Monazite and monazite mining in the Carolinas.—See Pratt and Sterrett, no. 833.

Mineral resources of the United States, 1907: Mica; monazite and zircon; precious stones.—See no. 1072.

Stewart, C. A.

1017. The magnetite belts of Putnam County, N. Y.—School of Mines Quart., vol. 29, no. 3, pp. 283-294, 5 figs., April, 1908.

Describes the occurrence, character, and relations to surrounding rocks of the iron ores and discusses their origin.

1018. Note on the occurrence of graphite schist in Tuxedo Park, New York.—Econ. Geology, vol. 3, no. 6, pp. 536-538, 1908.

Describes the occurrence of graphite schist and discusses the source of the carbon.

Stewart, L.

1019. The Creighton mine of the Canadian Copper Co., Sudbury district, Ontario.—Canadian Min. Inst., Jour., vol. 11, pp. 567-585, 5 figs., 1908.

Includes an account of the geology and the character and occurrence of the nickel-copper ores.

Stirling, James.

1020. The localization of values and the occurrence of shoots in metalliferous deposits.—Econ. Geology, vol. 3, no. 6, pp. 534-535, 1908.

Stoek, Harry H.

1021. Coal fields of West Virginia.—Mines and Minerals, vol. 29, no. 5, pp. 219-222, 3 figs., December, 1908.

Stoltz, Guy C.

1022. The Forest of Dean iron mine, New York.—Eng. and Min. Jour., vol. 85, pp. 1091-1093, 2 figs., May 30, 1908.

Includes notes on the local geology and the occurrence and character of the iron ore.

Stone, Ralph W.

1023. Coal resources of the Russell Fork basin in Kentucky and Virginia.—U. S. Geol. Survey, Bull. 348, 127 pp., 8 pls., 25 figs., 1908.

Describes the physiographic features, the stratigraphy and geologic structure, and the character and occurrence of coal beds.

1024. Geologic work in Pennsylvania.—Pennsylvania, Topog. and Geol. Survey Comm., Rept., 1906-1908, pp. 83-108, 1908.

Reviews the progress of geologic work in Pennsylvania. Includes lists of publications by the different surveys.

1025. Review of general geology [of Pennsylvania].—Pennsylvania, Topog. and Geol. Survey Comm., Rept., 1906-1908, pp. 109-119, 1 pl., 1 fig., 1908.

1026. Physiography of southwestern Pennsylvania.—Pennsylvania, Topog. and Geol. Survey Comm., Rept., 1906-1908, pp. 120-127, 2 pls., 4 figs., 1908.

1027. Limestone in western Pennsylvania.—Pennsylvania, Topog. and Geol. Survey Comm., Rept., 1906-1908, pp. 326-334, 4 pls., 1908.

1028. Sandstones of southwestern Pennsylvania.—Pennsylvania, Topog. and Geol. Survey Comm., Rept., 1906-1908, pp. 335-339, 2 pls., 1908.

Stose, George W.

1029. The Cambro-Ordovician limestones of the Appalachian Valley in southern Pennsylvania.—Jour. Geology, vol. 16, no. 8, pp. 698-714, 1908.

Strangways, H. F.

1030. Chrome iron mining in Canada.—Canadian Min. Jour., vol. 29, no. 5, pp. 42-47, 4 figs., March 1, 1908.

Describes the geology and occurrence of chrome iron ores in Coleraine township, Quebec.

1031. Chrome iron mining and milling in Canada.—Eng. and Min. Jour., vol. 85, pp. 595-597, 3 figs., March 21, 1908.

Includes notes on the geology of the district in which chrome ore is mined in eastern Quebec.

Strutt, Robert John.

1032. Changes in the earth. How radioactivity has affected rocks.—*Sci. Am. Suppl.*, vol. 66, pp. 198-199, September 26, 1908.

Studley, C. K.

1033. On Iron Canyon.—*California Phys. Geog. Club, Bull.*, vol. 1, no. 3, pp. 13-17, 3 figs., January, 1908.

Describes physiographic character and geologic history of Iron Canyon near Chico, California.

Stutzer, O.

1034. Die Nickelerzlagertstätten bei Sudbury in Kanada.—*Zeitschr. prakt. Geol.*, Jg. 16, pp. 285-287, July, 1908.

Gives a short account of the Sudbury nickel deposits in Ontario and their origin.

1035. Die Kobalt-Silverlagerstätten von Temiskaming.—*Zeitschr. prakt. Geol.*, Jg. 16, p. 511, December, 1908.

Gives a short account of the cobalt-silver ore deposits of Temiskaming, Ontario.

Sullivan, Eugene C.

1036. Experiments on the separation of the constituents of a solution by filtration through a mineral filter.—*Econ. Geology*, vol. 3, no. 8, pp. 750-756, 1908.

Sutherland, W. J.

1037. Physiography of the Gulf coastal plains.—*Jour. Geog.*, vol. 3, no. 11, pp. 337-347, June 1908.

Swartz, Charles K.

1038. The succession of faunas in the Portage and Chemung formations of Maryland.—*Jour. Geology*, vol. 16, no. 4, pp. 328-346, 2 figs., 1908.

* Describes various Devonian sections in Washington and Allegany counties, Maryland, with faunal lists, and discusses the correlation of their faunules with those of New York.

Sylvester, A. H.

1039. Evidences of recent volcanic activity and the glaciers of Mt. Hood, Oregon.—*Abstract: Science*, new ser., vol. 27, p. 585, April 10, 1908.

1040. Is our noblest volcano awakening to new life? A description of the glaciers and evidences of volcanic activity of Mount Hood.—*Nat. Geog. Mag.*, vol. 19, no. 7, pp. 515-525, 7 figs., July, 1908.

Taff, Joseph A.

- Mineral resources of the United States, 1907: Asphalt and bituminous rock.—*See no. 1072.*

Tarr, Ralph S.

1041. Some phenomena of the glacier margins in the Yakutat Bay region, Alaska.—*Zeitschr. Gletscherkunde*, Bd. 3, H. 2, pp. 81-110, 10 figs., December, 1908.

Tarr, Ralph S., and Engeln, O. D. von.

1042. Representation of land forms in the physiography laboratory.—*Jour. Geog.*, vol. 7, no. 4, pp. 73-85, 5 figs., December, 1908.

Tassart, L. C.

1043. Exploitation du pétrole. Paris, H. Dunod et E. Pinat, 1908. 726 pp., 303 figs.

Includes an account of the geographic and geologic distribution of petroleum in the United States and Canada.

Tassin, Wirt.

1044. Analysis and notes on the Ainsworth meteorite.—*Am. Jour. Sci.*, 4th ser., vol. 25, pp. 106-107, 1 fig., February, 1908.
1045. On the occurrence of calcium sulphide (oldhamite) in the Allegan meteorite.—*U. S. Nat. Mus., Proc.*, vol. 34, pp. 433-434, 1908.
1046. On meteoric chromites.—*U. S. Nat. Mus., Proc.*, vol. 34, pp. 685-690, 1908.

Describes the occurrence of chromite in various meteorites.

Taylor, Frank B.

1047. A review of the Great Lakes history, with special reference to the deformation of the ancient water planes.—*Abstract: Science*, new ser., vol. 27, pp. 725-726, May 8, 1908.

Tillotson, Edwin Ward, Jr.

Notes on various minerals in the museum collection.—See Farrington and Tillotson, no. 346.

On orthoclase twins of unusual habit.—See Ford and Tillotson, no. 362.

Todd, James E.

1048. Description of the Elk Point quadrangle, South Dakota-Nebraska-Iowa.—*U. S. Geol. Survey, Geol. Atlas U. S.*, folio no. 156, 8 pp., 6 figs., 3 maps, 1908.

Describes the topography, the distribution and character of Cretaceous and Tertiary strata and Quaternary deposits, the economic geology, and the water resources.

Toll, R. H.

1049. La Plata Mountains, Colorado.—*Min. and Sci. Press*, vol. 97, pp. 741-744, 1 fig., November, 1908.

Includes an account of the geology of the region and of the character, occurrence, and relations of the gold ores.

Townsend, Arthur R.

1050. Black sands.—*Eng. and Min. Jour.*, vol. 85, pp. 307-308, February 8, 1908.

Trowbridge, Arthur C.

1051. The rock bed near Wheaton.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 72-76, 1 fig., 1908.

True, Frederick W.

1052. On the classification of the Cetacea.—*Am. Philos. Soc., Proc.*, vol. 47, pp. 385-391, 1908.

1053. On the occurrence of remains of fossil cetaceans of the genus *Schizodelphis* in the United States, and on *Priscodelphinus? crassangulum* Case.—*Smithsonian Misc. Coll.*, vol. 50 (Quart. Issue, vol. 4, pt. 4), pp. 449-460, 2 pls., 1908.

1054. The fossil cetacean *Dorudon serratus* Gibbes.—*Harvard Coll., Mus. Comp. Zool., Bull.*, vol. 52, no. 4, pp. 65-78, 3 pls., 2 figs., 1908.

1055. Remarks on the fossil cetacean *Rhabdosteus latiradix* Cope.—*Philadelphia, Acad. Nat. Sci., Proc.*, vol. 60, pt. 1, pp. 24-29, 1 pl., 3 figs., 1908.

Turgeon, Fremont N.

An occurrence of Harney granite in the northern Black Hills.—See Ferguson and Turgeon, no. 350.

Turner, H. W.

1056. The vein system of the Standard mine, Bodie, Cal.—*Am. Inst. Min. Eng., Bi-Mo. Bull.* no. 22, pp. 623-624, July, 1908.

Gives notes upon minerals and rocks occurring in the mine.

1057. The ore deposits at Mineral, Idaho.—*Econ. Geology*, vol. 3, no. 6, pp. 492-502, 4 figs., 1908.

Turner, H. W.—Continued.

1058. On the Ray mining district, Nevada.—*Econ. Geology*, vol. 3, no. 6, pp. 538-539, 1908.

1059. Waters, meteoric and magmatic.—*Min. and Sci. Press*, vol. 97, pp. 805-806, December 12, 1908.

Tyrrell, J. Burr.

1060. Minerals and ores of northern Canada.—*Canadian Min. Inst., Jour.*, vol. 11, pp. 348-365, 3 pls., 1908.

1061. Cobalt and northern Ontario.—*Inst. Min. Eng., Trans.*, vol. 35, pt. 4, pp. 488-500, 1908.

Gives a general account of the geology of Ontario, of the geology of the cobalt mining district, and of the occurrence, character, and relations of its silver-cobalt ores.

1062. Mineral veins in the Montreal River district [Ontario].—*Canadian Min. Jour.*, vol. 29, no. 24, pp. 651a-652a, December 15, 1908.

Udden, Johan August.

1063. Fossil tracks in the Del Rio clay.—*Texas Acad. Sci., Trans.*, vol. 10, pp. 51-52, 2 pls., 1908.

1064. A cycad from the upper Cretaceous in Maverick County, Texas.—*Science*, new ser., vol. 28, pp. 159-160, July 31, 1908.

Describes the locality from which obtained and the geologic relations of the strata in which the fossil was found.

1065. Defects in coal number five at Peoria.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 255-267, 8 pls., 8 figs., 1908.

Describes irregularities and fractures in the coals in the vicinity of Peoria, and considers the fractures due to the action of glacial ice.

1066. Artesian wells in Peoria and vicinity.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 313-334, 1 pl., 1 fig., 1908.

Gives logs of wells and discusses the formations passed through

Udden, J. A., and DeWolf, F. W.

1067. Notes on the Belleville-Breese area.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 246-254, 1 pl., 1908.

Gives stratigraphic and other notes upon the coals of the area.

Udden, Jon Andreas.

1068. Notes on the Shoal Creek limestone.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 117-126, 2 pls., 1908.

Uhler, P. R.

1069. The Cauda-Galli in the Niagara of Maryland.—*Maryland Acad. Sci.*, vol. 2, pp. 27-30, September 14, 1908.

Describes the geology of a locality near Cumberland, Maryland, where *Spirophyton cauda-galli* Hall was found, and gives a list of other fossils collected from the same locality.

Ulrich, Edward O., and Bassler, Ray S.

1070. New American Paleozoic Ostracoda. Preliminary revision of the Beyrichiidae, with descriptions of new genera.—*U. S. Nat. Mus., Proc.*, vol. 35, pp. 277-340, 8 pls., 64 figs., 1908.

Unger, Claude W.

1071. An account of the various contributions made to the knowledge of the fossil flora of the southern anthracite coal field and the adjacent Palaeozoic formations in Pennsylvania, with a list of the fossil plants.—*Historical Society of Schuylkill County, Pennsylvania, Publications*, vol. 2, no. 1, pp. 50-102, 1907.

The list includes numerous critical notes.

U. S. Geological Survey.

1072. Mineral resources of the United States: Calendar year, 1907. Part I. Metallic products, 743 pp., 1 pl., 1 fig., 1908. Part II. Nonmetallic products, 897 pp., 1 pl., 6 figs., 1908.

Contains the following papers, mainly statistical in character, relating to the production, condition of the industry, etc., but also in some cases including notes on the geology and occurrence of the products treated:

PART I.

Summary of mineral production in the United States in 1907, compiled by W. T. Thom, pp. 7-49.

Iron ores, pig iron, and steel, by Edwin C. Eckel, pp. 51-85.

Manganese ores, by F. C. Harder, pp. 87-110.

Gold and silver, by W. Lindgren and H. D. McCaskey, pp. 111-135.

Gold, silver, copper, lead, and zinc in Western States, pp. 137-482.

Silver, copper, lead, and zinc in Central States, pp. 483-549.

Gold, silver, copper, lead, and zinc in Eastern States, pp. 551-570.

Copper, by L. C. Graton, pp. 571-644.

Lead, by C. E. Siebenthal, pp. 645-658.

Zinc, by C. E. Siebenthal, pp. 659-676.

Quicksilver, by H. D. McCaskey, pp. 677-692.

Bauxite and aluminum, by W. C. Phalen, pp. 693-705.

Antimony, by F. L. Hess, pp. 707-710.

Tungsten, nickel, cobalt, etc., by F. L. Hess, pp. 711-722.

Chromite or chromic iron ore, pp. 723-724.

Tin, by F. L. Hess, pp. 725-729.

Platinum, by D. T. Day, pp. 731-732.

PART II.

FUELS.

Coal, by E. W. Parker, pp. 5-222.

Coal briquetting, by E. W. Parker, pp. 223-228.

Coke, by E. W. Parker, pp. 229-290.

Gas, coke, tar, and ammonia, by E. W. Parker, pp. 291-322.

Natural gas, by B. Hill, pp. 323-346.

Petroleum, by David T. Day, pp. 347-475.

STRUCTURAL MATERIALS.

Cement industry in the United States in 1907, by E. C. Eckel, pp. 477-493.

Clay-working industries, by Jefferson Middleton, pp. 495-544.

Lime and sand-lime brick, by E. C. Eckel, pp. 545-551.

Sand and gravel, pp. 553-556.

Slates, by A. T. Coons, pp. 557-562.

Stone, by A. T. Coons, pp. 563-605.

ABRASIVES.

Abrasive materials, by W. C. Phalen, pp. 607-626.

CHEMICAL MATERIALS.

Arsenic, by F. L. Hess, pp. 627-630.

Borax, by Charles G. Yale, pp. 631-635.

Fluorspar and cryolite, by E. F. Burchard, pp. 637-641.

Gypsum, by E. F. Burchard, pp. 643-650.

Phosphate rock, by F. B. Van Horn, pp. 651-657.

Salt and bromine, by W. C. Phalen, pp. 659-672.

Sulphur and pyrite, by W. C. Phalen, pp. 673-683.

PIGMENTS.

Barytes and strontium, by E. F. Burchard, pp. 685-696.

Mineral paints, by E. F. Burchard, pp. 697-709.

MISCELLANEOUS.

Asbestos, by J. S. Diller, pp. 711-722.

Asphalt and bituminous rock, by J. A. Taff, pp. 723-730.

Fuller's earth, by F. B. Van Horn, pp. 731-734.

Graphite, by F. L. Hess, pp. 735-736.

Magnesite, by Charles G. Yale, pp. 737-740.

Mica, by D. B. Sterrett, pp. 741-750.

Mineral waters, by S. Sanford, pp. 751-784.

Monazite and zircon, by D. B. Sterrett, pp. 785-794.

Precious stones, by D. B. Sterrett, pp. 795-842.

Quartz and feldspar, by E. S. Bastin, pp. 843-872.

Talc and soapstone, pp. 873-876.

U. S. Geological Survey—Continued.

Contributions to economic geology, 1907. Part I. Metals and nonmetals, except fuels.—U. S. Geol. Survey; Bull. 340, 482 pp., 6 pls., 26 figs., 1908.
The papers in this bulletin have been listed under the individual authors.

Upham, Warren.

1073. The life and work of Professor Charles M. Hall.—North Dakota, Agric. Coll. Survey, 2d Bienn. Rept., pp. 13-16, 1 pl. (port.), 1904.
1074. Fjords of Pujet Sound and the Saguenay.—Abstract: Science, new ser., vol. 27, pp. 732-733, May 8, 1908.
1075. Niagara as a measure of postglacial time.—Records of the Past, vol. 7, pt. 5, pp. 244-246, September-October, 1908.

Vallat, B. W.

1076. Methods of mining iron ore at Sunrise, Wyoming.—Eng. and Min. Jour., vol. 85, pp. 399-403, 7 figs., February 22, 1908.
Includes notes on the occurrence and character of the iron ore.
1077. Sunrise iron mine [Laramie County, Wyoming]. A description of the ores.—Mines and Minerals, vol. 28, no. 9, pp. 439-440, 2 figs., April, 1908.

Van Hise, Charles Richard.

1078. The problem of the pre-Cambrian.—Geol. Soc. America, Bull., vol. 19, pp. 1-28, March, 1908.
Reviews the stratigraphy, nomenclature, and correlation of the Laurentian, Huronian, and Hastings series of pre-Cambrian rocks in Canada and in the Lake Superior region, and discusses the classification of pre-Cambrian rocks and the facts upon which it is based, and the application of the proposed classification to regions other than the great northern area.

Van Horn, Frank B.

1079. The mineral production of Illinois in 1906.—Illinois State Geol. Survey, Circular no. 2, 11 pp., 1907.
1080. The mineral production of Illinois in 1907.—Illinois State Geol. Survey, Circular no. 4, 11 pp., 1908.
Mineral resources of the United States, 1907: Phosphate rock; Fuller's earth.—See no. 1072.

Van Horn, Frank R.

1081. A new occurrence of proustite and argentite.—Am. Jour. Sci., 4th ser., vol. 25, pp. 507-508, June, 1908.
Describes the character, composition, and occurrence of these minerals in Summit County, Colorado.
1082. Occurrence of proustite and argentite at the California mine, near Montezuma, Colorado.—Geol. Soc. America, Bull., vol. 19, pp. 93-98, June, 1908. Abstract: Science, new ser., vol. 27, p. 405, March 13, 1908.

Van Ingen, Gilbert.

1083. Stratigraphic observations in the vicinity of Susquehanna Gap, north of Harrisburg, Pa.—Abstract: Science, new ser., vol. 27, p. 764, May 15, 1908.

Van Wagenen, Theodore F.

1084. Gold.—Pop. Sci. Monthly, vol. 72, pp. 65-74, January, 1908.
1085. Silver.—Pop. Sci. Monthly, vol. 73, pp. 267-276, September, 1908. Abstract: Min. and Sci. Press, vol. 97, pp. 392-395, September 19, 1908.

Vaux, George, jr., and Vaux, William S.

1086. Glacier observations.—Canadian Alpine Jour., vol. 1, no. 1, pp. 138-148, 3 pls., 1907.
Gives general observations on glaciers, and describes more particularly the Illecillewaet and other glaciers of the Selkirk Mountains, British Columbia.

Vaux, George, jr., and Vaux, William S.—Continued.

1087. Les variations périodiques des glaciers. XII^{me} rapport, 1906. Alberta and British Columbia.—*Zeitschr. Gletscherkunde*, Bd. 2, H. 3, pp. 185–196, March, 1908.

Veatch, Otto.

1088. Altamaha formation of the coastal plain of Georgia.—*Science*, new ser., vol. 27, pp. 71–74, January 10, 1908.

Describes the character, distribution, and stratigraphic position and relations of the Altamaha formation in Georgia.

1089. A new discovery of bauxite in Georgia.—*Eng. and Min. Jour.*, vol. 85, p. 688, April 4, 1908.

Describes the occurrence and character of the deposit and the chemical composition of the mineral.

1090. The kaolins of the Dry Branch region, Georgia.—*Econ. Geol.*, vol. 3, no. 2, pp. 109–117, 1908.

Villafañe, Andres.

1091. Fuente termal en Cuitzeo de Abasolo, Estado de Guanajuato, México.—*México, Inst. Geol., Parerg.*, t. 2, no. 7, pp. 227–287, 2 pls., 1908.

Describes the situation of the thermal spring and the composition of the water, and discusses the source of its heat.

Villarello, Juan D.

1092. Datos relativos a varias regiones petrolíferas de Mexico.—*Soc. Geol. Mexicana, Bol.*, t. 4, pp. 43–57, 1908.

Describes the kinds, relations, and structural features of geologic formations in the petroliferous regions of Tamaulipas, Vera Cruz, and the Isthmus of Tehuantepec, and the occurrence and relations of petroleum deposits.

1093. Sur le remplissage de quelques gisements métallifères.—*Soc. cient. "Antonio Alzate," Mem. y Rev.*, t. 26, no. 11, pp. 423–447, May, 1908.

Discusses the genesis of various ore deposits of Mexico.

1094. Algunas regiones petrolíferas de México.—*México, Inst. Geol., Bol.* no. 26, 120 pp., 3 pls., 1908.

Describes petroleum-producing districts of Mexico; geology and structure of the fields, and occurrence, character, and origin of the oil.

Walcott, Charles Doolittle.

1095. Mount Stephen rocks and fossils.—*Canadian Alpine Jour.*, vol. 1, no. 2, pp. 232–248, 8 pls., 1908.

1096. Cambrian geology and paleontology, No. 1. Nomenclature of some Cambrian Cordilleran formations.—*Smithsonian Misc. Coll.*, vol. 53, pp. 1–12, 1908.

1097. Cambrian geology and paleontology, No. 2. Cambrian trilobites.—*Smithsonian Misc. Coll.*, vol. 53, pp. 12–52, 6 pls., 1908.

1098. Cambrian geology and paleontology, No. 3. Cambrian Brachiopoda: Descriptions of new genera and species.—*Smithsonian Misc. Coll.*, vol. 53, pp. 53–137, 4 pls., 1908.

1099. Cambrian geology and paleontology, No. 4. Classification and terminology of the Cambrian Brachiopoda.—*Smithsonian Misc. Coll.*, vol. 53, pp. 139–165, 2 pls., 5 figs., 1908.

1100. Cambrian geology and paleontology, No. 5. Cambrian sections of the Cordilleran area.—*Smithsonian Misc. Coll.*, vol. 53, pp. 167–230, 10 pls., 3 figs., 1908.

Walker, T. L.

1101. The occurrence of tungsten ores in Canada.—Canadian Min. Inst., Jour., vol. 11, pp. 367-371, 1908. Canadian Min. Jour., vol. 29, no. 13, pp. 302-303, July 1, 1908.
1102. A review of the minerals tungstite and meymacite.—Am. Jour. Sci., 4th ser., vol. 25, pp. 305-308, April, 1908.

Wallace, J. P.

1103. A study of ore deposits for the practical miner, with descriptions of ore minerals, rock minerals; and rocks. New York, Hill Publishing Company, 1908. 349 pp., 124 figs.

Waring, Gerald A.

1104. Geology and water resources of a portion of south-central Oregon.—U. S. Geol. Survey, Water-Supply Paper 220, 86 pp., 10 pls., 1 fig., 1908.
Includes an account of the geography and geology of the area.
1105. Physiographic features of south-central Oregon.—Abstract: Geol. Soc. America, Bull., vol. 19, p. 662, 1908.

Warren, Charles H.

1106. Contributions to the geology of Rhode Island: The petrography and mineralogy of Iron Mine Hill, Cumberland.—Am. Jour. Sci., 4th ser., vol. 25, pp. 12-38, 2 figs., January, 1908.
1107. Note on the alteration of augite-ilmenite groups in the Cumberland, R. I., gabbro (hessose).—Am. Jour. Sci., 4th ser., vol. 26, pp. 469-477, 1 fig., November, 1908.
1108. Über das Vorkommen von Hortonolith bei Cumberland, Rhode Island, U. S. A.—Zeitschr. Kryst. und Mineral., Bd. 44, H. 3, pp. 209-211, 1908.
Describes the occurrence, characters, and composition of hortonolite in cumberlandite near Cumberland, R. I.

Washburne, Chester W.

1109. Gas fields of the Bighorn basin, Wyoming.—U. S. Geol. Survey, Bull. 340, pp. 348-363, 1 pl., 1 fig., 1908.
Describes the stratigraphy and structure of the field and the occurrence of natural gas.

Washington, Henry S.

1110. On kaersutite from Linosa and Greenland, with optical studies by Fred. Eugene Wright.—Am. Jour. Sci., 4th ser., vol. 26, pp. 187-211, 7 figs., September, 1908.
1111. The distribution of the elements in igneous rocks.—Am. Inst. Min. Eng., Bi-Mo. Bull. no. 23, pp. 809-838, September, 1908.
1112. Report [on the property of the Arkansas Diamond Company, pp. 31-38, 1908].—See Fuller, no. 368.
Gives an account of the local geology and occurrence of diamonds near Murfreesboro, Pike County, Arkansas.
- Diamonds in Arkansas.—See Kunz and Washington, no. 616.

Watson, Thomas Leonard.

1113. A preliminary report on the manganese deposits of Georgia.—Georgia, Geol. Survey, Bull. no. 14, 195 pp., 8 pls., 31 figs., 2 maps, 1908. Abstract: Min. World, vol. 28, pp. 947-948, 1 fig., June 13, 1908.
- The occurrence of nickel in Virginia.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 683-697, 8 figs., 1908. See no. 2490 of Bulletin 372, U. S. Geol. Survey.
- Geology of the Virginia barite deposits.—Am. Inst. Min. Eng., Trans., vol. 38, pp. 710-733, 9 figs., 1908. See no. 2491 of Bulletin 372, U. S. Geol. Survey.

Weaver, Charles E.

1114. New echinoids from the Tertiary of California.—California, Univ., Dept. Geology, Bull., vol. 5, no. 17, pp. 271-274, 2 pls., 1908.
Describes the new species *Clypeaster boweri*, *Scutella perrini*, *Linthia* (?) *californica*, and *Schizaster* (?) *stalderi*.

Weed, Walter Harvey.

1115. Notes on the Tyee copper mine, Vancouver Island, British Columbia.—Eng. and Min. Jour., vol. 85, pp. 199-201, 3 figs., January 25, 1908.
Describes the character, occurrence, and origin of the copper-ore bodies.

Weeks, F. B.

1116. Geology and mineral resources of the Osceola mining district, White Pine County, Nevada.—U. S. Geol. Survey, Bull. 340, pp. 117-133, 3 figs., 1908.
Describes the local geology, the structure of the gold deposits, the character and origin of the ores, and the mines and placers.
1117. Tungsten deposits in the Snake Range, White Pine County, eastern Nevada.—U. S. Geol. Survey, Bull. 340, pp. 263-270, 1 fig., 1908.
Describes the geology of the region, the occurrence of the tungsten ores, and the mining operations.
1118. Phosphate deposits in the western United States.—U. S. Geol. Survey, Bull. 340, pp. 441-447, 1908.

Weeks, F. B., and Heikes, V. C.

1119. Notes on the Fort Hall mining district, Idaho.—U. S. Geol. Survey, Bull. 340, pp. 175-183, 2 figs., 1908.
Describes the geology of the region and the occurrence, character, and origin of copper ores.

Weidman, Samuel.

1120. General petrology of Wisconsin igneous rocks.—Abstract: Science, new ser., vol. 27, p. 723, May 8, 1908.

Weller, Stuart.

1121. The geological map of Illinois.—Abstract: Illinois State Geol. Survey, Bull. no. 8, pp. 41-47, 1908.
1122. The Salem limestone.—Illinois State Geol. Survey, Bull. no. 8, pp. 81-102, 1908.
Discusses the occurrence and relations of the Salem limestone and subjacent and superjacent Mississippian formations in Illinois and adjoining States. Gives faunal lists from outcrops in Illinois.
1123. The Mississippian section in Illinois.—Abstract: Science, new ser., vol. 27, p. 726, May 8, 1908.

Wells, Horace L.

1124. Biographical memoir of Samuel Lewis Penfield, 1856-1906. (Read before the National Academy of Sciences, April 18, 1907.) Washington, 1907.—[Nat. Acad. Sci., Biog. Mem., vol. 6], pp. 119-146, 1 pl., (port.).
Includes a list of his writings.

West Virginia Geological Survey.

1125. Map of West Virginia, showing coal, oil, gas, and limestone areas. 1908.
Scale: 7 miles to 1 inch.

Wheeler, Arthur O.

1126. Observations on the Yoho Glacier.—Canadian Alpine Jour., vol. 1, no. 1, pp. 149-156, 5 pls., 1907.
Describes the investigation of Yoho Glacier near Glacier House, British Columbia, in the Selkirk Mountains.
1127. Motion of the Yoho Glacier.—Canadian Alpine Jour., vol. 1, no. 2, pp. 271-275, 4 pls., 1908.

Wheeler, H. A.

1128. The ore bodies of Etna Hill, Wisconsin.—*Mines and Minerals*, vol. 28, no. 7, p. 320, February, 1908.

Describes the occurrence and character of zinc and lead ores in southwestern Wisconsin.

Wheeler, W. M.

1129. Expedition to Florissant, Colorado, for fossil insects.—Abstract: *New York Acad. Sci., Annals*, vol. 18, pt. 2, p. 292, 1908.

Wherry, Edgar T.

1130. Radioactive minerals found in Pennsylvania and their effect on the photographic plate.—*Franklin Inst., Jour.*, vol. 165, no. 1, pp. 59-78, 4 pls., January, 1908.

1131. How quartz crystals form.—*Sci. Am. Suppl.*, vol. 65, pp. 110-111, February 15, 1908.

1132. A new theory of the earth.—*Mineral Collector*, vol. 15, no. 1, pp. 8-9, March, 1908.

States briefly Simroth's pendulation theory to explain the causes of geologic changes.

1133. The Newark copper deposits of southeastern Pennsylvania.—*Econ. Geology*, vol. 3, no. 8, pp. 726-738, 1 pl., 1908.

1134. Newark copper deposits of Pennsylvania.—Abstract: *Science*, new ser., vol. 28, pp. 573-574, October 23, 1908.

Directory of the mineral localities in and around Philadelphia.—See Bengé and Wherry, no. 91.

White, David.

1135. Report on field work done in 1907.—*Illinois State Geol. Survey, Bull.* no. 8, pp. 268-272, 1907.

Gives stratigraphical and paleobotanical notes upon the coal measures of Illinois.

1136. Some problems of the formation of coal.—*Econ. Geology*, vol. 3, no. 4, pp. 292-318, 1908.

1137. Correlation of Elkhorn coals.—*U. S. Geol. Survey, Bull.* 348, pp. 30-32, 1908.

Discusses the correlation of the coal beds of the Elkhorn district of eastern Kentucky.

1138. Oxygen values and coal alteration.—Abstract: *Science*, new ser., vol. 27, p. 537, April 3, 1908.

White, I. C.

1139. Supplementary coal report.—*West Virginia Geol. Survey*, vol. 2 (A), 720 pp., 1908.

A detailed account of the distribution, geologic relations, and economic value of the coal beds of West Virginia.

Whiteaves, J. F.

1140. Paleontology and zoology.—*Canada, Geol. Survey, Summ. Rept.*, 1907, pp. 105-109, 1908.

Outlines the work upon paleontology during 1907 of the Geological Survey of Canada.

1141. Notes on the Pelecypoda or bivalve Mollusca of the Chazy formation in Canada, with descriptions of one new genus and four new species from the Chazy sandstone at the Hog's Back, near Ottawa [Ontario].—*Ottawa Naturalist*, vol. 22, no. 6, pp. 105-115, 1 pl., September, 1908.

Whitfield, R. P.

1142. Notes and observations on Carboniferous fossils and semifossil shells brought home by members of the Peary expedition of 1905-1906.—*Am. Mus. Nat. Hist., Bull.*, vol. 24, pp. 51-58, 4 pls., 1908.

Includes a description of *Architreta pearyi* n. gen. and n. sp.

Whitney, Milton, and others.

1143. Field operations of the Bureau of Soils, 1906.—U. S. Dept. Agric., Bureau of Soils, Eighth Report, Washintgon, 1908. 1033 pp., 34 figs., and 35 soil maps (in separate case.)

Contains soil surveys of the following areas:

Alabama, Lee County, pp. 363-384.

Arkansas, Fayetteville area, pp. 587-627.

Prairie County, pp. 629-660.

Florida, Escambia County, pp. 335-362.

Georgia, Waycross area, pp. 303-333.

Indiana, Greene County, pp. 755-789.

Indian Territory, Tishomingo area, pp. 539-562.

Kansas, Riley County, pp. 911-941.

Louisiana, Caddo Parish, pp. 427-458.

Michigan, Cass County, pp. 729-754.

Minnesota, Blue Earth County, pp. 813-863.

Crookston area, pp. 865-891.

Mississippi, Montgomery County, pp. 385-404.

Pontotoc County, pp. 405-426.

Missouri, Putnam County, pp. 893-910.

Nebraska, Lancaster County, pp. 943-962.

New Hampshire, Merrimack County, pp. 33-67.

New York, Madison County, pp. 119-165.

Niagara County, pp. 69-117.

North Carolina, Chowan County, pp. 223-244.

New Hanover County, pp. 245-279.

Transylvania County, pp. 281-301.

North Dakota, Ransom County, pp. 963-997.

Williston area, pp. 999-1022.

Oklahoma, Oklahoma County, pp. 563-585.

Ohio, Meigs County, pp. 701-728.

Tennessee, Grainger County, pp. 661-686.

Madison County, pp. 687-700.

Texas, Henderson area, pp. 459-480.

Laredo area, pp. 481-504.

San Marcos area, pp. 505-537.

Virginia, Chesterfield County, pp. 195-222.

West Virginia, Wheeling area, pp. 167-194.

Wisconsin, Racine County, pp. 791-811.

Wickham, H. F.

1144. New fossil Elateridæ from Florissant.—Am. Jour. Sci., 4th ser., vol. 26, pp. 76-78, 3 figs., July, 1908.

Wieland, G. R.

1145. Historic fossil cycads.—Am. Jour. Sci., 4th ser., vol. 25, pp. 93-101, 1 fig., February, 1908.

Wilke, R. M.

1146. Benitoite and neptunite.—Mineral Collector, vol. 14, no. 11, pp. 167-168, January, 1908.

Willard, Daniel E.

1147. The surface formations of southeastern North Dakota.—North Dakota, Agric. Coll. Survey, 2d Bienn. Rept., pp. 128-134, 4 pls., 1904.

1148. The geology of the soils of southeastern North Dakota.—North Dakota, Agric. Coll. Survey, 2d Bienn. Rept., pp. 135-138, 3 pls., 1904.

1149. Geologic history of eastern North Dakota.—North Dakota, Agric. Coll. Survey, 2d Bienn. Rept., pp. 138-144, 7 figs., 1904.

1150. The water supply [of North Dakota].—North Dakota, Agric. Coll. Survey, 2d Bienn. Rept., pp. 144-152, 7 pls., 1904.

Discusses underground-water supply in southeastern North Dakota.

1151. A description of geologic formations in eastern North Dakota.—North Dakota, Agric. Coll. Survey, 3d Bienn. Rept., pp. 6-9, 1906.

Willard, Daniel E.—Continued.

1152. Geologic history of the Tower quadrangle.—North Dakota, Geol. Survey, 3d Bienn. Rept., pp. 28-37, 1 pl., 1906.

1153. Notes on the water supply of a portion of Cass, Barnes, and Ransom counties [North Dakota].—North Dakota, Agric. Coll. Survey, 3d Bienn. Rept., pp. 38-43, 1906.

Includes an account of the artesian waters.

1154. Notes on the wells of a portion of the Dakota artesian basin.—North Dakota, Agric. Coll. Survey, 3d Bienn. Rept., pp. 44-46, 1906.

1155. The soils of the Tower quadrangle.—North Dakota, Agric. Coll. Survey, 3d Bienn. Rept., pp. 47-50, 1906.

Describes the geologic relations of the soils.

1156. The history of Maple River.—North Dakota, Agric. Coll. Survey, 3d Bienn. Rept., pp. 51-54, 3 pls., 1906.

Describes the history of Maple River during the Quaternary.

Willard, Daniel E., and Erickson, M. B.

1157. A survey of the coteaus of the Missouri.—North Dakota, Agric. Coll. Survey, 2d Bienn. Rept., pp. 17-27, 6 pls., 1 map, 1904.

Willard, Daniel E., and Hibbard, H. V.

1158. The Quaternary (drift) formations of the Tower quadrangle.—North Dakota, Agric. Coll. Survey, 3d Bienn. Rept., pp. 10-20, 1 pl., 1906.

1159. Late glacial and post-glacial deposits of the Sheyenne and Maple Rivers.—North Dakota, Agric. Coll. Survey, 3d Bienn. Rept., pp. 21-27, 3 pls., 1906.

1160. A peculiar type of hills.—North Dakota, Agric. Coll. Survey, 3d Bienn. Rept., p. 55, 1906.

Describes kames in the vicinity of Tower City, N. Dak.

Willcox, Joseph.

1161. A half hour's talk on mineralogy.—Delaware County Inst. Sci., Proc., vol. 4, no. 1, pp. 1-11, October, 1908.

Willey, Day Allen.

1162. Sand waves and their work.—Sci. Am. Suppl., vol. 65, pp. 120-121, 4 figs., February 22, 1908.

Williams, Henry Shaler.

1163. The Dalmanellas of the Chemung formation, and a closely related new brachiopod genus *Thiemella*.—U. S. Nat. Mus., Proc., vol. 34, pp. 35-64, 3 pls., 1908.

1164. On the revision of the mollusk genus *Pterinea*, Goldfuss.—U. S. Nat. Mus., Proc., vol. 34, pp. 83-90, 1908.

Describes the new genera *Tolmata*, *Follmannella*, and *Actinopterella*, based upon species formerly referred to *Pterinea*.

Willis, Bailey.

1165. Memoir of Israel C. Russell.—Geol. Soc. America, Bull., vol. 18, pp. 582-592, 1 pl. (port.), 1908.

Gives also a list of his writings.

1166. The American Association for the Advancement of Science, Hanover meeting, Section E, July 1-3, 1908.—Science, new ser., vol. 28, pp. 381-384, September 18, 1908.

Gives an account of the meeting and abstracts of the papers presented.

1167. Lines of inference in paleogeographic studies.—Abstract: Science, new ser., vol. 28, p. 934, December 25, 1908.

Williston, Samuel W.

1168. The Cotylosauria.—*Jour. Geology*, vol. 16, no. 2, pp. 139-148, 6 figs., 1908.

1169. "The oldest known reptile."—*Isodectes punctulatus* Cope.—*Jour. Geology*, vol. 16, no. 5, pp. 395-400, 2 figs., 1908.

1170. North American plesiosaurs, *Trinacromerum*.—*Jour. Geology*, vol. 16, no. 8, pp. 715-736, 15 figs., 1908.

1171. *Lysorophus*, a Permian Urodele.—*Biol. Bull.*, vol. 15, no. 5, pp. 229-240, 5 figs., October, 1908.

Redescribes *Lysorophus tricarinatus* Cope from the Permian of Texas, and discusses its systematic position, and gives notes upon Salamander-like footprints from the Texas Red Beds and upon ventral ribs of *Labidosaurus incisivus*.

1172. The evolution and distribution of the plesiosaurs.—*Abstract: Science*, new ser., vol. 27, pp. 726-727, May 8, 1908.

1173. A new group of Permian amphibians.—*Science*, new ser., vol. 28, pp. 316-317, September 4, 1908.

Describes *Lysorophus* from the Permian of Texas.

1174. Review of The Fossil Turtles of North America, by O. P. Hay.—*Science*, new ser., vol. 28, pp. 803-804, December 4, 1908.

Willmott, A. B.

1175. The iron ores of Ontario.—*Canadian Min. Inst., Jour.*, vol. 11, pp. 106-124, 1908. *Canadian Min. Jour.*, vol. 29, no. 6, pp. 77-84, 1 fig., March 15, 1908; vol. 29, no. 13, pp. 308-309, July 1, 1908.

Wilson, Alfred W. G.

1176. Shore-line studies on Lakes Ontario and Erie.—*Geol. Soc. America, Bull.*, vol. 19, pp. 471-500, 2 pls., 7 figs., 1908. *Abstract: Science*, new ser., vol. 27, p. 411, March 13, 1908.

Wilson, G. B.

1177. Geology of the Honerine mine, Stockton, Utah.—*Eng. and Min. Jour.*, vol. 85, pp. 869-870, April 25, 1908.

Wilson, J. Howard.

1178. Was there a Newfoundland ice sheet?—*Abstract: New York Acad. Sci., Annals*, vol. 18, pt. 2, p. 277, 1908.

Notes briefly the evidence indicating Newfoundland as a center of ice dispersion.

Wilson, Morley E.

1179. An area from Lake Timiskaming eastward [Quebec].—*Canada, Geol. Survey, Summ. Rept.*, 1907, pp. 59-63, 1908.

Describes briefly the physiography and geology of the area.

Wilson, W. J.

1180. Report on the district along the National Transcontinental Railway from Bell River eastward [Quebec].—*Canada, Geol. Survey, Summ. Rept.*, 1907, pp. 64-66, 1908.

Includes geological notes on the area examined.

Winchell, Alexander N.

1181. Review of nomenclature of Keweenawan igneous rocks.—*Jour. Geology*, vol. 16, no. 8, pp. 765-774, 3 tables, 1908.

Winchell, Horace V.

1182. A theory of ore deposition.—*Min. and Sci. Press*, vol. 96, pp. 385-387; March 21, 1908.

1183. The genesis of ores in the light of modern theory.—*Pop. Sci. Monthly*, vol. 72, no. 6, pp. 534-542, June, 1908.

1184. The localization of values in ore bodies and the occurrence of shoots in metalliferous deposits.—*Econ. Geology*, vol. 3, no. 5, pp. 425-428, 1908.
Classifies ore shoots into paragenetic and postgenetic.

Winchell, Newton Horace.

1185. Pre-Indian inhabitants of North America.—Records of the Past, vol. 6, pp. 145-157, 163-181, 17 figs., 1907.
 1186. Structures of the Mesabi iron ore.—Lake Superior Min. Inst., Proc., vol. 13, pp. 189-204, 8 figs., 1908.

Wolff, John E.

1187. Post-Ordovician igneous rocks of the Franklin Furnace quadrangle, New Jersey.—U. S. Geol. Survey, Geol. Atlas U. S., folio no. 161, pp. 12-13, 1908.
 1188. Memoir of Nathaniel Southgate Shaler.—Geol. Soc. America, Bull., vol. 18, pp. 592-609, 1 pl. (port.), 1908.
 Includes a list of his writings.
 1189. Notes on the Crazy Mountains, Montana.—Abstract: Science, new ser., vol. 27, p. 409, March 13, 1908.

Wood, H. O.

- [The California earthquake of April 18, 1906.] Distribution of apparent intensity in San Francisco.—See Lawson, A. C., and others, no. 643, pp. 220-242.

Includes a brief abstract of the geology of the northern part of the San Francisco Peninsula.

Woodman, J. Edmund.

1190. Probable age of the Meguma (gold-bearing) series of Nova Scotia.—Geol. Soc. America, Bull., vol. 19, pp. 99-112, 3 pls., July, 1908. Abstract: Geol. Soc. America, Bull., vol. 18, pp. 636-637, 1908.

Woodruff, Elmer Grant.

1191. Sulphur deposits at Cody, Wyoming.—U. S. Geol. Survey, Bull. 340, pp. 451-456, 1 pl., 1908.
 Describes the location and extent, the geologic relations, and the character and genesis of the deposit.

Wright, Charles Will.

1192. Lode mining in southeastern Alaska, 1907.—U. S. Geol. Survey, Bull. 345, pp. 78-97, 1 pl. (map), 1908.
 Includes a geologic sketch of southeastern Alaska and an account of the distribution, character, and geologic relations of the ore deposits, chiefly gold and copper.
 1193. The building stones and materials of southeastern Alaska.—U. S. Geol. Survey, Bull. 345, pp. 116-126, 1908.
 The principal materials considered are marble, granite, and gypsum.
 1194. The copper deposits of Kasaan Peninsula, Alaska.—Econ. Geology, vol. 3, no. 5, pp. 410-417, 1 fig., 1908. Abstract: Science, new ser., vol. 28, p. 96, July 17, 1908.
 The Ketchikan and Wrangell mining districts, Alaska.—See Wright and Wright, no. 1202.

Wright, Charles Will, and Paige, Sidney.

1195. Copper deposits on Kasaan Peninsula, Prince of Wales Island.—U. S. Geol. Survey, Bull. 345, pp. 98-115, 1 fig., 1908.
 Describes the geology of the Kasaan Peninsula, Alaska, and the location, characters, and relations of ore deposits in various mines.

Wright, Fred. Eugene.

1196. The intrusive rocks of Mt. Bohemia, Michigan.—Abstract: Science, new ser., vol. 27, p. 892, June 5, 1908.
 1197. On the measurement of extinction angles in the thin section.—Am. Jour. Sci., 4th ser., vol. 26, pp. 349-390, 12 figs., October, 1908.
 1198. The bi-quartz wedge plate applied to polarimeters and saccharimeters.—Am. Jour. Sci., 4th ser., vol. 26, pp. 391-398, 4 figs., October, 1908.
 1199. A telemeter with micrometer screw adjustment.—Am. Jour. Sci., 4th ser., vol. 26, pp. 531-535, 4 figs., December, 1908.

Wright, Fred. Eugene—Continued.

1200. A device to aid in the explanation of interference phenomena.—*Am. Jour. Sci.*, 4th ser., vol. 26, p. 536, December, 1908.

1201. On three contact minerals from Velardeña, Durango, Mexico (gehlenite, spurrite, and hillebrandite).—*Am. Jour. Sci.*, 4th ser., vol. 26, pp. 545-554, 3 figs., December, 1908.

Ein Projections-Transporteur.—See Goldschmidt and Wright, no. 388.

Optical studies of kaersutite from Línosa and Greenland.—See Washington, no. 1110.

Wright, Fred. Eugene, and Wright, Charles Will.

1202. The Ketchikan and Wrangell mining districts, Alaska.—*U. S. Geol. Survey, Bull.* 347, 210 pp., 12 pls., 23 figs., 1908.

Describes the physiographic features, the general geology, the occurrence and relations of stratified and igneous rocks, the copper and gold deposits and the mining developments.

Wright, George Frederick.

1203. The influence of the glacial epoch upon the early history of mankind.—*Records of the Past*, vol. 7, pt. 1, pp. 22-37, 5 figs., January, 1908. *Victoria Inst., Jour. of Trans.*, vol. 40, pp. 51-76, 1908.

1204. The latest concerning prehistoric man in California.—*Records of the Past*, vol. 7, pt. 4, pp. 183-187, July-August, 1908.

1205. Recent geologic changes as affecting theories of man's development.—*Am. Anthropologist*, new ser., vol. 9, no. 3, pp. 529-532, 1907.

1206. Chronology of the glacial epoch in North America.—*Abstract: London, Geol. Soc., Quart. Jour.*, vol. 64, pp. 149-151, May, 1908.

Discusses data for determining the duration of the glacial epoch.

Wright, Lewis T.

1207. Diffusion as a factor in ore deposition.—*Min. and Sci. Press*, vol. 96, pp. 844-845, 1 fig., June 20, 1908; vol. 97, pp. 250-251, August 22, 1908.

Wroth, James S.

1208. Geology of the Lucky Boy mine, Nevada.—*Min. and Sci. Press*, vol. 97, p. 251, August 22, 1908.

Young, George A.

1209. The tin-bearing locality at New Ross, N. S.—*Canada, Geol. Survey, Summ. Rept.*, 1907, p. 77, 1908.

Yuill, Harry H.

1210. The "White Bear Mine," Rossland, B. C.—*Canadian Min. Inst., Jour.*, vol. 11, pp. 525-543, 7 pls., 1 fig., 1908.

Includes notes on the occurrence and character of the gold ores.

Zalinski, Edward R.

1211. Occurrence of vanadium near Telluride, Colorado.—*Eng. and Min. Jour.*, vol. 85, pp. 1152-1153, 1 fig., June 6, 1908.

1212. Turquoise mining, Burro Mountains, New Mexico.—*Eng. and Min. Jour.*, vol. 86, pp. 843-846, 3 figs., October 31, 1908.

Includes a short account of the geological features of the turquoise deposits.

1213. Ore occurrence at Fortuna mine, Bingham.—*Eng. and Min. Jour.*, vol. 86, pp. 1191-1195, 5 figs., December 19, 1908.

Describes the local geology, and the character, occurrence, and genesis of the copper ores near Bingham, Utah.

Anonymous.

1214. The geology of Stateline district, Utah.—*Salt Lake Min. Review*, vol. 9, no. 23, pp. 15-17, 2 figs., March 15, 1908.

1215. Work of the Geological Survey of Canada.—*Eng. and Min. Jour.*, vol. 85, pp. 1105-1106, May 30, 1908.

Gives an outline of investigations by the Geological Survey of Canada in Yukon, British Columbia, and Quebec.

INDEX.

[The numbers refer to entries in the bibliography.]

Abrasive materials.

United States (general): 1072.

Addresses.

- Continents and oceans, origin of: Love, 683.
- Geological Survey work and the mining industry: Smith, 987.
- Geology: Kemp, 580.
- Methods of American geographic investigation: Davis, 275.
- Ore deposits, present tendencies in the study of: Lindgren, 668, 673.
- Outlook for young men in geology: Bain, 54.
- Radioactivity in relation to rocks: Strutt, 1032.
- State geological surveys and practical geography: Carney, 178.
- Studies on fossil fishes during 1907: Dean, 278.
- Uranium and geology: Joly, 566.

Aftonian sands and gravels in western Iowa: Shimek, 971.

Alabama.

Economic.

- Clinton iron ores: Burchard, 156.
- Clinton ore, tonnage in Birmingham district: Burchard, 153.
- Gold deposits: McCaskey, 693.
- Gold ores of Hog Mountain: Aldrich, 11.

Physiographic.

- Gulf coastal plains: Sutherland, 1037.

Stratigraphic.

- Clinton formation: Burchard, 156.

Paleontology.

- Eocene fossil from Claiborne: Aldrich, 9.
- Eocene fossils: Aldrich, 10.

Alaska.

General.

- Yukon-Tanana region: Prindle, 836.

Economic.

- Building materials: Wright, 1193.
- Controller Bay region: Martin, 711.
- Copper River district: Brewer, 124, 125; Keller, 579; Moffit and Madden, 753.
- Fortymile gold-placer district: Prindle, 838.
- Gold in Yukon-Tanana region: Prindle, 837.
- Gold placers: Hutchins, 545.
- of Seward Peninsula: Collier *et al.*, 241.
- Kasaan Peninsula, copper: Wright, 1194; Wright and Paige, 1195.
- Ketchikan and Wrangell mining districts: Wright and Wright, 1202.
- Lode mining in 1907: Wright, 1192.
- Lost River and Brooks Mountain region: Knopf, 603.

Alaska—Continued.

Economic—Continued.

- Mineral resources, distribution of: Brooks, 137.
- investigations in 1907: Brooks, 136.
- Mining industry in 1907: Brooks, 138.
- Prince William Sound, copper: Moffit, 752.
- Rampart region placers: Hess, 477.
- Seward Peninsula, mineral deposits: Smith, 989.
- tin deposits: Knopf, 602, 604.
- Wolframite-topaz ore from Lost River: Knopf, 605.

Dynamic and structural.

- Bogosloff Island, volcanic eruptions: Eakle, 313.
- Bogosloff Islands: Smith, 990.
- Bogosloff Volcano: Jaggar, 556.
- Glaciers of Glacier Bay, recession of: Morse, 758.
- Striations in gravel bars: Barnett, 65.
- Yakutat Bay glaciers: Tarr, 1041.

Physiographic.

- General: Atwood, 39.
- Flaxman Island a glacial remnant: Leffingwell, 653.
- Seward Peninsula: Newsom, 764.
- Yakutat Bay region: Tarr, 1041.

Stratigraphic.

- Controller Bay region: Martin, 711.
- Ketchikan and Wrangell districts: Wright and Wright, 1202.
- Paleozoic of upper Yukon: Brooks and Kindle, 139.
- Porcupine Valley: Kindle, 595.
- Seward Peninsula: Collier *et al.*, 241; Knopf, 604.
- Southwestern: Atwood, 40.

Paleontology.

- Miocene Scala: Dall, 263.
- Pleistocene ruminants: Gidley, 377.
- vertebrates: Gilmore, 385.
- Silurian fauna: Kindle, 594.
- Woods, fossil: Platen, 830.

Petrology.

- Volcanic rocks from Bogosloff Islands: Smith, 990.

Mineralogy.

- Boron minerals of contact-metamorphic origin: Knopf and Schaller, 606.

Alberta.

General.

- Bibliography of geology and mining industry: Gwillim, 425.
- Rocky Mountains region: Dowling, 301.

Economic.

- Cascades, Palliser, and Costigan coal basins: Malloch, 702.

Alberta—Continued.*Economic*—Continued.

Rocky Mountains region: Dowling, 301.

Tar sands of Athabasca River: Bell, 86.

Dynamic and structural.

Glaciers, activity of: Sherzer, 967.

variations in 1906: Vaux and Vaux, 1087.

Physiographic.

Mountain forms in the Canadian Rockies: Coleman, 237.

Paleontology.

Cretaceous woods: Penhallow, 811.

Albertite.

New Brunswick: Ells, 321, 323.

Algonkian. *See* Pre-Cambrian.

Algonquin beach, altitude of: Goldthwait, 390.

Allegheny structure, mechanics of: Ashley, 34.

Aluminum.

United States (general): 1072.

Alluvial fans.

Alaska, Yakutat Bay region: Tarr, 1041.

British Columbia, Field: Lahee, 619, 620.

Illinois Valley: Barrows, 69.

Ammonites. *See* Cephalopoda.

Amphibia.

Caudate amphibia, ancestry of: Moodie, 755.

Lysorophus, Permian Urodele: Williston, 1171.

Lysorophus tricarinatus, skull of: Case, 182.

Permian amphibians: Williston, 1173.

Quadrupeds, dawn of, in North America:

Moodie, 756.

Vertebrate fossils from Pittsburg: Case, 184.

Analyses, chemical. *See list, p. 133.*

Animikie. *See* Pre-Cambrian.

Ankylosauridae: Brown, 144.

Ann Arbor quadrangle: Russell and Leverett, 928.

Anthozoa (corals).

Guadalupian fauna: Girty, 386.

Indiana, Cincinnati series: Cumings, 258.

Anthracite.

Pennsylvania, southern field: Haertter, 428.

Antimony.

Alaska, Seward Peninsula: Smith, 989.

Arkansas: Hess, 479.

New Brunswick: Ells, 321.

United States (general): 1072.

Utah, southern: Richardson, 887.

Arachnida.

Proscorpius osborni: Fritsch, 366.

Archean. *See* Pre-Cambrian.

Arctic regions.

Carboniferous fossils: Whitfield, 1142.

Arizona.*Economic.*

Cerbat Range and Black Mountains mineral deposits: Schrader, 948, 949.

Dynamic and structural.

Grand Canyon: Ransome, 847.

Santa Catalina gneiss, structure of: Blake, 108.

Physiographic.

Meteor crater of Canyon Diablo; Merrill, 739.

Arizona—Continued.*Stratigraphic.*

Grand Canyon formations: Ransome, 845, 847.

Paleozoic and pre-Cambrian sections: Ransome, 845.

Triassic portion of the Shinarump group: Cross, 254.

Western: Lee, 648.

Paleontology.

Woods, fossil: Platen, 830.

Petrology.

Igneous rocks: Johannsen, 560.

Underground water.

Western: Lee, 648.

Arkansas.*Economic.*

Antimony deposits: Hess, 479.

Clays: Branner, 120.

Diamond field in Pike County: Fuller, 368; Schneider, 946.

Diamonds: Kunz and Washington, 616; Washington, 1112.

Stratigraphic.

General: Branner, 120.

Paleontology.

Conard fissure, a Pleistocene bone deposit: Brown, 141.

Petrology.

Peridotite: Purdue, 841.

Arsenic.

New York: Newland, 761.

Putnam County: Judd, 571.

United States (general): 1072.

Artesian flows, controlling factors of: Fuller, 369.

Artesian waters and wells. *See* Underground water.

Arthropoda. *See also* Crustacea, Arachnida and, Insecta.

Crabs from California: Rathbun, 852.

Mazon Creek, Illinois: Fritsch, 366.

Asbestos.

South Carolina: Sloan, 984.

United States (general): 1072.

Vermont: Perkins, 816.

Wyoming: Beeler, 82.

Asphalt.

Oklahoma: Gould *et al.*, 395.

Trinidad: Cadman, 162.

United States (general): 1072.

Associations, meetings.

American Association for the Advancement of Science, Hanover meeting: Willis, 1166.

American Association for the Advancement of Science, Section E, Chicago meeting, 1907: Bayley, 77.

American Society of Vertebrate Paleontology: Loomis, 676.

Geological Society of America, meeting at Albuquerque: Hovey, 518, 519; Knight, 599.

Meeting of geologists with New York Academy of Sciences; Berkeley, 96.

Asterolidea.

- Brittle star from Miocene of Santa Cruz Mountains, California: Arnold, 29.
Helianthaster: Clarke, 207.
Protaster: Parks, 799.

Aves (birds).

- Alabamornis: Lucas, 684.

Barbados.

- Geological formation of: Harrison, 440.
Petroleum and manjak: Hovey, 520.

Baraboo region of Wisconsin: Mansfield, 704, 705.

Baringer Hill minerals: Hess, 481.

Barite. *See also* Barytes.

- Cuba, Pinar del Rio Province: Catlett, 186.
Georgia, Cartersville: Hayes and Phalen, 456.
Kentucky: Fohs, 360.

Barium, determination of, in rocks: Langley, 642.

Barytes. *See also* Barite.

- Montana: Rowe, 913, 915.
South Carolina: Sloan, 984.
United States (general): 1072.

Batrachia. *See* Amphibia.

Bauxite.

- Georgia, Wilkinson County: Veatch, 1089.
United States (general): 1072.

Beach cusps, origin: Johnson, 562.

Beach placers of the Pacific coast: Irvine, 551.

Beaches. *See* Shore-lines, Terraces.

Benitoite: Louderback and Blasdale, 681; Rogers, 905.

- composition of: Kraus, 610.
formula of: Blasdale, 109.

Berea oil sand: Griswold, 418.

Beryllium: Baskerville, 70.

Bibliography.

- Alaska, coal, lignite, and petroleum: Martin, 711.
Alberta, geology and mining industry: Gwillim, 425.
Aluminum: 1072.
Antimony in Arkansas: Hess, 479.
Barytes: 1072.
Bauxite: 1072.
Black Hills, South Dakota, geology of: Ferguson and Turgeon, 350.
Brachiopoda, Cambrian: Walcott, 1098, 1099.
British Columbia: Métin, 744.
geology and mining industry: Gwillim, 425.
Cambrian Brachiopoda: Walcott, 1098, 1099.
Cambrian formations of the Cordilleran area: Walcott, 1100.
Canada, Geological Survey, index to reports: Nicolas, 769.
Clinton iron ores in New York: Newland and Hartnagel, 762.
Coal: 1072.
Coastal drift sands: Olsson-Seffer, 779.
Cryolite: 1072.
Dinosaurs: Huene, 537.
Erosion and sedimentation experiments: Jaggar, 554.
Florida, geology: Sellards, 961.

Bibliography—Continued.

- Fluorspar: 1072.
Fuller's earth: 1072.
Granite: Dale, 262.
Graptolites: Ruedemann, 922.
Gypsum: 1072.
Ichthyosauria, Triassic: Merriam, 729.
Idaho, Cœur d'Alene district: Ransome and Calkins, 851.
Illinois, Evanston-Waukegan region, physical geography of: Atwood and Goldthwait, 41.
Iron: 1072.
Iron ores, Clinton, of New York: Newland and Hartnagel, 762.
Lake ramparts: Gilbert, 379.
Lead: 1072.
Leconte, J., writings: Hilgard, 486.
Magnetite deposits of Adirondacks: Newland, 760.
Mammalian molar teeth, evolution of: Osborn, 787.
Man, fossil, in America: Winchell, 1185.
Meguma series of Nova Scotia: Wolff, 1188.
Mexico, geology of: Aguilar y Santillan, 4.
Mineral paints: 1072.
Mont Pelé: Lacroix, 617.
New Jersey, Passaic quadrangle: Darton *et al.*, 269.
Penfield, S. L., writings: Iddings, 548; Wells, 1124.
Pennsylvania, publications on geology: Stone, 1024.
Petroleum and natural gas in western Pennsylvania: Munn, 759.
Quicksilver: 1072.
Rominger, C. L., writings: Merrill, 740.
Russell, I. C., writings: Willis, 1165.
St. Vincent, eruptions at the Soufrière, 1902-3: Fleet, 357.
Salt: 1072.
Shaler, N. S., writings: Wolff, 1188.
Shore-lines in Vermont: Merwin, 742, 743.
South Dakota, Black Hills, geology of: Ferguson and Turgeon, 350.
Stromatoporoids from the Niagara: Parks, 798.
Triassic Ichthyosauria: Merriam, 729.
Trinidad, geology: Cadman, 162.
Volcanoes, Soufrière of St. Vincent: Fleet, 357.
Yukon, geology and mining industry: Gwillim, 425.
Zinc: 1072.
- Biography.**
Cope, Edward Drinker: Oshorn, 786.
Cox, Edward Travers: Merrill, 741.
Dana, James Dwight: Hadley, 427.
Dwight, William Buck: Merrill, 732.
Hall, Charles M.: Upham, 1073.
Harrington, Bernard J.: Adams, 1.
Le Conte, Joseph: Hilgard, 486.
Leidy, Joseph: Brooks, 140; Chapman, 200.
Logan, William E.: Bell, 85.
Penfield, Samuel Lewis: Iddings, 548; Wells, 1124.
Rominger, Carl Ludwig: Merrill, 740.

Biography—Continued.

- Russell, Israel C.: Willis, 1165.
 Selwyn, A. R. C.: Ami, 15.
 Shaler, Nathaniel Southgate: Wolff, 1188.
 Trask, John B.: Stearns, 1011.

Birds. *See* Aves.

Bituminous rock.

United States (general): 1072.

Bivalves. *See* Pelecypoda.

Black sands.

General: Townsend, 1050.

Blastomeryx, osteology of: Matthew, 722.

Blowing of soils: Reagan, 860.

Bogoslof Islands: Smith, 990.

Bogoslof Volcano: Jagger, 556.

Borax.

United States (general): 1072.

Botany, fossil. *See* Paleobotany.

Brachiopoda.

Arctic regions, Carboniferous: Whitfield, 1142.

Camarophorella: Hyde, 547.

Cambrian: Walcott, 1098.

Chonetes granulifer, development of: Greene, 411.

Dalmanellas of the Chemung: Williams, 1163.

Derbya multistriata, development of: Greene, 411.

Devonian brachiopod with original color markings: Greger, 412.

Guadalupian fauna: Girty, 386.

Indiana, Cincinnati series: Cumings, 258.

Breccias, limestone, origin of: Campbell, 169.

British Columbia.

General: Mottin, 744.

Bibliography of geology and mining industry: Gwillim, 425.

Bulkley Valley: Leach, 645.

Coast from Powell River to Kingcome Inlet: Bancroft, 58.

Lardeau district: Brock, 134.

Economic.

Boundary district: Keffer, 578.

Bulkley Valley, coal: Leach, 645.

Bureau of Mines report: Robertson, 903.

Camp Hedley, Osoyoos district: Camsell, 173, 174.

Iron ores of Vancouver and Texada islands: Lindeman, 666.

Lardeau district: Brock, 134.

New Westminster and Nanaimo districts: Le Roy, 658.

Similkameen district: Camsell, 172.

Tyee copper mine, Vancouver Island: Weed, 1115.

White Bear mine, Rossland: Yuill, 1210.

Dynamic and structural.

Glaciers, activity of: Sherzer, 967.

variations in 1908: Vaux and Vaux, 1086, 1087.

Yoho: Wheeler, 1126, 1127.

Physiographic.

Alluvial fan near Field: Lahee, 619, 620.

Mountain forms in the Canadian Rockies: Coleman, 237.

British Columbia—Continued.**Stratigraphic.**

Cambrian formations: Walcott, 1096, 1100.

Correlation of international strata: Evans, 335.

Mount Stephen rocks and fossils: Walcott, 1095.

New Westminster and Nanaimo districts: Le Roy, 658.

Similkameen district: Camsell, 172.

Similkameen Valley, Striped Mountain: Evans, 333.

Paleontology.

Mount Stephen rocks and fossils: Walcott, 1095.

Tertiary plants: Penhallow, 812.

Mineralogy.

Tungstite and meymacite: Walker, 1102.

Bromine.

United States (general): 1072.

Bryozoa.

Guadalupian fauna: Girty, 386.

Indiana, Cincinnati series: Cumings, 258.

Building stone. *See also* Granite, Limestone, Sandstone, and Stone.

Alaska, southeastern: Wright, 1193.

Montana: Rowe, 913.

New Brunswick: Ellis, 321.

Oklahoma, northeastern: Siebenthal, 979.

Vermont: Perkins, 816.

Wyoming: Beeler, 82.

California.**General.**

Salt deposits of Salton Sea: Blake, 106.

State mineralogist, biennial report: Aubury, 42.

Economic.

Beach placers of Pacific coast: Irvine, 551.

Chalcocite, primary: Hershey, 473.

Coalinga oil field: Arnold and Anderson, 31, 32.

Copper: Aubury, 43; Liebenam, 664.

Shasta County: Forstner, 364.

Sierra Nevada belt: Benjamin, 92; Forstner, 363; Lang, 641; Reid, 871.

Copperopolis ore deposits: Reid, 870.

Magnesite deposits: Hess, 482.

Magnetite ores: Prescott, 835.

Miner ranch oil field, Contra Costa County: Arnold, 27.

Mineral resources: 166.

Molybdenum deposits: Hess, 478.

Shasta copper belt: Martin, 709.

Sierra Nevada copper belt: Hershey, 474; Reid, 872, 874.

Taylorville region: Diller, 291.

Tehama County copper district: Martin, 708.

Tungsten-bearing vein near Raymond: Hess, 480.

Dynamic and structural.

Conglomerate, in process of formation: Arnold and Anderson, 30.

Dome structure in conglomerate: Arnold, 25.

Owens Valley earthquake of 1872: Johnson and Hobbs, 564.

San Francisco earthquake: Arnold, 23; Harper, 433; Hobbs, 503; Lawson *et al.*, 643; Richter and McAulie, 890.

cause: Kunz, 615; Matamoros, 714; Spencer and Arnold, 996.

California—Continued.

Dynamic and structural—Continued.

- San Francisco earthquake: duration of first tremor: Oldham, 778.
earth flows: Anderson, 17.
mechanics of: Reid, 866.
Santa Cruz Range, structure of: Lawson, 763.
Transportation of detritus by Yuba River: Gilbert, 381.
Volcano, so-called, in Santa Monica Mountains: Arnold and Johnson, 33.

Physiographic.

- General:* Lawson *et al.*, 643.
Coso Range: Reid, 869.
Glacial cirques, Mt. Whitney region: Durst, 312.
High Sierra: Le Conte, 646.
Intermont plains: Keyes, 587.
Iron Canyon: Studley, 1033.
San Bernardino and San Gabriel ranges: Mendenhall, 726.
Whitney Creek, glaciation and present form: Dickerson, 288.

Stratigraphic.

- Coalinga district: Arnold and Anderson, 32.
Coso Range: Reid, 869.
Mount Diablo Range: Anderson, 16; Louderback, 680.
San Joaquin Valley: Mendenhall, 728.
San Pablo formation: Weaver, 1114.
Strata with Jurassic flora: Diller, 289.
Taylorsville region: Diller, 291.

Paleontology.

- Brittle star from Miocene of Santa Cruz Mountains: Arnold, 29.
Crabs, fossil: Rathbun, 852.
Cretaceous and Tertiary fossils from Santa Cruz Mountains: Arnold, 28.
Echinoids from the Tertiary: Weaver, 1114.
Nectosaurus, osteology: Merriam, 730.
Neocene man in the Sierra Nevada: Sinclair, 982.
Prehistoric man: Wright, 1204.
Quaternary myriopods and insects: Grinnell, 417.
Tertiary Mollusca from Santa Barbara County: Arnold, 24.
Whales, ancestors of: Gilbert, 383.
Woods, fossil: Platen, 830.

Petrology.

- Bodie: Turner, 1056.
Crocidolite-bearing rocks: Louderback and Sharwood, 682.

Mineralogy.

- Benitoite: Arnold, 26; Louderback and Blasdale, 681; Rogers, 906.
composition of: Kraus, 610.
Benitoite and neptunite: Wilke, 1146.
Bodie: Turner, 1056.
Calcite: Schaller, 942.
Ilvaite from Shasta County: Prescott, 834.
Notes on minerals: Eakle, 314.

Underground water.

- Foothill belt of southern California: Mendenhall, 727.
San Joaquin Valley: Mendenhall, 728.

Camarophorella, a Mississippian meristelloid brachiopod: Hyde, 547.

Cambrian.

Correlation.

- Cordilleran region: Walcott, 1096, 1100.

Stratigraphy.

General.

- Cordilleran formations: Walcott, 1096, 1100.
Alaska, southeastern: Wright and Wright, 1202.
Arizona, western: Lee, 648.
British Columbia: Walcott, 1096, 1100.
Similkameen district: Evans, 335.
California: Walcott, 1100.
Georgia: McCallie, 690.
Idaho: Walcott, 1096.
Maine, Rockland quadrangle: Bastin, 74.
Minnesota, Redstone region: Sardeson, 934.
Missouri, Morgan County: Marbut, 706.
Montana: Walcott, 1100.
Park County: Emmons, 327.
Nevada: Walcott, 1100.
New Brunswick: Ellis, 321; Matthew, 717.
New Jersey, Franklin Furnace quadrangle: Kummel, 611.
New Mexico, central: Lee, 648.
New York, Paleozoic section: Cushing, 260.
Pennsylvania, Lehigh and Northampton counties: Peck, 809.
southern: Stose, 1029.
Texas, Paleozoic of trans-Pecos: Richardson, 886.
Utah: Walcott, 1096, 1100.
Vermont: Perkins, 821.
Chittenden County: Perkins, 819.
Franklin County: Perkins, 818.
Newport, Troy, and Coventry: Richardson, 885.
Swanton: Edson, 319.
Virginia: Bassler, 72.
Wyoming: Darton, 267.

Paleontology.

- Brachiopoda: Walcott, 1098, 1099.
British Columbia, Mount Stephen: Walcott, 1095.
Trilobites: Walcott, 1097.

Canada (general). *See also the various provinces.*

General.

- Geological Survey, summary report, 1907: Brock, 133.
work of: 1215.
Index to reports of Geological Survey of Canada: Nicolas, 769.
Mines branch, summary report for 1907-8: Haanel, 426.

Economic.

- Coal: Baum, 75.
Graphite: Brumell, 150; Lamb, 625.
Iron: Baum, 75.
Iron ores: Leith, 655.
Minerals and ores of northern Canada: Tyrell, 1060.
Mining and metallurgical industries, 1907-8: 175.
Oil fields of eastern Canada: Ellis, 324.
Tungsten ores: Walker, 1101.

Paleontology.

- General:* Whiteaves, 1140.
Vertebrates: Lamb, 625.

Canyon Diablo crater: Merrill, 739.

Carboniferous.*Correlation.*

Illinois, Salem limestone: Weller, 1122.

Pennsylvania: Butts, 160.

Nomenclature.

Kansas coal measures, nomenclature of: Harworth and Bennett, 447.

*Stratigraphy.**General.*

Permian beds, so-called, age of: Case, 183.

Pottsville formation of Appalachian region: Grabau, 397.

Red beds, stratigraphic position of: Keyes, 592.

Red beds of New Mexico, age of: Lee, 650.

Unconformity between Mississippian and Pennsylvanian: Butts, 159.

Alaska, Porcupine River: Kindle, 595.

Seward Peninsula: Collier *et al.*, 241.

upper Yukon region: Brooks and Kindle, 595.

Yukon-Tanana region: Prindle, 836.

Arizona, western: Lee, 648.

Arkansas: Branner, 120.

British Columbia, Nanaimo and New Westminster districts: Leroy, 658.

California, Taylorsville region: Diller, 291.

Colorado, northern, red beds: Henderson, 463.

Georgia: McCallie, 690.

Illinois: Bain, 51.

Belleville-Breese area: Udden and DeWolf, 1067.

Mississippian section: Weller, 1123.

Peoria: Udden, 1066.

Salem limestone: Weller, 1122.

Saline and Williamson counties: DeWolf, 285.

Saline-Gallatin field: DeWolf, 284.

Shoal Creek limestone: Udden, 1068.

Indiana, oolitic limestone: Siebenthal, 978.

Kansas, Independence quadrangle: Schrader, 947.

Florena shale fauna: Greene, 410.

Kentucky, eastern: Miller, 746.

Elkhorn district: White, 1137.

Kenova quadrangle: Phalen, 826.

Maryland, Accident and Grantsville quadrangles: Martin, 708.

Michigan, Ann Arbor quadrangle: Russell and Leverett, 928.

Missouri, Morgan County: Marbut, 706.

Pike County: Rowley, 921.

Montana: Walcott, 1100.

New Brunswick: Ellis, 321.

New Mexico, central: Lee, 649.

Estancia Plains: Keyes, 588.

Lake Valley district: Keyes, 586.

red beds, age of: Lee, 650.

Ohio, desiccation conglomerates: Hyde, 546.

Flushing quadrangle: Griswold, 418.

Kenova quadrangle: Phalen, 826.

Pomeroy coal: Bownocker and Condit, 119.

Toboso: Carney and Brumback, 180.

Oklahoma, northeastern: Siebenthal, 979.

Pennsylvania: Butts, 160.

Accident and Grantsville quadrangles: Martin, 712.

Carboniferous—Continued.*Stratigraphy—Continued.*

Pennsylvania: southwestern: Ashley, 36.

unconformity between Mississippian and

Pennsylvanian: Butts, 159.

Texas, Guadalupe Mountains: Girty, 386.

Paleozoic of trans-Pecos: Richardson, 886.

Permian invertebrates: Leuchs, 659.

Utah, southern: Leith and Harder, 657.

West Virginia: White, 1139.

Accident and Grantsville quadrangles: Martin, 712.

Kenova quadrangle: Phalen, 826.

Wyoming: Darton, 267.

Yukon: Cairnes, 165.

Paleontology.

Arctic regions: Whitfield, 1142.

Carboniferous fossils: Girty, 387.

Chonetes granulifer, development of: Greene, 411.

Coelacanth fish from the Iowa Kinderhook: Eastman, 315.

Guadalupian fauna: Girty, 386.

Illinois, Mazon Creek plants: Peola, 814.

Salem limestone fauna: Weller, 1122.

Lysorophus, Permian Urodele: Williston, 1171.

Missouri, Pike County: Rowley, 921.

Ohio, Camarophorella from the Waverly: Hyde, 547.

Pelycosaurian, four-horned, from Texas Permian: Matthew, 721.

Pennsylvania, vertebrate fossils from Pittsburgh: Case, 184.

Permian fossils, notes on: Case, 183.

Permian Reptilia, with restorations: Case, 185.

Texas, Permian vertebrate fossils in Texas, localities and horizons of: Cummins, 259.

Carnotite ores.

Colorado, Routt County: Gale, 371.

Cartography.

Contouring, topographic forms: Johnson and Matthes, 563.

Conventional signs for mineral occurrence maps: Ingall, 549.

Landforms, mapping of: Matthes, 716.

Representation of culture features upon geological maps: Lane, 638.

Cave faunas.

Pleistocene deposit in northern Arkansas: Brown, 141.

Caverns. See Caves.**Caves.**

Mammoth cave: Hovey, 526.

Maryland, Bushey cavern: Peabody, 806.

Mexico, Atoyac: Allorge, 13.

Cement and cement materials.

Florida: Sellards, 961.

Illinois, Chicago district: Burchard, 154.

LaSalle: Cady, 163.

Missouri: Buehler, 152.

New York: Newland, 761.

Oklahoma: Gould *et al.*, 395.

northeastern: Siebenthal, 979.

Pennsylvania, Lehigh and Northampton counties: Peck, 809.

South Dakota, Black Hills: O'Harra, 776.

Cement and cement materials—Continued.

Texas, El Paso: Richardson, 889.
 Trinidad, Naparima: Guppy, 423.
 United States (general): 1072.
 Virginia, western: Bassler, 72.

Ceratopsian dinosaurs, cranial musculature and frill: Lull, 687.

Cercopidae: Cockerell, 216.

Cetacea. *See* Mammalia.

Changes of level. *See also* Beaches, Terraces.

Earth movements in the Laurentian basin: Hobbs, 504.

Great Lakes region: Taylor, 1047.

Montana, earth movement at Butte: Chapman, 201, 202.

Water-planes, ancient, and crustal deformation: Robinson, 904.

Chemical analyses. *See list, p. 133.*

Chimaeroid fishes: Dean, 277.

Chrome.

Quebec: Strangways, 1030, 1031.

Chromite.

United States (general): 1072.

Cincinnati series of Indiana: Cumings, 258.

Cirques, glacial, Mt. Whitney region: Durst, 312.

Clay. *See also* Fire clay.

General.

Geology of: Rolfe, 911.

Arkansas: Branner, 120.

Florida: Sellards, 961.

Georgia, Dry Branch region: Veatch, 1090.

Kentucky, Kenova quadrangle: Phalen, 826.

Maine, Rockland quadrangle: Bastin, 74.

Mississippi: Logan, 675.

Montana: Rowe, 913.

Kootenai clays near Belt: Fisher, 355.

New Jersey, Franklin Furnace quadrangle: Spencer *et al.*, 997.

Passaic quadrangle: Darton *et al.*, 269.

New York: Newland, 761.

Ohio, Kenova quadrangle: Phalen, 826.

Oklahoma: Gould *et al.*, 395.

Pennsylvania, southwestern: Ashley, 35.

Texas: Ries, 896.

El Paso: Richardson, 889.

South Carolina: Sloan, 984.

United States (general): 1072.

Vermont: Perkins, 816.

West Virginia, Kenova quadrangle: Phalen, 826.

Clays, geology of: Rolfe, 911.

Climate, geologic. *See* Paleoclimatology.

Climate and terrestrial deposits: Barrell, 67.

Climaticnites, tracks of: Hitchcock and Patten, 499.

Coal.*General.*

Classification: Dowling, 302, 303; McCallum, 691.

of low-grade coals: Campbell, 171; Grout, 420.

Formation of: White, 1136, 1138.

Mine sampling and chemical analyses: Burrows, 157.

Coal—Continued.*General*—Continued.

Origin: Chance, 195; Hixon, 502; White, 1136, 1138.

Production of: Parker, 797.

Reserves of the United States: Campbell, 168.

United States, map of coal fields: Campbell, 170.

Alaska: Brooks, 138.

Controller Bay region: Martin, 711.

Alberta: Dowling, 301; Malloch, 702.

British Columbia, Bulkley Valley: Leach, 645.

Similkameen district: Camsell, 172.

Colorado: Lakes, 623.

Routt County coals: Herrick, 471.

Illinois: Bain *et al.*, 55; DeWolf, 286, 287.

Jelleville-Breese area: Udden and DeWolf, 1067.

Peoria: Udden, 1065.

Saline and Williamson counties: DeWolf, 285.

Saline-Gallatin field: DeWolf, 284.

Kansas, Independence quadrangle: Schrader, 947.

Kentucky, Big Stone Gap field: Shippen, 976.
 eastern: Miller, 746.

Elkhorn district: Stone, 1023.

Kenova quadrangle: Phalen, 826.

Kentucky River region: Hodge, 506.

Maryland, Accident and Grantsville quadrangles: Martin, 712.

Mexico: Schwarz, 953.

Coahuila: Ordóñez, 780.

Mississippi, lignite: Brown, 145.

Montana: Rowe, 913, 916, 918.

New Brunswick: Ellis, 321, 323.

Nova Scotia: Fletcher, 356.

Pictou County: Coll, 239.

Ohio, Kenova quadrangle: Phalen, 826.

Monongahela coals: Bownocker, 118.

Pomeroy coal: Bownocker and Condit, 119.

Oklahoma: Gould, 393; Gould *et al.*, 395.

Pennsylvania, Accident and Grantsville quadrangles: Martin, 712.

southern anthracite coal field: Haertter, 428.
 southwestern: Ashley, 35.

United States (general): 1072; Baum, 75.

Virginia, Russell Fork district: Stone, 1023.

West Virginia: Alderson, 8; Stoek, 1021; White, 1139.

Accident quadrangle: Martin, 712.

Kenova quadrangle: Phalen, 826.

Wyoming: Beeler, 82.

Diamondville field: Shurick, 977.

southern: Parsons, 803.

Yukon, Conrad and Whitehorse districts: Cairnes, 165.

Tantalus: Cairnes, 164.

Coal Measures. *See* Carboniferous.

Cobalt.

Kentucky, western: Fohs, 360.

Ontario, Cobalt: Flynn, 359; Tyrrell, 1061.

northern: Hore, 516.

Temiskaming: Stutzer, 1035.

South Carolina: Sloan, 984.

United States (general): 1072.

Colorado.*General.*

- Colorado Springs region: Finlay, 351.
 Historical development: Rickard, 891.
 Middle Park and Gore Canyon: Henning, 467.

Economic.

- Breckenridge gold placers: Lakes, 622.
 Carnotite and associated minerals of Routt County: Gale, 371.
 Coal fields: Lakes, 623.
 Copper deposits in the Sangre de Christo Range: Bagg, 48.
 Copper in Chaffee, Fremont, and Jefferson counties: Lindgren, 671.
 Evergreen copper deposits, Gilpin County: Ritter, 898, 900, 902.
 Georgetown quadrangle: Spurr and Garrey, 1008.
 Gold, primary, in granite: Hastings, 441.
 La Plata Mountains: Toll, 1049.
 Leadville ore bodies: Boehmer, 113.
 Montezuma district: Ritter, 899, 901.
 Placer deposits near Lay, Routt County: Gale, 370.
 Rangely oil district, Rio Blanco County: Gale, 372.
 Routt County coals: Herrick, 471.
 San Juan region: Read, 857.
 Treasure Mountain: Purington, 842.
 Vanadium near Telluride: Zalinski, 1211.

Dynamic and structural.

- Upturning sedimentary rocks: Lee, 651.
 Wind erosion in the plateau country: Cross, 255.

Physiographic.

- Boulder, mesas near: Dodds, 296.
 Georgetown quadrangle: Ball, 56.

Stratigraphic.

- Cripple Creek: Argall, 21.
 Florissant area: Wheeler, 1129.
 Fossil Ridge sandstone: Henderson, 464.
 Georgetown quadrangle: Ball, 56.
 Rangely oil district, Rio Blanco County: Gale, 372.
 Red Beds: Henderson, 463.
 Triassic portion of the Shinarump group: Cross, 254.

Paleontology.

- Aphididae from Florissant: Cockerell, 225.
 Bee, leaf-cutting: Cockerell, 218.
 Cercopidae from Florissant: Cockerell, 216.
 Chrysopidae: Cockerell, 219.
 Cretaceous invertebrates: Henderson, 465.
 Diptera: Cockerell, 220.
 Dragon-fly from Florissant: Cockerell, 232.
 Florissant Elateridae: Wickham, 1144.
 Florissant expedition of 1908: Cockerell, 227.
 Florissant expedition for fossil insects: Wheeler, 1129.
 Fossil Ridge fauna: Henderson, 464.
 Grass from Florissant: Brues and Brues, 149.
 Hymenoptera from Florissant: Brues, 147.
 Insects from Florissant: Cockerell, 215, 228.
 Mantis: Cockerell, 222.
 Miocene species of *Lymanæa*: Cockerell, 231.
 Northeastern: Henderson, 462.
 Orthopterous insect: Cockerell, 223.

Colorado—Continued.*Paleontology—Continued.*

- Osmiylidae (Neuroptera) in America: Cockerell, 221.
 Parahippus, occurrence of: Cockerell, 230.
 Phoridae from Florissant: Brues, 148.
 Plant (Ficus) from the Fox Hills Cretaceous: Cockerell, 212.
 Plants from Florissant: Cockerell, 224, 229.
 Sawfly *Perga coloradensis*: Cockerell, 214.
 Sequoia from Florissant: Cockerell, 213.
 Tenthredinoidea of Florissant shales: Rohwer, 908, 909.
 Wasp: Rohwer, 907.
 mellinoid: Rohwer, 910.
 Woods, fossil: Platen, 830.

Petrology.

- Georgetown quadrangle: Ball, 56.
 Gilpin County: Ritter, 898.

Mineralogy.

- Carnotite, occurrence of: Henning, 466.
 Kaolinite from Silverton: Milch, 745.
 Meteoric iron from Currant Creek: Headen, 460.
 Molybdenite: Schaller, 941.
 Proustite and argentite near Montezuma: Van Horn, 1081, 1082.

Columbium: Baskerville, 70.

Conard fissure, a Pleistocene bone deposit in Arkansas: Brown, 141.

Concrete materials.

Illinois, Chicago district: Burchard, 154, 155.

Conglomerate.

- Conglomerate, formed by a mineral-laden stream in California: Arnold and Anderson, 30.
 Dome structure in conglomerate: Arnold, 25.
 Limestone breccias, origin of: Campbell, 169.

Concretions.

- Clinton ores of Stone Valley, Pa.: Rutledge, 929.
 Physical origin of certain concretions: Gardner, 374.

Conglomerates, dessication: Hyde, 546.

Congresses. *See* Associations.

Continents and oceans, origin of: Love, 683.

Connecticut.*General.*

Commissioners of state geological and natural history survey, report: Rice, 883.

Stratigraphic.

Newark red series: Schuchert, 950.

Mineralogy.

Beryl from Haddam Neck: Martin, 710.

Copper.*General.*

- Correlation of copper and diamonds in the glacial drift of the Great Lakes region: Farrington, 345.
 Production in the West: Kemp, 585.
 Alaska, Copper River district: Brewer, 124; Keller, 579; Moffit and Maddren, 753.
 Kasaan Peninsula: Wright, 1194; Wright and Paige, 1195.

Copper—Continued.*General*—Continued.

- Alaska, Ketchikan and Wrangell districts:
 Wright and Wright, 1202.
 Prince William Sound: Moffit, 752.
 Seward Peninsula: Smith, 989.
 southeastern: Wright, 1192.
 Arizona, Mohave County: Schrader, 948.
 British Columbia, Boundary district: Keffer, 578.
 Lardeau district: Brock, 134.
 New Westminster and Nanaimo districts:
 Leroy, 658.
 Similkameen district: Camsell, 172.
 Vancouver Island: Weed, 1115.
 California: Aubury, 43; Lang, 641; Liebenam, 664; Reid, 871.
 chalcocite, primary: Hershey, 473.
 Copperopolis: Reid, 870.
 Shasta County: Forstner, 364; Martin, 709.
 Sierra Nevada foothills: Benjamin, 92; Forstner, 363; Hershey, 474; Reid, 872, 874.
 Tehama County: Martin, 708.
 Colorado, Chaffee, Fremont, and Jefferson counties: Lindgren, 671.
 Evergreen deposit: Ritter, 808, 900.
 Gilpin County: Ritter, 902.
 Sangre de Christo Range: Bagge, 48.
 Idaho, Coeur d'Alene district: Ransome and Calkins, 851; Rowe, 914, 920.
 Fort Hall mining district: Weeks and Heikes, 1119.
 Mineral: Turner, 1057.
 Mexico, Moctezuma deposit: Dinsmore, 294.
 Nacozari district: Russell, 926.
 Sonora: Nicholas, 765.
 Velardeña district, Durango: Spurr and Garrey, 1009.
 Zacatecas: Rice, 880.
 Montana, Butte: Simpson, 981.
 Nevada: Selwyn-Brown, 964.
 desert mines: Everette, 340.
 Ely ores: Herrick, 470.
 Yerington: Jennings, 547.
 New Brunswick: Ellis, 321.
 New Jersey, Passaic quadrangle: Darton *et al.*, 269.
 New Mexico, Magdalena: Argall, 22.
 San Pedro Mountain: Brinsmade, 130.
 Silver City: Brinsmade, 131.
 Oklahoma: Gould *et al.*, 395.
 Ontario, Sudbury district: Stewart, 1019.
 Oregon, Riddles quadrangle: Kay, 577.
 Pennsylvania, Newark deposits: Wherry, 1133, 1134.
 Quebec, southeastern: Dresser, 304.
 South Carolina: Sloan, 984.
 Utah, Bingham: Zalinski, 1213.
 Garfield copper mill: Brinsmade, 129.
 Newhouse: Jensen *et al.*, 548.
 Tintic district: Brinsmade, 126.
 United States (general): 1072.
 Vermont: Perkins, 816.
 Washington, Lake Osyoos: Evans, 336.
 Wyoming: Beeler, 82.
 Yukon, White Horse district: Elmendorf, 325; Paré, 796; Rickard, 894.

Corals. *See* Anthozoa.Correlation. *See* Stratigraphic.

Cortlandt series, near Peekskill, N. Y.: Berkey, 97.

Corundum.

South Carolina: Sloan, 984.

Cosmogony, relation of radioactivity to: Becker, 81; Day, 276.

Crabs, fossil, from California: Rathbun, 852.

Cretaceous.*Stratigraphy.*

Alaska, upper Yukon region: Brooks and Kindle, 139.

Yukon-Tanana region: Prindle, 836.

Alberta, Athabasca River: Bell, 86.

British Columbia, New Westminster and Nanaimo districts: Leroy, 658.

California: Diller, 289.

Coalinga district: Arnold and Anderson, 32.

Mt. Diablo Range: Anderson, 16.

Colorado, Rangely district: Gale, 372.

Sandstone of Fossil Ridge: Henderson, 464.

Georgia, Dry Branch region: Veatch, 1090.

Mexico, Durango: Spurr and Garrey, 1009.

Minnesota, Redstone region: Sardeson, 934.

Montana: Fisher, 354.

Nebraska, Elk Point quadrangle: Todd, 1048.
 northeastern: Condra, 245.New Jersey, Passaic quadrangle: Darton *et al.*, 269.

New Mexico, Mt. Taylor region: Shimer and Blodgett, 975.

New York, Passaic quadrangle: Darton *et al.*, 269.

North Dakota: Willard, 1149, 1151.

Oregon: Diller, 289.

South Carolina: Sloan, 984.

South Dakota, Elk Point quadrangle: Todd, 1048.

Texas, Maverick County: Udden, 1064.

Utah, southern: Leith and Harder, 657.

Wyoming: Darton, 267.

Yukon: Cairnes, 165.

Paleontology.

Alberta, Cretaceous woods: Penhallow, 811.

Ankylosauridae: Brown, 144.

Araucarian remains from the Atlantic coastal plain: Berry, 100.

California, Santa Cruz Mountains: Arnold, 28.

Colorado, Fossil Ridge fauna: Henderson, 464.

Crabs from California: Rathbun, 852.

Maryland, Cretaceous Bauhinia: Berry, 101.

Montana, Protoblattid family: Mitchell, 751.

New Mexico, Mt. Taylor region: Shimer and Blodgett, 975.

Torreya from North Carolina: Berry, 99.

Woods, fossil: Platen, 830.

Crinoidea. *See also* Echinodermata.

Discoid crinoidal roots and Camarocrinus: Sardeson, 935.

Hybocystis in Ontario: Parks, 800.

Indiana, Cincinnati series: Cumings, 258.

Crustacea.

Beyrichiidae, revision of: Ulrich and Bassler, 1070.

Crustacea—Continued.

Climaticnites, tracks of: Hitchcock and Pat-
ten, 499.

Guadalupian fauna: Girty, 386.

Trilobites, Black River from Ottawa: Raymond
and Narraway, 855.

Cambrian: Walcott, 1097.

Missouri: Rowley, 921.

Cryolite.

United States (general): 1072.

Cryptogams. *See* Paleobotany.

Cryptozoon: Seely, 959.

Crystallography.

Calcite crystals: Schaller, 942.

Stephanite from Mexico: Ford, 361.

Cuba. *See also* West Indies.

Barite associated with iron-ore in Pinar del Rio
Province: Catlett, 186.

Residual iron ore: Spencer, 992, 995.

Cycads, historic fossil: Wieland, 1145.

Cystoidea.

Hybocysts in Ontario: Parks, 800.

Decomposition of rocks. *See* Weathering.

Deposition. *See* Sedimentation.

Deposition of ores. *See* Ore deposits, origin.

Desiccation conglomerates: Hyde, 546.

Determination of barium: Langley, 642.

Devonian.*Correlation.*

Pennsylvania: Butts, 160.

Stratigraphy.

Alaska, Porcupine River: Kindle, 595.

Seward Peninsula: Collier *et al.*, 241.

southeastern: Wright and Wright, 1202.

Yukon-Tanana region: Prindle, 836.

British Columbia, New Westminster and
Nanaimo districts: Leroy, 658.

California, Taylorsville region: Diller, 291.

Illinois, Peoria: Udden, 1066.

southwestern: Savage, 936, 937.

Maryland, Accident and Grantsville quad-
rangles: Martin, 712.

Portage and Chemung formations: Swartz,
1038.

Michigan, Ann Arbor quadrangle: Russell and
Leverett, 928.

Missouri, Morgan County: Marbut, 706.

Pike County: Rowley, 921.

New Brunswick: Ells, 321.

New Jersey, Franklin Furnace quadrangle:
Kimmel, 611.

New Mexico, Lake Valley district: Keyes, 586.

New York: Clarke, 207.

Portage and Nunda quadrangles: Clarke and
Luther, 210.

series, revision of: Chadwick, 188.

Ohio, Lucas County: Stauffer, 1010.

Oklahoma, northeastern: Siebenthal, 979.

Pennsylvania: Butts, 160.

Accident and Grantsville quadrangles: Mar-
tin, 712.

Quebec, Gaspé: Clarke, 208.

Rocky Mountain region: Kindle, 596.

Devonian—Continued.*Stratigraphy*—Continued.

Tennessee, western: Pate and Bassler, 804.

Yukon: Cairnes, 165.

Paleontology.

Brachiopod with original color markings:

Greger, 412.

Dalmanellas of the Chemung: Williams, 1163.

Dinichthys from Huron shale: Branson, 122, 123.

Fishes from Iowa: Eastman, 316.

Jefferson limestone fauna, Rocky Mountain
region: Kindle, 596.

Maryland, Portage and Chemung faunas:
Swartz, 1038.

Michigan, Schoharie fauna: Grabau, 396.

Quebec, Gaspé: Clarke, 208.

Wisconsin, plants from Milwaukee: Penhallow,
810.

Diatase, distribution in Massachusetts: Emerson,
326.

Diamonds.*General.*

Correlation of copper and diamonds in the
glacial drift of the Great Lakes region:
Farrington, 345.

Formation of: Schneider, 944.

Arkansas, Pike County: Fuller, 368; Kunz and
Washington, 616; Purdue, 841; Schneider,
945; Washington, 1112.

Diatomaceous earth.

New York: Newland, 761.

Dinichthys intermedius from Huron shale: Bran-
son, 122.

Dinichthys terrelli: Branson, 123.

Dinosaurs from upper Cretaceous: Brown, 144.

Dip and pitch: Raymond, 856.

Diplodocus, skull of: Hay, 450; Holland, 510.

Dislocations. *See* Faulting.

Dolomite, decomposition of: Knight, 600.

Domes, salt: Harris, 435, 438.

Drainage changes.

Great Lakes region: Taylor, 1047.

Illinois, Springfield area: Jones, 569.

Indiana, Big Creek and tributaries: Culbert-
son, 257.

Michigan, Ann Arbor quadrangle: Russell and
Leverett, 928.

Minnesota, Saint Anthony Falls: Sardeson, 933.

Mississippi River between the Missouri and the
Ohio: Fowke, 365.

New Jersey, Passaic quadrangle: Darton *et al.*,
269.

New York, central: Grabau, 398.

central-western: Grabau, 402.

Finger Lake region: Rich, 884.

Genesee Valley: Fairchild, 342.

glacial Lake Bloomfield: Dryer, 310.

lower Hudson Valley: Berkey, 94.

overflow channel of ponded pre-Wisconsin
waters: Carney, 177.

southeastern: Kemp, 583.

North Dakota, Maple River: Willard, 1156.

Ohio, stream diversion near Lakeville: Hub-
bard, 535.

Preglacial Erie outlet: Spencer, 1002.

Drift: Reagan, 859.

Drift deposits. *See* Quaternary.

Drumlins: Reagan, 859.

Dunes.

Sand waves: Willey, 1162.

Dynamic and structural (general). *For regional see under the various States. See also* Caves, Changes of level, Concretions, Deformation, Deltas, Domes, Drumlins, Dunes, Earth, genesis of, Earthquakes, Erosion, Eskers, Faulting, Fjords, Folding, Geysers, Glaciers, Intrusions, Isostasy, Karsts, Landslides, Magmas, Metamorphism, Mounds, Natural bridges, Orogeny, Pebbles, Sedimentation, Shorelines, Sink holes, Temperature, Terraces, Thermal waters, Unconformity, Valleys, Volcanoes, Weathering.

Age of a cooling globe in which the initial temperature increases directly as the distance from the surface: Becker, 80.

Arched structure in Lockport limestone: Fairchild, 343.

Blowing of soils: Reagan, 860.

Climate and terrestrial deposits: Barrell, 67.

Coal, formation of: White, 1136.

Coastal drift sands: Olsson-Seffer, 779.

Continents and oceans, origin of: Love, 683.

Disruption of rock by lightning: Barnett, 66.

Earth a failing structure: Hayford, 458.

Earth as a generative structure: Chamberlin, 192.

Fractures in coal beds: Udden, 1065.

Gases in rocks: Chamberlin, 190, 191.

Intermont plains of the arid region: Keyes, 588.

Isogeotherm hypothesis of mineral origin: Plotts, 831.

Lake ramparts, origin: Gilbert, 381.

Mechanics of Allegheny structure: Ashley, 34.

Mounds, origin: Reagan, 858.

Peat deposits as geological records: Davis, 270.

Physics of the earth: *See*, 955.

Radioactivity and rocks: Strutt, 1032.

Rock pressure and metamorphism: Chance, 197.

Sand waves: Willey, 1162.

Sedimentary rocks, origin and age: Schaeberle, 940.

Silicification of fossils: Bassler, 71.

Striations in gravel bars: Barnett, 64.

Upturning sedimentary rocks: Lee, 651.

Volcanic waters: Hastings, 443.

Water, function of: McGee, 697.

Earth, age of.

General: Becker, 80; Lane, 636.

Radioactivity, relations to cosmogony and geology: Becker, 81; Day, 276.

Earth, genesis of. *See also* Dynamic and structural (general).

Continents and oceans, origin of: Love, 683.

Earth's rotation, influence of tides upon: Chamberlin, 193.

Inner earth, geology of: Gregory, 413.

Pendulation theory: Wherry, 1132.

Physics of the earth: *See*, 955.

Planetesimal hypothesis: Kemp, 580.

Radioactivity and rocks: Strutt, 1032.

Earth, genesis of—Continued.

Sedimentary rocks, origin and age: Schaeberle, 940.

Uranium and geology: Joly, 566.

Earth, interior of.

General: Klotz, 598.

Inner earth, geology of: Gregory, 413.

Physics of the earth: *See*, 955.

Earth, temperature of.

General: Becker, 80; Lane, 636.

Earth as a heat-radiating planet: Schaeberle, 938.

Uranium and geology: Joly, 566.

Earth flows of San Francisco earthquake: Anderson, 17.

Earthquakes.

General: Klotz, 598.

Bridges, damage to: Hobbs, 503.

Curves illustrating coincident volcanic, seismic, and solar phenomena: Huntington, 541.

Physics of the earth: *See*, 955.

Albany Station, New York, records: Clarke, 207.

California, Owens Valley of 1872: Johnson and Hobbs, 564.

Charleston earthquake: Harboe, 431.

Guatemala: Anderson, 19.

Mexico, April 14, 1907: Böse *et al.*, 116.

San Francisco: Arnold, 23; Harper, 433; Kunz, 615; Lawson *et al.*, 643; Richter and McAdie, 890.

cause: Matamoros, 714; Spencer and Arnold, 996.

duration of first tremor: Oldham, 778.

earth flows: Anderson, 17.

mechanics of: Reid, 866.

Seismograph, universal: Marvin, 713.

Seismological committee's report: Reid, 865.

Seismological Society's report: 960.

Theory of: *See*, 956, 957.

Earth movements. *See* Changes of level.

Echinodermata. *See also* Asteroidea, Blastoidea, Crinoidea, Cystoidea, and Echinoidea.

Guadalupean fauna: Girty, 386.

Echinoidea.

California, Tertiary: Weaver, 1114.

Economic (general). *For regional see under the various States. See also* Ore deposits, origin, and the particular products.

Alteration of rocks: Steidtmann, 1012.

Classification for low-grade coals: Campbell, 171.

Contributions to economic geology, 1907: Hayes and Lindgren, 455.

Dip and pitch: Raymond, 856.

Filtration through a mineral filter: Sullivan, 1036.

Magnetic observations in geological and economic work: Smyth, 991.

Metalliferous ores, investigation of: Lindgren, 669.

Mineral resources, 1907: 1072.

Mineral veins, formation of: Everette, 341.

Nonmetallic mineral resources, investigation of: Hayes, 454.

Ore bodies without walls: Merrill, 737.

Economic (general)—Continued.

- Ore deposition, theory of: Jaggar, 545.
 Ore deposits: Wallace, 1103.
 present tendencies in the study of: Lindgren, 668, 673.
 Ore shoots: Boehmer, 113; Irving, 553; Ransome, 848; Sales, 930; Sjögren, 983; Smith, 985; Stirling, 1020; Winchell, 1184.
 Oxidation of pyrite: Grout, 419.
 Pegmatite, origin of: Hastings, 442.
 Shoots in metalliferous deposits: Irving, 553.
 Specific volume of ores: Mead, 725.
 Waters, meteoric and magmatic: Kemp, 582; Turner, 1059.

Elephant, evolution of: Lull, 686.

Elevation and subsidence. *See* Changes of level.

Elk Point quadrangle: Todd, 1048.

Emery.

New York: Newland, 761.

Eocene. *See* Tertiary.

Eolian action. *See* Wind work.

Erosion. *See also* Sedimentation.

- Climate and terrestrial deposits: Barrell, 67.
 Experiments illustrating: Jaggar, 544.
 Montana and Wisconsin: Mansfield, 705.
 Sheetflood erosion: Keyes, 587.
 Transportation of detritus, experiments on: Gilbert, 380, 381.
 Unconcentrated wash, erosion by: Fenneman, 347.
 Valley erosion of Big Creek, Indiana: Culbertson, 257.
 Wind erosion in the plateau country: Cross, 255.

Eruptive rocks. *See* Igneous rocks.

Eskers.

- General:* Reagan, 859.
 Alaska, Yakutat Bay region: Tarr, 1041.
 Massachusetts, fault in an esker: Lahee, 621.
 Ohio, south of Dayton: Scheffel, 943.

Essays. *See* Addresses.

Falls. *See also* Niagara Falls.

Minnesota, Saint Anthony Falls: Sardeson, 933.

Educational. *See also* Textbooks.

- Apparatus for instruction in structural geology: Hobbs, 505.
 Representation of land forms in the physiography laboratory: Tarr and Engeln, 1042.
 Wet laboratory in physiography teaching: Engeln, 331.

Faulting.

- Arizona, Grand Canyon: Ransome, 847.
 California: Arnold, 23; Lawson *et al.*, 643; Reid, 866.
 Santa Cruz Range: Newsom, 763.
 Taylorsville region: Diller, 291.
 Colorado, Georgetown quadrangle: Spurr and Garrey, 1008.
 Idaho, Coeur d'Alene district: Ransome and Calkins, 851.
 Massachusetts, fault in an esker: Lahee, 621.
 New Mexico, Estancia Plains: Keyes, 588.
 New York, Adirondacks: Newland, 760.

Feldspar.

- New York: Newland, 761.
 South Carolina: Sloan, 984.
 United States (general): 1072.

Fire clay.

Origin: Chance, 195.

Fishes. *See* Pisces.

Fjords of Puget Sound and the Saguenay: Upham, 1074.

Florida.*General.*

State geological survey, report: Sellards, 961.

Economic.

Economic products: Sellards, 961.

Physiographic.

Gulf coastal plains: Sutherland, 1037.

Stratigraphic.

Grand Gulf and Lafayette formations: Clapp, 204.

Underground water.

Underground water supply: Sellards, 962.

Florissant, a Miocene Pompeii: Cockerell, 226.

Fluorspar.

- Kentucky: Fohs, 360.
 United States (general): 1072.

Folding.

- New Mexico, Lake Valley district: Keyes, 586.
 New York, Trenton Falls: Miller, 747.

Footprints, fossil.

Salamander-like from Texas Permian: Williston, 1171.

Foraminifera.

Guadalupian fauna: Girty, 386.

Fossil skeletons, modern methods of excavating, preparing, and mounting: Hermann, 469.

Fossils. *See* Paleontology.

Foundry sands: Ries and Rosen, 897.

Franklin Furnace quadrangle: Spencer *et al.*, 997.

Fuller's earth.

- Florida: Sellards, 961.
 South Carolina: Sloan, 984.
 United States (general): 1072.

Garnet.

New York: Newland, 761.

Gas. *See* Natural gas.

Gastropoda. *See also* Mollusca.

- Chazy: Raymond, 853.
 Eocene from Claiborne, Ala.: Aldrich, 9.
 Miocene Scala from Alaska: Dall, 263.
 Miocene species of *Lymnaea*: Cockerell, 231.

Gems. *See also* Precious stones.

South Carolina: Sloan, 984.

Genesis of ores. *See* Ore deposits, origin.

Geochemistry, data of: Clarke, 205.

Geodes.

Formation of: Bassler, 71.

Geologic climate. *See* Paleoclimatology.

Geologic formations, tables. *See* Stratigraphic, Tables of formations. *See also* list, p. 137.

Geologic history. *See also* Paleoclimatology.*Paleozoic.*

- Devonian: Clarke, 207.
- Devonic history of New York and eastern North America: Clarke, 208.
- Ordovician, New York: Cushing, 260.
- Paleozoic, general: Ruedemann, 922.
- Silurian, Georgia: McCallie, 690.

Post-Paleozoic.

- Pleistocene, New York: Fairchild, 342.
- Tertiary, California: Anderson, 16.

Regional.

- Alaska, Controller Bay region: Martin, 711.
- southeastern: Wright and Wright, 1202.
- upper Yukon region: Brooks and Kindie, 139.
- Arizona: Lee, 648.
- California: Lawson *et al.*, 643.
- Taylorville region: Diller, 291.
- Tertiary: Anderson, 16.
- Colorado, Georgetown quadrangle: Ball, 56.
- Georgia, Silurian: McCallie, 690.
- Idaho, Coeur d'Alene district: Ransome and Calkins, 851.
- Illinois: Rolfe, 912.
- Iowa, Elk Point quadrangle: Todd, 1048.
- Kansas, Independence quadrangle: Schrader, 947.
- Maine, Rockland quadrangle: Bastin, 74.
- Mexico, Promontorio district, Durango: Lincoln, 665.
- Velardeña district, Durango: Spurr and Garrey, 1009.
- Minnesota, Redstone region: Sardeson, 934.
- Nebraska, Elk Point quadrangle: Todd, 1048.
- New Brunswick: Matthew, 717.
- New England: Cleveland, 211.
- New Jersey, Franklin Furnace quadrangle: Spencer *et al.*, 997.
- Passaic quadrangle: Darton *et al.*, 269.
- New Mexico, Lake Valley district: Keyes, 586.
- New York, Long Island: Crosby, 253.
- Ordovician: Cushing, 260.
- Pleistocene: Fairchild, 342.
- North Dakota: Willard, 1149.
- Maple River: Willard, 1156.
- Tower quadrangle: Willard, 1152.
- Pennsylvania: Stone, 1025.
- western: Butts, 160.
- South Dakota, Elk Point quadrangle: Todd, 1048.
- Utah, southern: Leith and Harder, 657.
- Wyoming: Darton, 267.

Geologic maps.

- Alaska: Brooks, 137.
- Controller Bay region: Martin, 711.
- Fairbanks and Rampart quadrangles: Prindle, 836.
- Ketchikan district: Wright and Wright, 1202.
- Kotsina-Chitina copper belt: Moffit and Madren, 753.
- Porcupine River: Kindie, 595.
- Seward Peninsula: Knopf, 604.
- southeastern: Wright, 1192.
- upper Yukon region: Brooks and Kindie, 139.
- Wrangell district: Wright and Wright, 1202.
- Yukon-Tanana region: Prindle, 837.

Geologic maps—Continued.

- Arizona, western: Lee, 648.
- British Columbia: Métin, 744.
- Copper Mountain mining camp: Camsell, 172.
- Nanaimo and New Westminster mining districts: Leroy, 658.
- Princeton coal basin: Camsell, 172.
- Texada Island: Leroy, 658.
- California, Coalinga district: Arnold and Anderson, 32.
- Honey Lake and Indian Valley quadrangles: Diller, 291.
- San Francisco Peninsula: Lawson *et al.*, 643.
- Shasta County: Prescott, 835.
- Colorado, Empire mining district: Spurr and Garrey, 1008.
- Georgetown quadrangle: Ball, 56; Spurr and Garrey, 1008.
- Raven Park: Gale, 372.
- Georgia: McCallie, 689; Watson, 1113.
- northwestern: McCallie, 690.
- Greenland: Nordenskjöld, 770.
- Idaho, Fort Hall mining district: Weeks and Helkes, 1119.
- Illinois: Weller, 1121.
- Millbrig district: Grant and Perdue, 408.
- Kansas, Independence quadrangle: Schrader, 947.
- Kentucky, Elkhorn district: Stone, 1023.
- Maine, Rockland quadrangle: Bastin, 74.
- southern: Leighton and Bastin, 654.
- Maryland, Accident and Grantsville quadrangles: Martin, 712.
- Mexico, Zacatecas: Rice, 880.
- Michigan: Lane, 630.
- Ann Arbor quadrangle: Russell and Leverett, 928.
- Minnesota, Redstone region: Sardeson, 934.
- Missouri, Morgan County: Marbut, 706.
- Pike County: Rowley, 921.
- Montana, Park County: Emmons, 327.
- Nevada, Osceola district: Weeks, 1116.
- southwestern: Ball, 57.
- New Brunswick: Ellis, 321.
- New Jersey, Newark area: Lewis, 662.
- Passaic quadrangle: Darton *et al.*, 269.
- New Mexico, Lake Valley district: Keyes, 586.
- New York, Adirondack region: Newland, 760.
- Clinton formation: Newland and Hartnagel, 762.
- Letchworth Park: Clarke and Luther, 210.
- Portage-Nunda quadrangles: Clarke and Luther, 210.
- North America: Margarié, 707.
- Ohio, coal areas: Bownocker, 118.
- Flushing quadrangle: Griswold, 418.
- Oklahoma, northeastern: Siebenthal, 979.
- Ontario, Bancroft sheet: Adams, 2.
- Gowganda district: Collins, 244.
- Oregon, Douglas County: Diller, 289.
- Pennsylvania: Stone, 1025.
- Accident and Grantsville quadrangles: Martin, 712.
- Berks County: Spencer, 993.
- Lebanon County: Spencer, 993.
- southeastern: Wherry, 1133.

Geologic maps—Continued.

- Quebec, Gaspé: Clarke, 208.
 Lake Megantic: Dresser, 306.
 South Carolina: Sloan, 984.
 South Dakota, Black Hills: Ferguson and Turgeon, 350.
 United States, coal fields: Campbell, 170.
 Utah, Iron Springs district: Leith and Harder, 657.
 Vermont, Charlotte: Perkins, 819.
 Orleans County: Richardson, 885.
 Swanton: Edson, 319.
 Virginia, Russell Fork district: Stone, 1023.
 West Virginia, Accident quadrangle: Martin, 712.
 coal, oil, gas, and limestone areas: 1125.
 Wyoming, central and south-central: Darton, 267.
 Uinta County: Schultz, 951.
 Yukon, Conrad and Whitehorse districts: Cairnes, 165.

Geologic time.

- Glacial epoch and man: Wright, 1203.
 Niagara as a geological chronometer: Gregory, 414.
 Niagara as a measure of postglacial time: Upham, 1075.

Geological surveys. *See* Surveys.

Geomorphogeny. *See* Physiographic.

Geomorphology. *See* Physiographic.

Georgia.*Economic.*

- Barite near Cartersville: Hayes and Phalen, 456.
 Bauxite in Wilkinson County: Veatch, 1089.
 Graphite near Cartersville: Hayes and Phalen, 457.
 Iron ores: McCallie, 690.
 near Ellijay: Phalen, 825.
 Kaolins of Dry Branch region: Veatch, 1090.
 Manganese deposits: Watson, 1113.

Dynamic and structural.

- Marble belt of Fannin County: La Forge, 618.

Physiographic.

- Gulf coastal plains: Sutherland, 1037.

Stratigraphic.

- General:* McCallie, 689.
 Altamaha formation: Veatch, 1088.

Mineralogy.

- State museum of minerals at Atlanta: Gratacap, 409.

Underground water.

- Report: McCallie, 689.

Georgetown quadrangle: Spurr and Garrey, 1008.

Glacial erosion.

- Canadian glaciers: Sherzer, 967.

Glacial geology. *See* Quaternary.

Glacial lakes.

- Algonquin beach: Goldthwait, 390.
 Evanston-Waukegan region: Atwood and Goldthwait, 41.
 Lake Michigan basin, water planes of: Goldthwait, 389.

Glacial lakes—Continued.

- Michigan: Lane, 630.
 Ann Arbor quadrangle: Russell and Leverett, 928.
 Saginaw County: Cooper, 248.
 New York, Genesee Valley: Fairchild, 342.
 Lake Bloomfield: Dryer, 310.
 ponded pre-Wisconsin waters: Carney, 177.
 North Dakota, Lake Agassiz: Hall, 429; Willard, 1147.
 Ohio, ancient finger lakes: Hubbard, 533.
 Raised beaches and their cause: Pearson, 808.
 Vermont, Lake Memphragog: Hitchcock, 496.
 northwestern: Merwin, 742, 743.
 Water-planes, ancient: Robinson, 904.

Glacial period, cause of: Schaeberle, 940; Upham, 1074.

Glacial period in New England: Clapp, 203.

Glacial periods: Coleman, 234, 235.

Glaciers.*General.*

- Melting of ice of glaciers: Reid, 867.
 Nêvé line, height of: Reid, 868.
 Variations: Reid, 862-864.
 Alaska, Glacier Bay: Morse, 758.
 Yakutat Bay: Tarr, 1041.
 Alberta: Vaux and Vaux, 1086, 1087.
 British Columbia: Vaux and Vaux, 1086, 1087.
 Yoho glacier: Wheeler, 1126, 1127.
 Oregon, Mt. Hood: Sylvester, 1039, 1040.

Glass sand.

- Ohio, Toboso deposits: Carney and Brumback, 180.
 Oklahoma: Gould *et al.*, 395.

Glauconite.

- South Carolina: Sloan, 984.

Gold.

- General:* Crane, 251; Van Wagenen, 1085.
 Geological distribution: Rickard, 895.
 Occurrence and distribution: Maclaren, 701.
 Production of: Lindgren, 667.
 Alabama: McCaskey, 693.
 Hog Mountain: Aldrich, 11.
 Alaska: Brooks, 138; Hutchins, 545.
 Copper River region: Moffit and Maddren, 753.
 Fortymile gold-placer district: Prindle, 838.
 Ketchikan and Wrangell districts: Wright and Wright, 1202.
 Rampart region: Hess, 476.
 Seward Peninsula: Collier *et al.*, 241; Smith, 989.
 southeastern: Wright, 1192.
 Yukon-Tanana region: Prindle, 836, 837.
 Arizona, Cerbat Range: Schrader, 948, 949.
 British Columbia, Camp Hedley: Camsell, 173.
 Rossland: Yuill, 1210.
 Similkameen district: Camsell, 172.
 California, beach placers: Irvine, 551.
 Taylorsville region: Diller, 291.
 Colorado, Breckenridge placers: Lakes, 622.
 Georgetown quadrangle: Spurr and Garrey, 1008.

Gold—Continued.

- Colorado, La Plata Mountains: Toll, 1049.
 Montezuma district: Ritter, 901.
 primary gold in granite: Hastings, 441.
 Routt County: Gale, 370.
 Honduras: Nicholas, 766.
 Idaho, Atlanta gold district: Bell, 89.
 Cœur d'Alene district: Auerbach, 44; Ransome and Calkins, 851; Rowe, 920.
 De Lamar mine: Brown and Mudgett, 146.
 Snake River: Irvine, 552.
 Mexico, El Rayo mine: Rice, 877.
 Santa Barbara: Rice, 878.
 Sonora: Merrill, 736.
 Altar mines: Maynard, 724.
 Montana, Little Rocky Mountains: Emmons, 330.
 Nevada: Reid, 873.
 Camp Alunite: Hill, 491.
 desert mines: Everette, 340.
 Goldfield: Ransome, 846.
 Goldfield type of ore occurrence: Hill, 489, 490.
 Osceola district: Weeks, 1116.
 Rawhide: Del Mar, 282.
 New Mexico, Cochiti district: Barbour, 61.
 San Pedro Mountain: Brinsmade, 130.
 Silver City: Brinsmade, 131.
 Sylvanite: Dinsmore, 295; Jones, 568.
 Oregon, Riddles quadrangle: Diller, 290; Kay, 576.
 Quebec, eastern townships: Obalski, 774.
 Lake Megantic: Dresser, 306, 307.
 South Carolina: Sloan, 984.
 South Dakota, Black Hills: Nicholas, 767.
 Utah, Rio San Juan: Lakes, 624.
 Stateline district: 1214.
 United States (general): 1072.
 Wyoming: Beeler, 82.
 South Pass district: Beeler, 83.
 Yukon: Paré, 796.
 Conrad and Whitehorse districts: Cairnes, 165.
 Klondike: Everette, 339.
 Grain in rock: Lane, 631.

Granite.

- Alaska, southeastern: Wright, 1193.
 Maine, Rockland quadrangle: Bastin, 74.
 Massachusetts: Dale, 262.
 Mexico: Aguilera, 6.
 Montana: Rowe, 913.
 New Hampshire: Dale, 262.
 New York: Newland, 761.
 Oklahoma: Gould *et al.*, 395.
 Rhode Island: Dale, 262.
 South Carolina: Sloan, 984.
 Vermont: Dale, 261; Perkins, 816.

Graphite.

- Alaska, Seward Peninsula: Smith, 989.
 Canada: Brumell, 150; Lamb, 625.
 Georgia, Cartersville: Hayes and Phalen, 457.
 Mexico, Sonora: Mills, 750.
 Montana: Rowe, 913, 917.
 New Brunswick: Ellis, 321.
 New Jersey, Franklin Furnace quadrangle: Spencer *et al.*, 997.
 Passaic quadrangle: Darton *et al.*, 269.

Graphite—Continued.

- New York: Mills, 749; Newland, 761.
 Tuxedo Park: Bayley, 76; Stewart, 1018.
 Quebec, Argenteuil and Labelle counties: Hille, 492.
 South Carolina: Sloan, 984.
 South Dakota, Black Hills: Ferguson and Turgeon, 350.
 United States (general): 1072.

Gravel.

- Illinois, Chicago district: Burchard, 154, 155.
 Oklahoma: Gould *et al.*, 395.
 United States (general): 1072.

Greenland.*General.*

- Geology and physical geography of east Greenland: Nordenskjöld, 770.

Mineralogy.

- Gyrolite: Böggild, 114.
 Kaersutite: Washington, 1110.

Guatemala.

- Volcanoes: Anderson, 19.

Gyrolite from Greenland: Böggild, 114.

Gypsum.

- Alaska, southeastern: Wright, 1193.
 Montana: Rowe, 913, 919.
 New Brunswick: Ellis, 321.
 New York: Newland, 761.
 Oklahoma: Gould *et al.*, 395.
 United States (general): 1072.
 Wyoming: Beeler, 82.

Hawaiian Islands.

- Kilauea in action: Hitchcock, 497.

Haystack stock, Montana: Emmons, 327.

History, philosophy, etc.

- Glacial periods and their bearing on geological theories: Coleman, 234.

Honduras.

- San Juancito mines: Nicholas, 766.

Huronian. *See* Pre-Cambrian.

Hydrology, outlines of: McGee, 697.

Hydrozoa.

- Graptolites: Ruedemann, 922.
 Silurian stromatoporoids from Hudson's Bay: Parks, 801.
 Stromatoporoids from the Niagara: Parks, 798.

Ice age. *See* Quaternary.

Ice ages, ancient: Coleman, 234-236.

Ice present during formation of glacial terraces: Gulliver, 422.

Idaho.*Economic.*

- Association of igneous intrusions with ore bodies: Bell, 88.
 Atlanta gold district: Bell, 89.
 Cœur d'Alene district: Auerbach, 44; Ransome, 848; Ransome and Calkins, 851; Rowe, 914, 920.
 De Lamar mine: Brown and Mudgett, 146.
 Fort Hall mining district: Weeks and Heikes, 1119.
 Mineral: Turner, 1057.
 Mining industry in 1907: Bell, 87.

Idaho—Continued.*Economic*—Continued.

- Phosphate deposits: Weeks, 1118.
 Snake River gold: Irvine, 552.
 Tungsten ore deposits of Coeur d'Alene: Auerbach, 45.

Stratigraphic.

- Cambrian formations: Walcott, 1096.
 Coeur d'Alene district: Ransome and Calkins, 851; Rowe, 920.
 Jefferson limestone: Kindle, 596.

Paleontology.

- Carboniferous fossils: Girty, 387.
 Oak wood from the Pliocene: Schuster, 952.

Petrology.

- Coeur d'Alene district: Ransome and Calkins, 851.

Mineralogy.

- Coeur d'Alene district: Ransome and Calkins, 851.

Igneous and volcanic rocks.*General*: Clarke, 205.

- Distribution of elements in igneous rocks: Washington, 1111.
 Keweenawan rocks: Winchell, 1181.
 Mechanics of igneous intrusion: Daly, 264.
 Origin of augite andesite: Daly, 265.
 Alaska, Controller Bay region: Martin, 711.
 Seward Peninsula: Collier *et al.*, 241.
 southeastern: Wright and Wright, 1202.
 Yukon-Tanana region: Prindle, 836.
 Arizona, Mohave County: Schrader, 948.
 western: Johannsen, 560; Lee, 648.
 Arkansas, peridotite: Purdue, 841.
 British Columbia, New Westminster and Nanaimo districts: Leroy, 658.
 California, Coalinga district: Arnold and Anderson, 32.
 Taylorsville region: Diller, 291.
 Colorado, Georgetown quadrangle: Ball, 56.
 Greenland: Nordenskjöld, 770.
 Idaho, Coeur d'Alene district: Ransome and Calkins, 851.
 Kentucky, Elliott County: Phalen, 826.
 Maine, Rockland quadrangle: Bastin, 74.
 Massachusetts: Emerson, 326.
 Mexico, Velardeña district: Spurr and Garrey, 1009.
 Michigan, Huron Mountains: Lane, 631.
 Mt. Bohemia: Wright, 1196.
 Montana, Little Rocky Mountains: Emmons, 330.
 Park County: Emmons, 327.
 Nevada, southwestern: Ball, 57.
 Truckee region: Louderback, 679.
 New Brunswick: Ellis, 321.
 New Jersey, Franklin Furnace quadrangle: Spencer *et al.*, 997; Wolff, 1187.
 Newark igneous rocks: Lewis, 662.
 Palisade diabase: Lewis, 661.
 Passaic quadrangle: Darton *et al.*, 269.
 New Mexico, Ortiz Mountains: Ogilvie, 775.
 New York, Adirondack region: Newland, 760.
 Cortlandt series near Peekskill: Berkey, 97.
 Mineville-Port Henry region: Kemp, 581.
 Ontario, Bancroft area: Adams, 2.
 Nipigon region: Coleman and Moore, 238.

Igneous and volcanic rocks—Continued.

- Ontario, northwestern: Collins, 243.
 Onaman ranges: Moore, 757.
 Thunder Bay-Algonia boundary region: Parsons, 802.
 Oregon, south central: Waring, 1104.
 Panama, Isthmus of: Howe, 527.
 Quebec, southeastern: Dresser, 304.
 St. Croix: Quin, 843.
 St. Vincent, products of eruptions of 1902: Flett, 357.
 South Dakota, Black Hills: Ferguson and Turgeon, 350.
 Utah, Beaver Valley: Lee, 647.
 Newhouse and vicinity: Jensen *et al.*, 548.
 southern: Leith and Harder, 657.
 Vermont, Chittenden County: Perkins, 818.
 Newport, Troy, and Coventry: Richardson, 885.
 Wisconsin: Weidman, 1120.
 Yukon: Cairnes, 165.

Igneous ores: Gregory, 413.

Illinois.*General*.

- Administrative report for 1907: Bain, 50.
 Illinois State Geological Survey, Yearbook for 1907: Bain, 49.

Economic.

- Cement materials at LaSalle: Cady, 163.
 Clay, geology of: Rolfe, 911.
 Coal resources: DeWolf, 286, 287.
 Coals: Bain *et al.*, 55.
 Concrete materials of Chicago district: Burchard, 154, 155.
 Lead and zinc district, Millbrig sheet: Grant and Perdue, 408.
 Mineral production, 1906: Van Horn, 1079.
 1907: Van Horn, 1080.
 Paving brick material: Rolfe, 912.
 Petroleum fields: Bain, 53.
 in 1907: Bain, 51.
 Saline and Williamson counties: DeWolf, 285.

Physiographic.

- Drainage about Springfield: Jones, 569.
 Evanston-Waukegan region: Atwood and Goldthwait, 41.
 Illinois Valley: Barrows, 69.

Stratigraphic.

- Belleville-Breese area: Udden and DeWolf, 1067.
 East St. Louis district: Bowman and Reeds, 117.
 Evanston-Waukegan region: Atwood and Goldthwait, 41.
 Geological map, formations of: Weller, 1121.
 Mississippi section: Weller, 1123.
 Paleozoic of southwestern Illinois: Savage, 936, 937.
 Peoria: Udden, 1066.
 defects in coal no. 5: Udden, 1065.
 Salem limestone: Weller, 1122.
 Saline and Williamson counties: DeWolf, 285.
 Saline-Gallatin field: DeWolf, 284.
 Shoal Creek limestone: Udden, 1068.
 Surface deposits along the Mississippi: Fowke, 365.
 Wheaton, rock bed near: Trowbridge, 1051.

Illinois—Continued.*Paleontology.*

Mazon Creek, Arthropoda and Vermes: Fritsch, 366.
plants: Peola, 814.

Underground water.

Artesian wells at Peoria: Udden, 1066.
East St. Louis district: Bowman and Reeds, 117.

Illinois Valley: Barrows, 69.

Ilwaco from Shasta County, California: Prescott, 834.

Independence quadrangle: Schrader, 947.

Indiana.*General.*

Department geology, 32d annual report: Blatchley, 111.

Soil survey: Shannon *et al.*, 966.

Economic.

Natural gas in 1907: Kinney, 597.
Oolitic limestone: Blatchley, 110.
Petroleum industry in 1907: Blatchley, 112.

Dynamic and structural.

Indiana oolitic limestone: Hopkins, 515.
Valley erosion of Big Creek: Culbertson, 257.

Stratigraphic.

Cincinnati series: Cumings, 258.
Indiana oolitic limestone: Siebenthal, 978.

Paleontology.

Cincinnati series: Cumings, 258.

Infusorial earth.

United States (general): 1072.

Insecta.

Aphididae from Florissant: Cockerell, 227.
Bee, leaf-cutting: Cockerell, 218.
Cercopidae from Florissant: Cockerell, 216.
Chrysopidae: Cockerell, 219.
Diptera: Cockerell, 220.
Dragon-fly from Florissant: Cockerell, 232.
Elateridae: Wickham, 1144.
Florissant fauna: Brues, 147-148; Cockerell, 216-232; Mitchell, 751; Rohwer, 907-910; Wheeler, 1129; Wickham, 1144.
Insects from Florissant, Colorado: Cockerell, 228.
Mantis: Cockerell, 222.
Osmylidae (Neuroptera): Cockerell, 221.
Phoridae from the Miocene of Florissant, Colo.: Brues, 148.
Phytophagous Hymenoptera from Florissant: Brues, 147.
Protoblatrid family from Cretaceous of Montana: Mitchell, 751.
Quaternary from California: Grinnell, 417.
Sawfly *Perga coloradensis* from Florissant: Cockerell, 214.
Tenthredinoidea of the Florissant shales: Rohwer, 908, 909.
Tertiary insects from Green River and Florissant: Cockerell, 215.
Wasp, mellinoid: Rohwer, 910.
Wasp from Colorado: Rohwer, 907.

Intrusions. *See also* Magmas.*General.*

Mechanics of igneous intrusion: Daly, 264.
Colorado, Georgetown quadrangle: Ball, 56.
Montana, Haystack stock: Emmons, 327.

Intrusions—Continued.

Newark intrusive diabase of New Jersey: Lewis, 662.

Newark trap rocks of New Jersey: Lewis, 663.

Invertebrata (general). *See also* Anthozoa, Brachiopoda, Bryozoa, Crustacea, Echinodermata, Foraminifera, Insecta, Mollusca, Problematica, Spongia, and Vermes.

California, Santa Cruz Mountains, Cretaceous and Tertiary fossils: Arnold, 28.

Carboniferous fossils: Girty, 387.

Colorado, Cretaceous invertebrates: Henderson, 465.

Devonian, Jefferson limestone fauna: Kindel, 596.

Dwarf faunas: Shimer, 974.

Guadalupian fauna: Girty, 386.

Indiana, Cincinnati series: Cumings, 258.

Missouri, Pike County: Rowley, 921.

Permian from Texas: Leuchs, 659.

Iowa.*General.*

Assistant state geologist's report: Lees, 652.

Elk Point quadrangle: Todd, 1048.

State geologist's report, sixteenth annual: Calvin, 167.

Economic.

Mineral production in 1907: Beyer, 103.

Dynamic and structural.

Dolomite, decomposition of: Knight, 600.

Stratigraphic.

Aftonian sands and gravels: Shimek, 971.

Elk Point quadrangle: Todd, 1048.

Loess, genesis of: Shimek, 972, 973.

Loess of paha and river ridge: Shimek, 973.

Paleontology.

Coelacanth fish from the Kinderhook: Eastman, 315.

Devonian fishes: Eastman, 316.

Underground water.

General: Knight, 601.

Iron.*General.*

Bombshell ore, origin of: Chance, 198.

Ore reserves: Leith, 656.

Pyritic origin of iron-ore deposits: Cabot, 161; Chance, 196.

Alabama, Birmingham district: Burchard, 153.

Clinton ores: Burchard, 156.

British Columbia, New Westminster and Nanaimo districts: Leroy, 658.

Vancouver and Texada islands: Lindeman, 666.

California, Shasta County: Prescott, 835.

Canada: Leith, 655.

Cuba: Spencer, 992, 995.

Pinar del Rio Province: Catlett, 186.

Georgia: McCallie, 690.

Ellijay: Phalen, 825.

Kentucky, Kenova quadrangle: Phalen, 826.

Nevada, Amarilla district: Hershey, 475.

New Brunswick: Ellis, 321; Hardman, 432.

New Jersey: Kimmel, 611; Spencer, 994.

Franklin Furnace quadrangle: Spencer *et al.*, 997.

Passaic quadrangle: Darton *et al.*, 269.

Iron—Continued.

- New York: Mills, 749; Newland, 761.
 Adirondack region: Newland, 760.
 Clinton ore: Higgins, 485; Newland and Hartnagel, 762.
 Forest of Dean mine: Stoltz, 1022.
 Mineville-Port Henry mine group: Kemp, 581.
 Putnam County: Stewart, 1017.
 Oklahoma: Gould *et al.*, 395.
 Ontario: Hille, 493; Mackenzie, 700; Willmott, 1175.
 Moose Mountain range: Bell, 84; Leach, 644.
 Nipigon region: Coleman and Moore, 238.
 Onaman ranges: Moore, 757.
 Thunder Bay and Rainy River: Hille, 489.
 western: Collins, 242.
 Pennsylvania, Clinton ores of Stone Valley: Rutledge, 929.
 hematite ores, genesis of: Catlett, 187; Chance, 199.
 magnetite deposits: Spencer, 993.
 southwestern: Ashley, 35.
 Rhode Island, Cumberland, Iron Mine Hill: Johnson, 561.
 South Carolina: Sloan, 984.
 United States (general): 1072; Baum, 75.
 Utah, Iron Springs district: Leith and Harder, 657.
 Newhouse: Jensen *et al.*, 548.
 Wyoming: Beeler, 82.
 Sunrise: Vallat, 1076, 1077.

Isopoda. *See* Crustacea.

Jamaica.

- Economic.*
 Mineral deposits: Nicholas, 768.
Dynamic and structural.
 Kingston earthquake: Cornish, 249; Hobbs, 503.

Jurassic.

- Stratigraphy.*
 British Columbia, New Westminster and Nanaimo districts: Leroy, 658.
 California: Diller, 289.
 Taylorsville region: Diller, 291.
 Oregon: Diller, 289.
 South Carolina: Sloan, 984.
 Wyoming: Darton, 267.

Paleontology.

- Allosaurus: Matthew, 718.

Kames.

- General.* Reagan, 859.
 Alaska, Yakutat Bay region: Tarr, 1041.
 North Dakota: Willard and Hibbard, 1160.

Kansas.

- Economic.*
 Independence quadrangle: Schrader, 947.
 Joplin district: Ruhl, 924.
Stratigraphic.
 Independence quadrangle: Schrader, 947.
 Kansas coal measures, nomenclature of: Harworth and Bennett, 447.
Paleontology.
 Bison occidentalis, restoration of skeleton: McClung, 695.
 Carboniferous fossils: Girty, 387.
 Carboniferous sponges: Girty, 387.

Kansas—Continued.*Paleontology*—Continued.

- Chonetes granulifer, development of: Greene, 411.
 Cretaceous vertebrates: Sternberg, 1013.
 Florena shale fauna: Greene, 410.
 Ichthyological notes: McClung, 694.
 Tusk from Equus beds: Deere, 279.

Kaolin.*General.*

- Origin of: Veatch, 1090.
 Georgia, Dry Branch region: Veatch, 1090.
 Mexico, Yextho: Aguilera, 5.

Keewatin.*Paleontology.*

- Silurian stromatoporoids: Parks, 801.

Kenova quadrangle: Phalen, 826.

Kentucky.*General.*

- Report of Geological Survey for 1906-7: Norwood, 771.

Economic.

- Big Stone Gap coal field: Shippen, 976.
 Coal field, eastern: Miller, 746.
 Elkhorn coals: White, 1137.
 Fluorspar deposits: Fohs, 360.
 Kenova quadrangle: Phalen, 826.
 Kentucky River region: Hodge, 506.
 Russell Fork coal basin: Stone, 1023.

Dynamic and structural.

- Manumoth cave: Hovey, 526.

Mineralogy.

- Williamstown meteorite: Howell, 529, 530.

Kettle holes, formation of: Tarr, 1041.

Klondike: Everette, 339.

Labidosaurus hamatus, mounted skeleton of: Broili, 135.

Laccoliths.

- South Dakota, Black Hills, Harney granite: Ferguson and Turgeon, 350.

Lafayette beds, relations of: Harris, 436.

Lake Agassiz, glacial, history of: Hall, 429.

Lake ramparts: Gilbert, 379.

Lakes.

- Erie, preglacial outlet: Spencer, 1002.
 Ontario: Wilson, 1176.
 Shore-line studies: Wilson, 1176.
 Utah, Uinta Mountains: Atwood, 38.

Lakes, glacial. *See* Glacial lakes.

Lamellibranchiata. *See* Pelecypoda.

Landslides.

- California: Lawson *et al.*, 643.
 Ohio: Hubbard, 534.
 Quebec, Notre-Dame de la Salette: Ells, 322.

Laramie formation: Cross, 256.

Laurentian system in eastern Canada: Adams, 2.

Lead.

- Arizona, Mohave County: Schrader, 948.
 Colorado, Montezuma district: Ritter, 901.
 Idaho, Cœur d'Alene district: Auerbach, 44;
 Ransome and Calkins, 851; Rowe, 914, 920.
 Illinois, Millbrig sheet: Grant and Perdue, 408.

Lead—Continued.

- Kansas, Joplin district: Ruhl, 924.
 Mexico, Santa Barbara: Rice, 878.
 Santa Eulalia: Rice, 875, 876.
 Topia mining camp, Durango: Graham, 405.
 Missouri: Buckley, 151; Finlay, 352; Keyes, 590.
 Joplin district: Ruhl, 924.
 southwestern: Garrison, 375.
 New Mexico, Magdalen: Argall, 22.
 San Pedro Mountain: Brinsmade, 130.
 Silver City: Brinsmade, 131.
 Nevada, Eureka silver-lead deposits: Chance, 194.
 Oklahoma: Gould *et al.*, 395.
 Miami district: Ruhl, 925.
 northeastern: Siebenthal, 979.
 South Carolina: Sloan, 984.
 United States (general): 1072; Ingalls, 550.
 Utah, Newhouse: Jensen *et al.*, 548.
 Park City, Daly-West mine: Brinsmade, 127.
 Stockton district: Brinsmade, 128.
 Tintie district: Brinsmade, 126.
 Wisconsin, Etna Hill: Wheeler, 1128.

Lignite.

- General.* Nystrom, 772.
 Mississippi: Brown, 145.
 Montana: Rowe, 913, 916.

Lime.

- Florida: Sellards, 961.
 Missouri: Buehler, 152.
 Montana: Rowe, 913.
 United States (general): 1072.

Limestone.

- Indiana, oolitic limestone: Blatchley, 110.
 Illinois, Chicago district: Burchard, 154, 155.
 Maine, Rockland quadrangle: Bastin, 74.
 Maryland, Accident and Grantsville quadrangles: Martin, 712.
 Montana: Rowe, 913.
 New Brunswick: Ellis, 321.
 New Jersey, Franklin Furnace quadrangle: Spencer *et al.*, 997.
 New York: Newland, 761.
 Oklahoma: Gould *et al.*, 395.
 Pennsylvania, western: Stone, 1027.
 South Carolina: Sloan, 984.
 Texas, El Paso: Richardson, 889.
 West Virginia: Grimsley, 416.

Loess.

- General.* Reagan, 859.
 Mississippi Valley: Shimek, 970.
 Origin of: Shimek, 972.

Lysorophus tricarlinatus, skull of: Case, 182.

Louisiana.*Economic.*

- Rock salt: Harris *et al.*, 439.
 Salt: Harris, 437.

Physiographic.

- Gulf coastal plains: Sutherland, 1037.

Stratigraphic.

- Lafayette beds: Harris, 436; McGee, 698.
 Salt domes: Harris, 435, 438.

Lower Silurian. *See* Ordovician.

Magmas. *See also* Intrusions.

- Granitic dikes: Lane, 631.

Magmas—Continued.

- Mechanics of igneous intrusion: Daly, 264.
 Molten magma: Clarke, 205.
 Origin of augite andesite: Daly, 265.

Magnetite.

- California: Hess, 482.
 United States (general): 1072.

Magnetite ores of Shasta County, California: Prescott, 835.

Maine.*Economic.*

- Molybdenum deposits: Hess, 478.
 Rockland quadrangle: Bastin, 74.

Stratigraphic.

- Glacial period, complexity of, in northeastern New England: Clapp, 203.
 Rockland quadrangle: Bastin, 74.

Petrology.

- Pyrrhotite peridotite, Knox County: Bastin, 73.
 Road materials: Leighton and Bastin, 654.

Mammalia.

- Alabamornis: Lucas, 684.
 American Eocene horses: Granger, 406.
 Blastomeryx, osteology of: Matthew, 722.
 Bison occidentalis, restoration of skeleton of: McClung, 695.
 Cameloid from Nebraska: Peterson, 824.
 Cervidae, phylogeny of: Matthew, 722.
 Cetacea, classification of: True, 1052.
 Dorudon serratus: True, 1054.
 Pleistocene: Perkins, 817, 822.
 Rhabdosteus latiradix: True, 1055.
 United States: True, 1053.
 Conard fissure, a Pleistocene bone deposit in Arkansas: Brown, 141.
 Elephant, evolution of: Lull, 686.
 Eocene horses: Granger, 406.
 Equidae, American Eocene: Granger, 406.
 Evolution and migrations of Tertiary mammals: Depéret, 283.
 Horse from the Miocene: Loomis, 678.
 Horses from North Dakota and Montana: Douglass, 299.
 Mammalian molar teeth: Osborn, 787.
 Mammoth, size of: Lucas, 685.
 Mastodon, Chester, New York: Hovey, 522.
 Mastodons, New York: Clarke, 207.
 Miocene mammals, new locality for: Cockerell, 230.
 Molar teeth, evolution of: Osborn, 787.
 Montana, Fort Union beds vertebrates: Douglass, 297.
 Moropus, skull of: Barbour, 60.
 Nevada, Virgin Valley: Gidley, 378.
 Origin and relationship of mammals of North America: Grant, 407.
 Pleistocene ruminants, Ovibos and Boothorium: Gidley, 377.
 Rhinoceroses from Oligocene and Miocene deposits of North Dakota and Montana: Douglass, 298.
 Rhinocerotidae of the Miocene: Loomis, 677.
 Titanotheres, Eocene and Oligocene: Osborn, 790.
 evolution of: Osborn, 788.
 Tusk from Equus beds, Kansas: Deere, 279.

Mammalia—Continued.

Vertebrates from the Fort Union beds of Montana: Douglass, 297.

Whales, ancestors of: Gilbert, 383.

Mammoth, size of: Lucas, 685.

Mammoth cave: Hovey, 526.

Man, fossil.

Glacial epoch and man: Wright, 1203, 1205.

Nebraska: Barbour, 59; Blackman, 104; Gilder, 384; Osborn, 785; Shimek, 969.

Neocene man in the Sierra Nevada: Sinclair, 982.

Prehistoric man in California: Wright, 1204.

Pre-Indian inhabitants of North America: Winchell, 1185.

Manganese.

New Brunswick: Ellis, 321.

South Carolina: Sloan, 984.

United States (general): 1072.

Manjak.

Barbados: Hovey, 520.

Maps. *See* Cartography and Geologic maps.

Marble.

Alaska, southeastern: Wright, 1193.

Mexico: Aguilera, 6.

Nevada, White Pine County: Darton, 268.

New York: Newland, 761.

South Carolina: Sloan, 984.

Vermont: Perkins, 816.

Marl.

South Carolina: Sloan, 984.

Martinique. *See* Volcanoes, Mont Pelé.

Maryland.

Dynamic and structural.

Bushey cavern near Cavetown: Peabody, 806.

Stratigraphic.

Accident and Grantsville quadrangles: Martin, 712.

Meso-Silurian deposits: Prouty, 839.

Niagara formation: Uhler, 1069.

Portage and Chemung formations: Swartz, 1038.

Paleontology.

Bauhinia from Magothy formation: Berry, 101.

Cauda-Galli in the Niagara: Uhler, 1069.

Cetacean remains: True, 1053.

Portage and Chemung faunas: Swartz, 1038.

Massachusetts.

Economic.

Granites: Dale, 262.

Dynamic and structural.

Fault in an esker: Lahee, 621.

Physiographic.

Nantasket beach: Reed, 861.

Stratigraphic.

Berkshires, geologic history of: Cleland, 211.

Diabase, distribution: Emerson, 326.

Glacial period, complexity of, in northeastern New England: Clapp, 203.

Pebbles at Harwich, Cape Cod: Julien, 574.

Pleistocene of central Massachusetts: Alden, 7.

Springfield and vicinity: Orr, 784.

Mineralogy.

Gahnite from Charlemont: Flint, 358.

Minerals near Boston: Rand, 844.

Mastodon, Chester, N. Y., Hovey, 522.

Mastodon tusk from Equus beds, Kansas: Deere, 279.

Meandering.

Meanders on the Rouge, Michigan: Davis, 272.

Mechanics of Allegheny structure: Ashley, 34.

Meetings. *See* Associations.

Mercury. *See* Quicksilver.

Metallography.

Copper ores of Butte: Simpson, 981.

Meteor crater of Cañon Diablo: Merrill, 739.

Metamorphism.

General: Clarke, 205.

Alaska, southeastern: Wright and Wright, 1202.

Burning shale near Los Angeles, California: Arnold and Johnson, 33.

Mexico, Velardeña district: Spurr and Garrey, 1009.

Rhode Island, Cumberland gabbro: Warren, 1107.

Rock pressure and metamorphism: Chance, 197.

Meteorites.

Ainsworth, Nebr.: Howell, 529, 531; Tassin, 1044.

Allegan, oldhamite in: Tassin, 1045.

Cañon Diablo: Merrill, 739.

Chromite in: Tassin, 1046.

Colorado, Currant Creek: Headden, 460.

Williamstown, Ky.: Howell, 529, 530.

Mexico.

General.

Bibliography of geology of: Aguilar y Santillán, 5.

Chihuahua, geology of: Bagg, 46, 47.

Hostotipaquillo and the Lerma River: Ordóñez, 782.

Metamorphic ranges in Sonora: Merrill, 735.

Mexican Plateau, growth and decay: Hill, 487.

Sierra Almaloya, geology of: Hill, 488.

Sierra Madre, geology and geography: Hovey, 523.

Economic.

Altar, Sonora: Maynard, 724.

Chihuahua, mines of: Griggs, 415.

Coal in Coahuila: Ordóñez, 781.

Coal mines: Schwarz, 953.

Douglas copper properties, Sonora: Nicholas, 765.

Dry placers in northern Sonora: Merrill, 736.

Durango, Promontorio silver mine: Lincoln, 665.

Graphite mines of Santa Maria, Sonora: Mills, 750.

Guanajuato silver camp: Rice, 882.

Kaolins of Yextho: Aguilera, 5.

Marble: Aguilera, 6.

Metalliferous deposits: Villarello, 1093.

Mining industry: Ordóñez, 783.

Moctezuma copper deposit: Dinsmore, 294.

Nacozari district, Sonora: Russell, 926.

Ore bodies without walls: Merrill, 737.

Pachuca and Real del Monte silver district: Rice, 881.

Parral silver mines: Rice, 879.

Petroleum regions: Villarello, 1092, 1094.

Promontorio silver mine: Lincoln, 665.

Mexico—Continued.*Economic—Continued.*

- Saline deposits of Carmen Islands: Cook, 247.
 Santa Barbara, El Rayo gold mine: Rice, 877.
 Santa Barbara silver-lead mines: Rice, 878.
 Santa Eulalia ore deposits: Rice, 875, 876.
 Silver in Hostotipaquillo and the Lerma River: Ordóñez, 782.
 Silver mines: Bordeaux, 115.
 Sonora, Las Chispas mines: Russell, 927.
 mineral resources: Merrill, 733, 738.
 surface enrichment in: Merrill, 734.
 Topia mining camp, Durango: Graham, 405.
 Trinidad y Anexas mineral region: Carranco, 181.

- Velardeña district: Spurr and Garrey, 1009.
 Zacatecas, silver camp: Rice, 880.

Dynamic and structural.

- Cave of Atoyac: Allorge, 13.
 Earthquake of April 14, 1907: Böse *et al.*, 116.
 Volcanoes: Dannenberg, 266.
 Collima: Köhler, 609.
 Collima, Toluca, and Popocatepetl: Hovey, 524, 525.

Physiographic.

- Delta of Colorado River: MacDougal, 696.
 Mexican Plateau, growth and decay: Hill, 487.
 Valle de Cerritos, San Luis Potosí: Ordóñez, 780.

Stratigraphic.

- Petroleum regions: Villarello, 1092.
 Tertiary deposits of northeastern Mexico: Dumble, 311.
 Tlahualilo lake region: Paredes, 795.
 Triassic deposits, Zacatecas: Amador, 14.

Paleontology.

- Vallée de Oaxaca: Conzatti, 246.

Mineralogy.

- Contact minerals from Velardeña: Wright, 1201.
 Stephanite crystals from Arizpe, Sonora: Ford, 361.

Underground water.

- Cuitzeo de Abasolo, Guanajuato: Villafañá, 1091.
 Valle de Cerritos, San Luis Potosí: Ordóñez, 780.

Mica.

- Alaska, Seward Peninsula: Smith, 989.
 South Carolina: Sloan, 984.
 United States (general): 1072.

Michigan.*General.*

- Ann Arbor quadrangle: Russell and Leverett, 928.
 State geologist's ninth report: Lane, 628, 629.
 Walnut Lakes, physiography and geology of: Davis, 271.

Economic.

- Ann Arbor quadrangle: Russell and Leverett, 928.
 Foundry sands: Ries and Rosen, 897.

Physiographic.

- General:* Lane, 630.
 Algonquin beach: Goldthwait, 390.
 Glacial lakes in Lake Michigan basin: Goldthwait, 389.
 Meanders on the Rouge: Davis, 272.
 Saginaw County: Cooper, 248.

Michigan—Continued.*Stratigraphic.*

- Ann Arbor quadrangle: Russell and Leverett, 928.
 Pleistocene beaches of Saginaw County: Cooper, 248.
 Silurian, nomenclature and subdivisions: Lane *et al.*, 640.
 Silurian formations: Sherzer and Grabau, 968.
 Surface geology: Lane, 630.
 Sylvania sandstone: Grabau, 399.

Paleontology.

- Devonic elements in the late Siluric fauna of southern Michigan: Grabau and Sherzer, 404.
 Pleistocene ruminants: Gidley, 377.
 Siluric fauna: Sherzer and Grabau, 968.
 Schoharie fauna: Grabau, 396.
 Traverse group fauna: Grabau, 401.

Petrology.

- Intrusive rocks of Mt. Bohemia: Wright, 1196.

Underground water.

- Ann Arbor quadrangle: Russell and Leverett, 928.
 Mine waters: Lane, 633, 634.
 Millbrig sheet of the lead and zinc district of northern Illinois: Grant and Perdue, 408.

Millstones.

- New York: Newland, 761.

Mineralogy (general). *For regional, see under the various States. For particular minerals, *see list, p. 135. See also Meteorites and Technique.*

- Benitoite, chemical formula of: Blasdale, 109.
 Calcite crystals: Schaller, 942.
 Delessite, composition of: Julien, 575.
 Fusion table: Luquer, 688.
 Genetic classification of minerals: Emmons, 328.
 Goniometer: Rogers, 905.
 Handbook of minerals: Butler, 158.
 Identification of minerals: Erni and Brown, 332.
 Measurement of extinction angles: Wright, 1197.
 Minerals in Field Columbian Museum, notes on: Farrington and Tillotson, 346.
 Minerals of the rare metals: Baskerville, 70.
 Projection apparatus: Goldschmidt and Wright, 388.
 Quartz crystals, growth of: Wherry, 1131.
 Recasting of analyses: Julien, 572.
 Refraction and birefringence of rock-making minerals, table of index of: Hotchkiss, 517.
 Rock-forming minerals, determination of: Johansen, 559.
 Rock-making minerals, table of index of refraction and birefringence: Hotchkiss, 517.
 Rock minerals: Pirsson, 829.
 Role of water in tremolite and certain other minerals: Allen and Clement, 12.

Mineral paint.

- New York: Newland, 761.
 United States (general): 1072.

Mineral resources. *See Economic under the various States.***Mineral water.**

- New York: Newland, 761.
 United States (general): 1072.
 Virginia: Froehling and Robertson, 367.

Minerals described. *See list, p. 135.*

Minerals forming rocks: Pirsson, 829.

Minnesota.

Economic.

Mesabi iron ore: Winchell, 1186.

Stratigraphic.

Red sandstone series: Hall, 430.

Redstone quartzite: Sardeson, 934.

Saint Anthony Falls: Sardeson, 933.

Miocene. *See Tertiary.*

Miscellaneous. *See also Addresses.*

State geological surveys and practical geography: Carney, 178.

Mississippi.

Economic.

Clays: Logan, 675.

Lignite: Brown, 145.

Physiographic.

Gulf coastal plains: Sutherland, 1037.

Paleontology.

Eocene fossils: Aldrich, 10.

Mississippian. *See Carboniferous.*

Missouri.

General.

St. Louis region, geology and physiography: Hus, 542.

Economic.

Calamine deposits, Granby: Ruhl, 923.

Joplin district: Ruhl, 924.

Lead and zinc deposits: Buckley, 151; Finlay, 352; Keyes, 590.

Lime and cement resources: Buehler, 152.

Morgan County: Marbut, 706.

Pike County: Rowley, 921.

Tripoli deposits near Seneca: Siebenthal and Mesler, 980.

Zinc and lead deposits: Garrison, 375.

Physiographic.

St. Louis penepain: Fenneman, 347.

Stratigraphic.

Glacial drift under St. Louis loess: Drushel, 308.

Morgan County: Marbut, 706.

Pike County: Rowley, 921.

Surface deposits along the Mississippi: Fowke, 365.

Paleontology.

Devonian brachiopod with original color markings: Greger, 412.

Pike County: Rowley, 921.

Mineralogy.

Joplin minerals: Brittain, 132.

Mollusca. *See also Cephalopoda, Gastropoda, and Pelecypoda.*

California, Santa Cruz Mountains, Cretaceous and Tertiary: Arnold, 28.

Cretaceous from Colorado: Henderson, 465.

Eocene from Alabama and Mississippi: Aldrich, 10.

Guadalupian fauna: Girty, 386.

New Mexico, Mt. Taylor region: Shimer and Blodgett, 975.

Permian from Texas: Leuchs, 659.

Tertiary from Santa Barbara County, California: Arnold, 24.

Trinidad, fossil shells: Guppy, 423.

Molluscoidea. *See Brachiopoda and Bryozoa.*

Molybdenum.

General: Baskerville, 70.

California: Hess, 478.

Maine: Hess, 478.

Monazite.

North Carolina: Pratt and Sterrett, 833.

South Carolina: Pratt and Sterrett, 833; Sloan, 984.

United States (general): 1072.

Montana.

General.

Crazy Mountains: Wolff, 1189.

Economic.

Barytes deposits: Rowe, 915.

Clays in Kootenai formation near Belt: Fisher, 355.

Coal: Rowe, 913.

Coal and lignite deposits: Rowe, 916.

Copper ores of Butte: Simpson, 981.

Economic geology: Rowe, 913.

Graphite deposits: Rowe, 917.

Gypsum: Rowe, 919.

Little Rocky Mountains, gold deposits: Emmons, 330.

Ore shoots at Butte: Sales, 930.

Phillipsburg, Granite-Bimetallic mine: Emmons, 329.

Earth movements at Butte: Chapman, 201, 202.

Stratigraphic.

Crazy Mountains, glaciation: Mansfield, 703, 705.

Haystack stock: Emmons, 327.

Jefferson limestone: Kindle, 596.

Kootenai and Montana coal-bearing formations: Fisher, 354.

Paleontology.

Fort Union beds vertebrates: Douglass, 297.

Horses: Douglass, 299.

Jefferson limestone fauna: Kindle, 596.

Liverwort from Fort Union beds: Knowlton, 607.

Lizards from the Oligocene: Douglass, 300.

Protoblatid family from lower Cretaceous: Mitchell, 751.

Rhinoceroses from Oligocene and Miocene: Douglass, 298.

Vertebrates from the Fort Union beds: Douglass, 297.

Petrology.

Haystack stock: Emmons, 327.

Mineralogy.

Orthoclase twins of unusual habit: Ford and Tillotson, 362.

Underground water.

Giant Springs at Great Falls: Fisher, 353.

Mont Pelé. *See Volcanoes.*

Moraines.

General: Reagan, 859.

Alaska, Yakutat Bay region: Tarr, 1041.

North Dakota, Tower quadrangle: Willard and Hibbard, 1158.

Mounds, natural.

Origin: Reagan, 858.

Mountains. *See Orogeny.*

Myriapoda.

Quaternary from California: Grinnell, 417.

Nantasket beach: Reed, 861.

Natural bridges.

South Dakota, due to stream meandering:
Barnett, 64.

Natural gas.*General.*

Occurrence and source: Haworth, 446.
California, Miner ranch field: Arnold, 27.
Indiana: Kinney, 597.
Kansas, Independence quadrangle: Schrader,
947.
New York: Newland, 761.
Oklahoma: Gould, 392; Gould *et al.*, 395.
northeastern: Siebenthal, 979.
Pennsylvania; western: Munn, 759.
United States (general): 1072.
Wyoming, Bighorn basin: Washburne, 1109.

Nebraska.*General.*

Elk Point quadrangle: Todd, 1048.

Stratigraphic.

Elk Point quadrangle: Todd, 1048.
Missouri River Valley: Condra, 245.

Paleontology.

Ancient inhabitants: Barbour, 59.
Horse from the Miocene: Loomis, 678.
Loess man: Gilder, 384; Shimek, 969.
Moropus, skull of: Barbour, 60.
Northwestern: Osborn, 791.
Prehistoric man: Blackman, 104.
Primitive race of men: Osborn, 785.
Rhinoerotidae of the Miocene: Loomis, 677.
Stenomylus gracilis: Peterson, 824.
Woods, fossil: Platen, 830.

Mineralogy.

Ainsworth meteorite: Howell, 529, 531; Tassin,
1044.

Underground water.

Elk Point quadrangle: Todd, 1048.
Missouri River Valley: Condra, 245.

Nectosaurus, osteology of: Merriam, 730.

Nevada.*Economic.*

Amarillo iron and phosphate deposits: Hershey,
475.
Camp Alunite: Hill, 491.
Copper field: Selwyn-Brown, 964.
Desert gold, silver, and copper mines: Everette,
340.
Ely ores: Herrick, 470.
Eureka silver-lead deposits: Chance, 194.
Goldfield: Becker, 79; Ransome, 846; Rickard,
892.
Goldfield type of ore occurrence: Hill, 489, 490.
Lucky Boy mine, Esmeralda County: Wroth,
1208.
Marble of White Pine County: Darton, 268.
Mining developments: Selwyn-Brown, 963.
Osceola mining district, White Pine County:
Weeks, 1116.
Rawhide: Del Mar, 282.
Ray mining district: Turner, 1058.
Tungsten deposits in White Pine County:
Weeks, 1117.
Yerington, copper ores: Jennings, 547.

Physiographic.

Intermont plains: Keyes, 587.
Truckee region: Louderback, 679.

Nevada—Continued.*Stratigraphic.*

Igneous rocks of post-Jurassic age: Ball, 57.
Tertiary river channel near Carson City: Reid
873.
Truckee region east of the Sierra Nevada:
Louderback, 679.

Paleontology.

Mammals from Virgin Valley: Gidley, 378.
Stickleback fish: Jordan, 570.
Woods, fossil: Platen, 830.

Mineralogy.

Powellite: Schaller, 941.

New Brunswick.*General.*

Geology and mineral resources: Ellis, 321.

Economic.

Carbonaceous and bituminous minerals: Ellis,
323.
Iron ore field, new: Hardman, 432.

Physiographic.

Physiography: Ganong, 373.

Stratigraphic.

Acadia, evolution of: Matthew, 717.
Surveys in southern New Brunswick: Ellis, 320.

Paleontology.

Cetacean, fossil: Perkins, 822.

New Hampshire.*Economic.*

Granites: Dale, 262.

Physiographic.

Terraces, White Mountains: Spencer, 1000.

Stratigraphic.

Glacial period, complexity of, in northeastern
New England: Clapp, 203.
Hanover, geology of: Hitchcock, 498.
Hanover quadrangle: Hitchcock, 495

New Jersey.*General.*

Passaic quadrangle: Darton *et al.*, 269.
State geologist's report for 1907: Kummel, 611.

Economic.

Franklin Furnace quadrangle: Spencer *et al.*,
997.
Iron: Kummel, 611.
Magnetite ores: Spencer, 994.
Mineral industry in 1907: Kummel, 613.

Stratigraphic.

Franklin Furnace quadrangle: Spencer *et al.*,
997.
Highlands, geology of: Bayley, 78.
Newark formation, physiographic conditions:
Fenner, 348.
Newark trap rocks, correlation of: Lewis, 663.
Passaic quadrangle: Darton *et al.*, 269.
Quaternary system of Franklin Furnace quad-
rangle, Salisbury, 931.
Watchung trap sheet: Fenner, 349.

Paleontology.

Auracarian remains: Berry, 100.

Petrology.

Franklin Furnace, post-Ordovician igneous
rocks: Wolf, 1188.
Newark intrusive diabase: Lewis, 662.
Palisade diabase: Lewis, 661.

New Jersey—Continued.*Mineralogy.*

- Franklin Furnace quadrangle: Palache, 793.
 Paterson and Great Notch localities: Papke, 794.

New Mexico.*Economic.*

- Cochiti district: Barbour, 61.
 Economic geology, epitome: Jones, 567.
 Lake Valley silver deposits: Keyes, 586.
 Magdalena ore deposits: Argall, 22.
 San Pedro Mountain: Brinsmade, 130.
 Silver City: Brinsmade, 131.
 Sylvanite, the new gold camp: Dinsmore, 295; Jones, 568.

- Turquoise, Burro Mountains: Zalinski, 1212.

Dynamic and structural.

- Concretions, physical origin of: Gardner, 374.
 Estancia Plains, geotectonics of: Keyes, 588.
 Limestone breccias, origin: Campbell, 169.
 Vein, recent, at Ojo Caliente: Lindgren, 672.

Physiographic.

- Estancia Plains: Keyes, 588.
 Intermont Plains: Keyes, 587.
 Lake basins of Mexican tableland, eolian origin of: Keyes, 591.

Stratigraphic.

- Estancia Plains: Keyes, 588.
 Lake Valley district: Keyes, 586.
 Mt. Taylor region: Shimer and Blodgett, 975.
 Ortiz Mountains: Ogilvie, 775.
 Paleozoic rocks of central New Mexico: Lee, 649.
 Red beds: Lee, 650.

Paleontology.

- Mt. Taylor region: Shimer and Blodgett, 975.

Petrology.

- Ortiz Mountains: Ogilvie, 775.

Mineralogy.

- Calcite: Schaller, 942.
 Meerschaum: Sterrett, 1014, 1016.
 Turquoise mines: Cowan, 250.
 Willemite, new occurrence of: Lindgren, 674.

New York.*General.*

- Adirondack region: Newland, 760.
 Coal at Kreisherville: Hollick, 512.
 Director of science, fourth report: Clarke, 207.
 New York City, stability of rock foundations of: Julien, 573.
 Passaic quadrangle: Darton *et al.*, 269.

Economic.

- Adirondack magnetic iron ores: Newland, 760.
 Arsenic, Putnam County: Judd, 571.
 Clinton iron ore: Higgins, 485; Newland and Hartnagel, 762.
 Forest of Dean iron mine: Stoltz, 1022.
 Magnetite belts of Putnam County: Stewart, 1017.
 Mineville-Port Henry mine group: Kemp, 581.
 Mining and quarry industry in 1907: Newland, 761.
 Northern: Mills, 749.

Dynamic and structural.

- Arched structure in Lockport limestone: Fairchild, 343.
 Folded strata at Trenton Falls: Miller, 747.

New York—Continued.*Physiographic.*

- Buried channels beneath the Hudson: Kemp, 583.
 Central-western New York: Grabau, 402.
 Finger Lake region: Rich, 884.
 Gorges and falls of central New York: Grabau, 398.
 Lewis County: Bendrat, 90.
 Overflow channel of pre-Wisconsin ponded waters: Carney, 177.
 Preglacial channels of lower Hudson Valley: Berkey, 94.

Stratigraphic.

- Bluestone near Ashokan dam: Berkey, 93.
 Cortlandt series near Peekskill: Berkey, 97.
 Devonian history: Clarke, 208.
 Finger Lake region, glacial drainage features: Rich, 884.
 Fordham gneiss, interbedded limestones: Berkey, 98.
 Genesee Valley, Pleistocene history of: Fairchild, 342.
 Glacial Lake Bloomfield: Dryer, 310.
 Honeoye-Irondequoit kame moraine: Dryer, 309.
 Interglacial fauna in Cayuga Valley: Maury, 723.
 Long Island, geology of: Crosby, 253.
 New York series, revision of: Chadwick, 188.
 Overflow channel of ponded pre-Wisconsin waters: Carney, 177.
 Paleozoic section in northwestern New York: Cushing, 260.
 Passaic quadrangle: Darton *et al.*, 269.
 Portage and Nunda quadrangles: Clarke and Luther, 210.
 Preglacial drainage in central-western New York: Grabau, 402.
 Rondout Valley: Berkey, 95.
 Silurian, nomenclature and subdivisions: Lane *et al.*, 640.

Paleontology.

- Chazy Gastropoda: Raymond, 853.
 Dalmanellas of the Chemung: Williams, 1163.
 Drift bowlders, fossils in: Hollick, 511.
 Graptolites: Ruedemann, 922.
 Interglacial fauna in Cayuga Valley: Maury, 723.
 Mastodon from Chester: Hovey, 522.
 Proscorpius osborni: Fritsch, 366.

Petrology.

- Bluestone near Ashokan dam: Berkey, 93.
 Cortlandt series near Peekskill: Berkey, 97.
 Graphite schist in Tuxedo Park: Bayley, 76; Stewart, 1018.

Mineralogy.

- Tourmaline of Crown Point: Blake, 107.

Niagara Falls.

- Age of: Spencer, 999.
 Evolution of: Gilbert, 382.
 Geological chronometer: Gregory, 414; Wright, 1206.
 Measure of postglacial time: Upham, 1075.
 Recession of: Spencer, 1001, 1005.
 Soundings: Spencer, 998, 1004.

Nickel.

- Kentucky, western: Fohs, 360.
- New Brunswick: Ellis, 321.
- Ontario, Sudbury district: Coleman, 233; Stewart, 1019; Stutzer, 1034.
- South Carolina: Sloan, 984.
- United States (general): 1072.

Nomenclature. *See also under Stratigraphic.*

- Dip and pitch: Raymond, 856.

North Carolina.*Economic.*

- Mining industry in 1906: Pratt, 832.
- Monazite: Pratt and Sterrett, 833; Sterrett, 1015.

Paleontology.

- Araucarian remains: Berry, 100.
- Mid-Cretaceous species of Torreya: Berry, 99.

Petrology.

- Chapel Hill micropegmatite: Eaton, 318.
- Chapel Hill slate: Eaton, 317.

North Dakota.*General.*

- Soils of southeastern: Willard, 1148.
- Tower quadrangle, soils: Willard, 1155.

Physiographic.

- Coteaus of the Missouri: Willard and Erickson, 1157.
- Hills, peculiar type: Willard and Hibbard, 1160.
- Plateau region: Hibbard, 484.

Stratigraphic.

- Coteaus of the Missouri: Willard and Erickson, 1157.
- Geologic formations of eastern: Willard, 1151.
- Geologic history of eastern: Willard, 1149.
- Glacial Lake Agassiz: Hall, 429.
- Maple River, history: Willard, 1156.
- Surface formations of southeastern: Willard, 1147.
- Tower quadrangle, drift formations: Willard and Hibbard, 1158, 1159.
- geologic history: Willard, 1152.

Paleontology.

- Horses: Douglass, 299.
- Rhinoceroses from Oligocene and Miocene: Douglass, 298.

Underground water.

- Dakota artesian basin: Willard, 1154.
- Water supply: Willard, 1150.
- Cass, Barnes, and Ransom counties: Willard, 1153.
- Tower quadrangle: Hibbard, 483.

Nova Scotia.*General.*

- Explorations in 1907: Fletcher, 356.
- Lunenburg County: Faribault, 344.

Economic.

- Coal, Pictou County: Coll, 239.
- Lunenburg County: Faribault, 344.
- Oil fields: Ellis, 324.
- Scheelite, occurrence of: McCallum, 692.
- Tin: Piers, 828.
- New Ross: Young, 1209.

Stratigraphic.

- Meguma series, age of: Woodman, 1190.

Novaculite.

- Oklahoma: Gould *et al.*, 395.

Oceans and continents, origin of: Love, 683.

Ocher.

- Jamaica: Nicholas, 768.

Ohio.*Economic.*

- Berea oil sand in the Flushing quadrangle: Griswold, 418.
- Glass-sand deposits at Toboso: Carney and Brumback, 180.
- Kenova quadrangle: Phalen, 826.
- Monongahela coals: Bownocker, 118.
- Pomeroy coal: Bownocker and Condit, 119.

Dynamic and structural.

- Desiccation conglomerates: Hyde, 546.
- Landslides: Hubbard, 534.

Physiographic.

- Finger lakes, ancient: Hubbard, 533.
- Stream diversion near Lakeville: Hubbard, 535.
- Terraces, near Columbus: Hubbard, 536.
- southeastern Ohio: Hubbard, 532.

Stratigraphic.

- Devonian section on Ten Mile Creek: Stauffer, 1010.
- Esker group south of Dayton: Scheffel, 943.
- Finger lakes, ancient: Hubbard, 533.
- Flushing quadrangle: Griswold, 418.
- Glacial epoch, chronology: Wright, 1206.
- Pomeroy coal: Bownocker and Condit, 119.
- Silurian, nomenclature and subdivisions: Lane *et al.*, 640.

Paleontology.

- Camarophorella from Waverly of Sciotoville: Hyde, 547.
- Dinichthys intermedius from Huron shale: Branson, 122.
- Dinichthys terrelli with restoration: Branson, 123.

Oil. *See* Petroleum.

Oil shales.

- New Brunswick: Ellis, 321.

Oklahoma.*General.*

- Geological survey, organization: Gould, 391.

Economic.

- Coal resources: Gould, 393.
- Miami lead and zinc district: Ruhl, 925.
- Mineral resources: Gould *et al.*, 395.
- northeastern: Siebenthal, 979.
- Oil and gas industry: Gould, 392.
- Tripoli deposits: Gould, 399.

Underground water.

- Northeastern: Siebenthal, 979.

Oligocene. *See* Tertiary.

Ontario.*General.*

- National Transcontinental railway route: Collins, 243.
- Peterborough and Simcoe sheets: Johnston, 565.
- Thunder Bay-Algoma boundary, geology of: Parsons, 802.
- Western Ontario: Collins, 242.

Economic.

- Bureau of Mines report, 1908: Gibson, 376.
- Cobalt district: Flynn, 359; Tyrrell, 1061.
- Cobalt-silver ores, origin: Hore, 516.
- Graphite: Lamb, 625.

Ontario—Continued.*Economic*—Continued.

Iron deposits of Thunder Bay and Rainy River: Hille, 494.

Iron ores: Hille, 493; Mackenzie, 700; Willmott, 1175.

Montreal River district: Barlow, 62; Tyrrell, 1062.

Moose Mountain iron range: Bell, 84; Leach, 644.

Nipigon iron ranges: Coleman and Moore, 238.

Onaman iron ranges: Moore, 757.

Sudbury nickel ores: Coleman, 233; Stewart, 1019; Stutzer, 1034.

Temiskaming cobalt-silver ore deposits: Stutzer, 1035.

Physiographic.

Shore-lines between Georgian Bay and the Ottawa River: Hunter, 540.

Shore-line studies on Lakes Ontario and Erie: Wilson, 1176.

Stratigraphic.

Gowganda mining district, geological map of: Collins, 244.

Grenville-Hastings unconformity: Miller and Knight, 748.

Grenville series: Adams, 3.

Laurentian system: Adams, 2.

Lower Huronian ice age: Coleman, 236.

Ordovician formations: Cushing, 260.

Paleontology.

Black River trilobites: Raymond and Narraway, 855.

Chazy Pelecypoda: Whiteaves, 1141.

Hybocystis: Parks, 800.

Protaster: Parks, 799.

Mineralogy.

Gedrite: Evans and Bancroft, 337.

Onyx.

Mexico: Aguillera, 6.

Ordovician.*Stratigraphy.*

Alaska, Porcupine River: Kindle, 595.

Seward Peninsula: Collier *et al.*, 241.

upper Yukon region: Brooks and Kindle, 139.

Illinois, Peoria: Udden, 1066.

southwestern: Savage, 936, 937.

Indiana, Cincinnati series: Cumings, 258.

Missouri, Morgan County: Marbut, 706.

Pike County: Rowley, 921.

New Brunswick: Ellis, 321.

New Jersey, Franklin Furnace: Kummel, 611.

Passaic quadrangle: Darton *et al.*, 269.

New Mexico, central: Lee, 648.

Lake Valley district: Keyes, 586.

New York: Clarke, 207.

Paleozoic section: Cushing, 260.

Passaic quadrangle: Darton *et al.*, 269.

New York series, revision of: Chadwick, 188.

Oklahoma, northeastern: Siebenthal, 979.

Pennsylvania, Lehigh and Northampton counties: Peck, 809.

southern: Stose, 1029.

Tennessee, western: Pate and Bassler, 804.

Texas, Paleozoic of trans-Pecos: Richardson, 886.

Utah: Walcott, 1100.

Ordovician—Continued.*Stratigraphy*—Continued.

Vermont, Chittenden County: Perkins, 819.

Franklin County: Perkins, 818.

Newport, Troy, and Coventry: Richardson, 885.

Swanton: Edson, 319.

Virginia: Bassler, 72.

Wyoming: Darton, 267.

Paleontology.

Black River trilobites from Ottawa: Raymond and Narraway, 855.

Chazy Pelecypoda: Whiteaves, 1141.

Gastropoda of the Chazy formation: Raymond, 853.

Graptolites of New York: Ruedemann, 922.

Hybocystis in Ontario: Parks, 800.

Indiana, Cincinnati series: Cumings, 258.

Protaster: Parks, 799.

Ore deposits, origin.*General:* Clarke, 205.

Alunite associated with gold: Ransome, 846.

Association of igneous intrusions with Idaho ore bodies: Bell, 88.

Association of magnetite with sulphides in mineral deposits: Hastings, 444.

Diffusion as a factor in ore deposition: De Kalb, 280; Knox, 608; Wright, 1207.

Filtration through a mineral filter: Sullivan, 1036.

Mineral veins, formation of: Everette, 341.

Ore deposition, theory of: Hixon, 500; Jaggard, 545; Pryor, 840; Ransome, 849; Spurr, 1006, 1007; Winchell, 1182, 1183.

Ore deposits, present tendencies in the study of: Lindgren, 668, 673.

Rock pressure and metamorphism: Chance, 197.

Shoots in metalliferous deposits: Irving, 553; Smith, 985; Winchell, 1184.

Specific volume of ores: Mead, 725.

Waters, meteoric and magmatic: Kemp, 582; Rickard, 893; Turner, 1059.

Alabama, Clinton ore: Burchard, 153.

Cobalt, Cobalt district, Ontario: Hore, 516.

Georgetown quadrangle: Spurr and Garrey, 1008.

Copper: Lane, 633.

British Columbia: Weed, 1115.

California, Shasta County: Forstner, 364.

Colorado: Lindgren, 671.

Evergreen: Ritter, 898.

Sangre de Christo Range: Bagg, 48.

Newark series: Wherry, 1133.

Utah, Bingham: Zalinski, 1213.

Velardeña district: Spurr and Garrey, 1009.

Graphite, Quebec: Hille, 492.

Idaho, Mineral: Turner, 1057.

Igneous ores: Gregory, 413.

Iron, Atikokan ores: Hille, 494.

bombshell ore: Chance, 198.

California, Shasta County: Prescott, 835.

Clinton ores, Alabama: Burchard, 156.

New York: Newland and Hartnagel, 762.

Pennsylvania: Rutledge, 929.

Clinton fossil ore: McCallie, 690.

Cornwall type of Pennsylvania: Spencer, 993.

Ore deposits, origin—Continued.

- Iron, Ellijay, Georgia: Phalen, 825.
 hematite ores: Catlett, 187; Chance, 199.
 magnetites of Adirondacks: Newland, 760.
 magnetites of Putnam County: Stewart, 1017.
 Mesabi ore: Winchell, 1186.
 New Jersey: Darton *et al.*, 269.
 Ontario: Willmott, 1175.
 pyritic origin: Cabot, 161; Chance, 196.
 residual, of Cuba: Spencer, 992, 995.
 Utah, Iron Springs district: Leith and Harder, 657.
 Lead-silver deposits, Idaho: Ransome and Calkins, 851.
 Lead-zinc ores of Joplin district: Ruhl, 924.
 Manganese ore, Georgia: Watson, 1113.
 Mexico: Villarello, 1093.
 Sonora: Merrill, 734.
 Velardeña district: Spurr and Garrey, 1009.
 Missouri, lead and zinc ores: Buckley, 151.
 Monazite deposits: Sterrett, 1015.
 Nickel, Sudbury, Ontario: Coleman, 233.
 Silver, Cobalt district: Hore, 516.
 Colorado: Van Horn, 1082.
 Granite-Bimetallic mine, Montana: Emmons, 329.
 Montreal River mining district: Barlow, 62.
 New Mexico, Lake Valley district: Keyes, 586.
 Tin, Alaska, Seward Peninsula: Knopf, 604.

Oregon.

Economic.

- Placer mines, Riddles quadrangle: Diller, 290.
 Riddles quadrangle, copper prospects: Kay, 577.
 gold mines: Kay, 576.

Dynamic and structural.

- Mt. Hood, recent volcanic activity and glaciers: Sylvester, 1039.

Physiographic.

- South central: Waring, 1105.

Stratigraphic.

- Knoxville, local silicification of: Diller, 293.
 South central: Waring, 1104.
 Strata with Jurassic flora: Diller, 289, 292.

Orogeny.

- Formation of mountains: See, 956, 957.
 Great Basin region tectonics: Keyes, 593.
 Mechanics of Allegheny structure: Ashley, 34.
 Physics of the earth: See, 955.

Orthoclase twins of unusual habit: Ford and Tillotson, 362.

Oscillation. *See* Changes of level.

Ostracoda. *See* Crustacea.

Paleobotany.

- Araucarian remains from the Atlantic coastal plain: Berry, 100.
 British Columbia, Tertiary plants: Penhallow, 812.
 Cretaceous Bauhinia: Berry, 101.
 Cretaceous woods from Alberta: Penhallow, 811.
 Cycad from Cretaceous of Texas: Udden, 1064.
 Cycads, historic: Wieland, 1145.
 Ficus from Fox Hills Cretaceous: Cockerell, 212.
 Florissant, Colorado: Cockerell, 226, 227.
 Grass from Miocene of Florissant: Brues and Brues, 149.

Paleobotany—Continued.

- Idaho, oak wood from the Pliocene: Schuster, 952.
 Illinois, Mazon Creek plants: Peola, 814.
 Liverwort from Fort Union beds of Montana: Knowlton, 607.
 Mid-Cretaceous species of Torreya: Berry, 99.
 Miocene cypress swamp: Berry, 102.
 Museum collection of fossil plants: Hollick, 514.
 Paleozoic botany, present position of: Scott, 954.
 Pennsylvania, flora of southern anthracite coal field: Unger, 1071.
 Plants from Florissant, Colorado: Cockerell, 224, 229.
 Sequoia from Florissant: Cockerell, 213.
 Wisconsin, Devonian plants: Penhallow, 810.
 Woods, fossil, from Western States: Platen, 830.

Paleoclimatology.

- General:* Barrell, 68.
 Geological climates: Schaeberle, 939.
 Glacial periods: Coleman, 234.
 Sedimentary rocks, origin and age: Schaeberle, 940.

Paleogeographic maps: Cleland, 211; Matthew, 717.

Paleogeography.

- Devonian: Eastman, 316.
 Devonian of eastern North America: Clarke, 208.
 Glacial period, Great Lakes region: Goldthwait, 389.
 New Brunswick: Matthew, 717.
 New England: Cleland, 211.
 New Jersey, Newark formation: Fenner, 348.
 New York, Clinton time: Newland and Hartnagel, 762.
 Ordovician: Willis, 1167.
 Paleogeographical studies: Willis, 1167.
 Paleozoic, general: Ruedemann, 922.
 Silurian, western America: Kindle, 594.

Paleontology (general). *See also the classes of animals and Paleobotany. For stratigraphic, see under the various systems. For regional, see under the various States.*

- Dependent life, beginnings of: Clarke, 209.
 Dwarf faunas: Shimer, 974.
 Florissant, a Miocene Pompeii: Cockerell, 226.
 Fossils in drift boulders: Hollick, 511.
 Mammalian migrations between Europe and North America: Matthew, 720.
 Silicification of fossils: Bassler, 71.

Paleozoic section in New York: Cushing, 260.

Panama.

- Geological notes: Hershey, 472.
 Geology of the Isthmus: Howe, 527, 528.

Paragenesis of minerals: Lincoln, 665.

- California, magnetite ores of Shasta County: Prescott, 835.
 Colorado, Montezuma: Van Horn, 1082.
 Copper ores of Butte: Simpson, 981.
 Mexico, Velardeña district: Spurr and Garrey, 1009.

Paving brick material: Rolfe, 912.

Peat.

- General:* Nystrom, 772.
 Florida: Sellards, 961.
 Maine, Rockland quadrangle: Bastin, 74.

Peat—Continued.

Michigan, Ann Arbor quadrangle: Russell and Leverett, 928.

New Jersey, Passaic quadrangle: Darton *et al.*, 269.

South Carolina: Sloan, 984.

Peat deposits as geological records: Davis, 270.

Pebbles at Harwich, Cape Cod: Julien, 574.

Pegmatite, origin of: Hastings, 442.

Pelecypoda. *See also* Mollusca.

Chazy from Canada: Whiteaves, 1141.

Pterinea, revision of: Williams, 1164.

Pennsylvania.*General.*

General geology, review of: Stone, 1025.

Geologic work, progress of: Ashley *et al.*, 37; Stone, 1024.

Topographic and Geological Survey, Commissioners' report, 1906-1908: 813.

Economic.

Anthracite coal field, southern: Haertter, 428.

Cement belt in Lehigh and Northampton counties: Peck, 809.

Clinton iron-ore deposits of Stone Valley: Rutledge, 929.

Hematite ores, genesis of: Catlett, 187; Chance, 199.

Limestone in western: Stone, 1027.

Magnetite deposits: Spencer, 993.

Newark copper deposits: Wherry, 1133, 1134.

Petroleum and natural gas in western: Munn, 759.

Sandstones of western: Stone, 1028.

Southwestern: Ashley, 35.

Dynamic and structural.

Mechanics of Allegheny structure: Ashley, 34.

Physiographic.

Southwestern: Stone, 1026.

Stratigraphic.

Accident and Grantsville quadrangles: Martin, 712.

Cambro-Ordovician limestones of Appalachian Valley: Stose, 1029.

Lehigh and Northampton counties: Peck, 809.

Pre-Pennsylvanian stratigraphy: Butts, 160.

Southwestern: Ashley, 36.

Susquehanna Gap: Van Ingen, 1083.

Unconformity between Mississippian and Pennsylvanian: Butts, 159.

Paleontology.

Carboniferous fossils: Girty, 387.

Flora of southern anthracite coal field: Unger, 1071.

Pleistocene fauna from Frankstown: Holland, 508.

Vertebrate fossils from near Pittsburg: Case, 184; Raymond, 854.

Mineralogy.

Mineral localities around Philadelphia: Bengel and Wherry, 91.

Radioactive minerals: Wherry, 1130.

Pennsylvanian. *See* Carboniferous.

Pentremites. *See* Blastoides.

Peridotite, collection of: Schneider, 945.

Permian. *See* Carboniferous.

Petroleum.*General.*

Literature, recent: Bain, 52.

Occurrence and source: Haworth, 446.

Alaska, Controller Bay region: Martin, 711.

Alberta, tar sands of Athabasca River: Bell, 86.

Barbados: Hovey, 520.

Canada, eastern: Ellis, 324.

California, Coalinga district: Arnold and Anderson, 31, 32.

Miner ranch field: Arnold, 27.

Colorado, Rangely district: Gale, 372.

Indiana, industry in 1907: Blatchley, 112.

Illinois: Bain, 51, 53.

Kansas, Independence quadrangle: Schrader, 947.

Mexico: Villarello, 1092, 1094.

New York: Newland, 761.

Oklahoma: Gould, 392; Gould *et al.*, 395.

northeastern: Siebenthal, 979.

Ohio, Flushing quadrangle: Griswold, 418.

Pennsylvania, western: Munn, 759.

United States (general): 1072.

Utah, southern: Richardson, 888.

Wyoming, Labarge field: Schultz, 951.

Petrology (general). *See also* Igneous and volcanic rocks, and Technique. *For regional see under the various States. For rocks described see list, p. 137.*

Alteration of rocks: Steidtmann, 1012.

Barium in rocks, determination of: Langley, 642.

Distribution of elements in igneous rocks: Washington, 1111.

Lake Superior rocks, classification and nomenclature: Winchell, 1181.

Ophitic texture: Lane, 632.

Origin of augite andesite and related ultra-basic rocks: Daly, 265.

Pegmatite, origin of: Hastings, 442.

Plutonic rocks, classification of: Hatch, 447.

Rock-forming minerals, determination of: Johannsen, 559.

Rock-making minerals, table of index of refraction and birefringence: Hotchkiss, 517.

Rocks and rock minerals: Pirsson, 829.

Philosophy. *See* History.

Phoridae from Florissant: Brues, 148.

Phosphate.

Florida: Sellards, 961.

Idaho: Weeks, 1118.

Nevada, Amarilla district: Hershey, 475.

South Carolina: Sloan, 984.

United States (general): 1072.

Utah: Weeks, 1118.

Wyoming: Weeks, 1118.

Phyllite.

Montana: Rowe, 913.

Physiographic (general). *For regional see under the various States. See also* Drainage changes.

Arid monadnocks: Keyes, 589.

Baraboo, new term: Mansfield, 704.

Barachois, bar, and tickle: Clarke, 206.

Beach cusps, origin: Johnson, 562.

Climate and terrestrial deposits: Barrell, 67.

Physiographic (general)—Continued.

- Coastal drift sands: Olsson-Seffer, 779.
- Continents and oceans, origin of: Love, 683.
- Deflection of rivers by the earth's rotation: Davis, 274.
- Features of erosion by unconcentrated wash: Fenneman, 347.
- Graded surfaces: Gulliver, 421.
- Gulf coastal plains: Sutherland, 1037.
- Intermont plains of the arid region: Keyes, 587.
- Interpretation of topographic maps: Salisbury and Atwood, 952.
- Lake ramparts, origin: Gilbert, 379.
- Mapping of land forms: Matthes, 716.
- Meanders on the Rouge: Davis, 272.
- Methods of American geographic investigation: Davis, 275.
- Nantasket beach: Reed, 861.
- Physical geography: Davis, 273.
- Representation of land forms in the physiography laboratory: Tarr and Engeln, 1042.
- Shore-line studies: Wilson, 1176.
- Water-planes, ancient: Robinson, 904.
- Wet laboratory in physiography teaching: Engeln, 331.

Pisces.

- Arthrodira, position of: Hussakof, 544.
- Chimaeroid fishes: Dean, 277.
- Cladodus compressus, a correction: Branson, 121.
- Coelacanth fish from the Iowa Kinderhook: Eastman, 315.
- Cretaceous of Kansas: McClung, 694.
- Devonian from Iowa: Eastman, 316.
- Dinichthys intermedius from the Huron shale: Branson, 122.
- Dinichthys terrelli with restoration: Branson, 123.
- Florissant, Colorado: Cockerell, 227.
- Rocky Mountain region: Cockerell, 217.
- Stickleback fish, nomenclature of: Jordan, 570.
- Studies on fossil fishes during 1907: Dean, 278.

Placers.

- Alaska: Hutchins, 545.
- California, beach placers: Irvine, 551.
- Colorado, Breckenridge: Lakes, 622.
- Mexico, Sonora: Merrill, 736.

Plants, fossil. *See* Paleobotany.

Platinum.

- United States (general): 1072.

Pleistocene. *See* Quaternary.

Plesiosaurs. *See* Reptilia.

Pliocene. *See* Tertiary.

Polyzoa. *See* Bryozoa.

Portland cement. *See* Cement.

Pre-Cambrian.*General.*

- Divisions of: Lane, 639.
- Problem of: Van Hise, 1078.
- Arizona: Ransome, 847.
- Mohave County: Schrader, 948.
- Santa Catalina gneiss: Blake, 108.
- western: Lee, 648.
- Canada, Laurentian system: Adams, 2.
- Colorado, Georgetown quadrangle: Ball, 56.

Pre-Cambrian—Continued.

- Idaho, Cœur d'Alene district: Ransome and Calkins, 851.
- Minnesota, Redstone region: Sardeson, 934.
- Montana, Park County: Emmons, 327.
- New Brunswick: Ellis, 321; Matthew, 717.
- New Jersey, Franklin Furnace quadrangle: Spencer *et al.*, 997.
- Passaic quadrangle: Darton *et al.*, 269.
- New York, Adirondack region: Newland, 760.
- Nova Scotia, Meguma series: Woodman, 1190.
- Ontario: Miller and Knight, 748.
- Grenville series: Adams, 3.
- Nipigon region: Coleman and Moore, 238.
- northwestern: Collins, 243.
- Onaman ranges: Moore, 757.
- Pennsylvania, Lehigh and Northampton counties: Peck, 809.
- Quebec: Miller and Knight, 748.
- South Carolina: Sloan, 984.
- South Dakota, Black Hills, Harney granite: Ferguson and Turgeon, 350.
- Vermont, Newport, Troy, and Coventry: Richardson, 885.
- Wyoming, southeastern: Blackwelder, 105.

Precious stones. *See also* Diamonds.

- United States (general): 1072.

Primates. *See* Mammalia.

Protaster: Parks, 799.

Protozoa. *See also* Foraminifera.

- Cryptozoon: Seely, 959.

Pyrite.

- New York: Newland, 761.
- northern: Mills, 749.
- Pennsylvania, new source of sulphur supply: Chance, 199.
- South Carolina: Sloan, 984.
- United States (general): 1072.

Quartz.

- South Carolina: Sloan, 984.
- United States (general): 1072.

Quartzite.

- Montana: Rowe, 913.

Quaternary.*Stratigraphy.*

- Alteration of glacial deposits by later ice invasions: Carney, 179.
- Chronology of the glacial epoch: Wright, 1206.
- Glacial deposits: Reagan, 859.
- Glacial epoch and man: Wright, 1203, 1205.
- Glacial period, complexity of, in northeastern New England: Clapp, 203.
- in North America: Leverett, 660.
- Loesses of Mississippi Valley: Shimek, 970.
- Newfoundland ice center: Wilson, 1178.
- Surface deposits along the Mississippi: Fowke, 365.
- Alaska, Controller Bay region: Martin, 711.
- upper Yukon region: Brooks and Kindle, 139.
- Arizona, western: Lee, 648.
- British Columbia, New Westminster and Nanaimo districts: Leroy, 658.
- California, Coalinga district: Arnold and Anderson, 32.
- Santa Cruz Mountains: Arnold, 28.
- Taylorsville region: Diller, 291.

Quaternary—Continued.*Stratigraphy—Continued.*

- Colorado, Georgetown quadrangle: Ball, 56.
 Idaho, Cœur d'Alene district: Ransome and Calkins, 851.
 Illinois, Evanston-Waukegan region: Atwood and Goldthwait, 41.
 surface deposits along the Mississippi: Fowke, 365.
 Iowa, Aftonian sands and gravel: Shimek, 971.
 Elk Point quadrangle: Todd, 1048.
 Kansas, Independence quadrangle: Schrader, 947.
 Louisiana, Lafayette beds: Harris, 436.
 Maine, Rockland quadrangle: Bastin, 74.
 Massachusetts, central: Alden, 7.
 pebbles at Harwich, Cape Cod: Julien, 574.
 Michigan, Ann Arbor quadrangle: Russell and Leverett, 928.
 Saginaw County, Pleistocene beaches: Cooper, 248.
 Walnut Lakes: Davis, 271.
 Minnesota, Redstone region: Sardeson, 934.
 Saint Anthony Falls: Sardeson, 933.
 Missouri, St. Louis region: Drushel, 308.
 surface deposits along the Mississippi: Fowke, 365.
 Montana, Crazy Mountains glaciation: Mansfield, 703, 705.
 Nebraska, Elk Point quadrangle: Todd, 1048.
 loess near Florence: Shimek, 969.
 northeastern: Condra, 245.
 New Brunswick: Ellis, 321.
 New Hampshire, Hanover quadrangle: Hitchcock, 495.
 New Jersey, Franklin Furnace quadrangle: Salisbury, 931.
 Passaic quadrangle: Darton *et al.*, 269.
 New York: Clarke, 207.
 Finger Lake region: Rich, 884.
 Genesee Valley: Fairchild, 342.
 Honeoye-Irondequoit kame moraine: Dryer, 309.
 Lewis County: Bendrat, 90.
 Long Island: Crosby, 253.
 overflow channel of ponded pre-Wisconsin waters: Carney, 177.
 North Dakota: Willard, 1147, 1156; Willard and Erickson 1157.
 glacial Lake Agassiz: Hall 429.
 Tower quadrangle: Willard, 1152; Willard and Hibbard, 1158, 1159.
 Ontario, Nipigon region: Coleman and Moore, 238.
 Onaman ranges: Moore, 757.
 Ohio, ancient finger lakes: Hubbard, 533.
 esker group south of Dayton: Scheffel, 943.
 Quebec, St. Lawrence Valley, surface geology: Chalmers, 189.
 South Carolina: Sloan, 984.
 South Dakota, Elk Point quadrangle: Todd, 1048.
 Utah, southern: Leith and Harder, 657.
 Vermont, Hanover quadrangle: Hitchcock, 495.
 northwestern: Merwin, 742, 743.
- Palaeontology.*
 California, myriopods and insects: Grinnell, 417.
 Cetacea from Pleistocene: Perkins, 817, 822.

Quaternary—Continued.*Palaeontology—Continued.*

- Mammalia from northern Arkansas: Brown, 141.
 Mexico, Vallée de Oaxaca: Conzatti, 246.
 New York, Cayuga Valley: Maury, 723.
 Pleistocene fauna from Frankstown: Holland, 508.
 Pleistocene fossils, list of, in northeastern New England: Clapp, 203.
 Pleistocene ruminants: Gidley, 377.

Quebec.*General.*

- Explorations along National Transcontinental Railway: O'Sullivan, 792; Wilson, 1180.
 Lake Timiskaming region: Wilson, 1179.

Economic.

- Chrome iron mining: Strangways, 1030, 1031.
 Copper deposits of eastern townships: Dresser, 304.
 Gold, in eastern townships: Obalski, 774.
 near Lake Megantic: Dresser, 306, 307.
 Graphite: Lamb, 625.
 Argenteuil and Labelle counties: Hille, 492.
 Mining operations in 1907: Obalski, 773.
 Serpentine belt of the eastern townships: Dresser, 305.

Dynamic and structural.

- Landslide at Notre-Dame de la Salette: Ellis, 322.

Physiographic.

- Fjords of the Saguenay: Upham, 1074.
 St. Lawrence Valley, surface geology: Chalmers, 189.

Stratigraphic.

- Devonic history: Clarke, 208.
 Grenville-Hastings unconformity: Miller and Knight, 748.
 St. Lawrence Valley, surface geology: Chalmers, 189.

Palaeontology.

- Chazy Gastropoda: Raymond, 853.

Petrology.

- Eastern townships: Dresser, 304.
 Radium in rocks of Montreal: Eve and McIntosh, 338.

Mineralogy.

- Magnetite illustrating isomorphism: Harrington, 434.

Quicksilver.

- Geology of quicksilver deposits: Phillips, 827.
 United States (general): 1072.

Radioactivity and rocks: Strutt, 1032.

Radioactivity, relations to geology: Becker, 8; Day, 276.

Radium in rocks of Montreal: Eve and McIntosh, 338.

Ramparts, lake: Gilbert, 379.

Rare earths.

- General.* Baskerville, 70.
 Texas, Llano County: Hess, 481.

Reptilia.

- Allosaurus: Matthew, 718.
 Ankylosauridae: Brown, 144.
 Baptonodon not a toothless ichthyosaur: Holland, 509.

Reptilia--Continued.

Ceratopsian dinosaurs, cranial musculature:
Lull, 687.

Cotylosauria: Williston, 1168.

Dinosaurs: Huene, 537.

carnivorous: Hay, 449.

sauropodous, habits and pose: Hay, 451.

Diplodocus, skull of: Hay, 443; Holland, 510.

Ichthyosaurus, new: Matthew, 719.

Isodectes punctulatus: Williston, 1169.

Hallopus victor: Huene and Lull, 538.

Kansas chalk: Sternberg, 1013.

Labidosaurus hamatus from Permian of Texas:
Broili, 135.

Lizards from the Oligocene: Douglass, 300.

Mosasauridae, osteology of: Holland, 507.

Nanosaurus agilis: Huene and Lull, 539.

Nectosaurus, osteology of: Merriam, 730.

Polycosaurian, four-horned from Texas Per-
mian: Matthew, 721.

Permian Reptilia, with restorations: Case, 185.

Plesiosaurs, evolution and distribution: Wil-
liston, 1172.

Trinacromerum: Williston, 1170.

Trachodon group: Brown, 143.

Trachodont, the duckbilled dinosaur: Brown,
142.

Triassic Ichthyosauria: Merriam, 729, 731.

Turtles, descriptions of: Hay, 448.

Turtles and plesiosaurs, relationship of: Moodie,
754.

Turtles of North America: Hay, 452; Williston,
1174.

Vertebrate fossils from Pittsburg: Case, 184.

Rhode Island.*Economic.*

Granites: Dale, 262.

Stratigraphic.

Cumberland, Iron Mine Hill: Johnson, 561.

Petrology.

Cumberland gabbro: Warren, 1107.

Hortonolite at Cumberland: Warren, 1108.

Iron Mine Hill: Warren, 1106.

Mineralogy.

Calcite: Schaller, 942.

Hortonolite at Cumberland: Warren, 1108.

Iron Mine Hill: Warren, 1106.

Road materials.

Florida: Sellards, 961.

Maine: Leighton and Bastin, 654.

Rockland quadrangle: Bastin, 74.

Oklahoma: Gould *et al.*, 395.

South Carolina: Sloan, 984.

Rock-forming minerals: Clarke, 205.

Key for the determination: Johannsen, 559.

Rock slides. *See* Landslides.

Rocks and rock minerals: Pirsson, 828.

Rocks described. *See* list, p. 137.

Rocks, alteration of: Steidtmann, 1012.

Rocks, origin.

Augite andesite and related ultra-basic rocks:
Daly, 265.

St. Croix: Quin, 843.

St. Lawrence Valley, surface geology of: Chalmers,
189.

St. Vincent.*General.*

Soufrière: Anderson, 18.

changes since eruption: Anderson, 20.

Petrology.

Products of eruptions of the Soufrière: Flett, 357.

Salt.*General.*

Salton Sea deposits, origin: Blake, 106.

Occurrence, history, and manufacture: Hay-
ward, 459.

Louisiana: Harris, 435, 437.

Mexico, Carmen Islands: Cook, 247.

New York: Newland, 761.

Oklahoma: Gould *et al.*, 395.

United States (general): 1072.

Sand. *See also* Glass sand and Silica.

Illinois, Chicago district: Burchard, 154, 155.

Michigan, foundry sands: Ries and Rosen, 897.

New York: Newland, 761.

Oklahoma: Gould *et al.*, 395.

South Carolina: Sloan, 984.

United States (general): 1072.

Sand-lime brick.

New York: Newland, 761.

United States (general): 1072.

Sandstone. *See also* Stone, Building stone.

Montana: Rowe, 913.

New York: Newland, 761.

Oklahoma: Gould *et al.*, 395.

Pennsylvania, southwestern: Stone, 1028.

Sand waves and their work: Willey, 1162.

San Francisco earthquake. *See* Earthquakes.

Saskatchewan.*General.*

Pasquia Hills and lower Carrot River region
McInnes, 699.

Palaeontology.

Vertebrata from Oligocene of Cypress Hills:

Lambe, 627.

Sedimentary rocks, origin and age: Schaeberle, 940.

Sedimentation. *See also* Erosion.

Climate and terrestrial deposits: Barrell, 67.

Experiments illustrating: Jaggar, 544.

Transportation of detritus by Yuba River: Gil-
bert, 381.

Wind erosion in the plateau country: Cross, 255.

Seismology. *See* Earthquakes.

Shale.

Oklahoma: Gould *et al.*, 395.

Pennsylvania, southwestern: Ashley, 35.

Shinarump group: Cross, 254.

Shore-lines. *See also* Terraces.

General: Pearson, 807, 808.

Algonquin beach, altitude of: Goldthwait, 390.

Glacial lakes in Lake Michigan basin: Gold-
thwait, 389.

Water-planes, ancient, and crustal deforma-
tion: Robinson, 904.

Georgian Bay to the Ottawa River: Hunter,
540.

Great Lakes region: Taylor, 1047.

Illinois, Evanston-Waukegan region: Atwood
and Goldthwait, 41.

Shore-lines—Continued.

Michigan: Lane, 630.

Ann Arbor quadrangle: Russell and Leverett, 928.

Pleistocene beaches of Saginaw County: Cooper, 248.

Quebec, St. Lawrence Valley: Chalmers, 189.

Vermont, northwestern: Merwin, 742, 743.

Silicification of fossils: Bassler, 71.

Sink holes.

Florida: Sellards, 962.

Silurian. For Lower Silurian see Ordovician.*Stratigraphy.**General.*

New York series, revision of: Chadwick, 188.

Siluric system, revised classification of: Grabau, 400.

Western America: Kindle, 594.

Alaska: Kindle, 594.

Porcupine River: Kindle, 595.

Seward Peninsula: Collier *et al.*, 241.

southeastern: Wright and Wright, 1202.

upper Yukon: Brooks and Kindle, 139.

Yukon-Tanana region: Prindle, 836.

California, Taylorsville region: Diller, 289.

Georgia: McCallie, 690.

Illinois, Chicago area: Burchard, 155.

Peoria: Udden, 1066.

southwestern: Savage, 936, 937.

Maryland: Prouty, 839.

Niagara: Uhler, 1069.

Michigan: Lane *et al.*, 640; Sherzer and Grabau, 968.

Ann Arbor quadrangle: Russell and Leverett, 928.

Missouri, Pike County: Rowley, 921.

Montana: Walcott, 1100.

New Brunswick: Ellis, 321; Matthew, 717.

New Jersey, Franklin Furnace quadrangle: Kümmel, 611.

Passaic quadrangle: Darton *et al.*, 269.

New Mexico, Lake Valley district: Keyes, 586.

New York: Lane *et al.*, 640; Newland and Hartnagel, 762.

Ohio: Lane *et al.*, 640.

Tennessee, western: Pate and Bassler, 804.

Utah: Kindle, 594.

Paleontology.

Graptolites of New York: Ruedemann, 922.

Michigan: Sherzer and Grabau, 968.

Niagara Stromatoporoids: Parks, 798.

Stromatoporoids from Hudson's Bay: Parks, 801.

Silver.

General. Crane, 251; Van Wagenen, 1085.

Production of United States in 1906: Lindgren, 670.

Arizona, Black Mountains: Schrader, 948, 949.

Colorado, Georgetown quadrangle: Spurr and Garrey, 1008.

Montezuma district: Ritter, 899, 901; Van Horn, 1082.

Idaho, Atlanta gold district: Bell, 89.

Coeur d'Alene district: Auerbach, 44; Ransome and Calkins, 851; Rowe, 914, 920.

De Lamar mine: Brown and Mudgett, 146.

Mineral: Turner, 1057.

Silver—Continued.

Mexico: Bordeaux, 115.

Durango: Lincoln, 665.

Guanajuato: Rice, 882.

Hostotipaquillo: Ordóñez, 782.

Pachuca and Real del Monte district: Rice, 881.

Parral: Rice, 879.

Santa Barbara: Rice, 878.

Santa Eulalia: Rice, 875, 876.

Sonora, Las Chispas mines: Russell, 927.

Topia mining camp, Durango: Graham, 405.

Velardeña district, Durango: Spurr and Garrey, 1009.

Zacatecas: Rice, 880.

Montana, Granite-Bimetallic mine: Emmons, 329.

Nevada, desert mines: Everette, 340.

Eureka silver-lead deposits: Chance, 194.

New Mexico, Cochiti district: Barbour, 61.

Lake Valley district: Keyes, 586.

San Pedro Mountain: Brinsmade, 130.

Silver City: Brinsmade, 131.

Ontario, Cobalt: Flynn, 359; Tyrrell, 1061.

Montreal River district: Barlow, 62.

northern: Hore, 516.

Temiskaming: Stutzer, 1035.

Texas, Paleozoic of trans-Pecos: Richardson, 886.

United States (general): 1072.

Utah, Newhouse: Jensen *et al.*, 548.

Park City, Daly-West mine: Brinsmade, 127.

Stockton district: Brinsmade, 128.

Yukon, Conrad and Whitehorse districts: Cairnes, 165.

Slate.

New York: Newland, 761.

North Carolina, Chapel Hill: Eaton, 317.

South Carolina: Sloan, 984.

United States (general): 1072.

Vermont: Perkins, 816.

Soapstone.

South Carolina: Sloan, 984.

United States (general): 1072.

Vermont: Perkins, 820.

Soils.

General. Whitney *et al.*, 1143.

California, San Joaquin Valley: Mendenhall, 728.

Colorado red soils, origin: Cross, 255.

Indiana: Shannon *et al.*, 966.

Michigan: Lane, 630.

North Dakota: Willard, 1148.

Tower quadrangle: Willard, 1155.

South Carolina.*Economic.*

Mineral localities: Sloan, 984.

Monazite: Pratt and Sterrett, 833; Sterrett, 1015.

Dynamic and structural.

Charleston earthquake: Harboe, 431; Hobbs, 503.

Stratigraphic.

Geologic formations: Sloan, 984.

Paleontology.

Cetacean *Dorudon serratus*: True, 1054.

South Dakota.*General.*

Elk Point quadrangle: Todd, 1048.

Economic.

Black Hills, cement material: O'Harra, 776.

South Extension Homestake mineral formations: Nicholas, 767.

Physiographic.

Natural bridge due to stream meandering: Barnett, 64.

Stratigraphic.

Elk Point quadrangle: Todd, 1048.

Harney granite in Black Hills: Ferguson and Turgeon, 350.

Underground water.

Elk Point quadrangle: Todd, 1048.

Spongida.

Carboniferous fossils: Girty, 387.

Guadalupian fauna: Girty, 386.

Indiana, Cincinnati series: Cumings, 258.

Strophochetus: Seely, 959.

Springs.

Montana, Giant Springs at Great Falls: Fisher, 353.

Stone. *See also* Building stone.

Kansas, Independence quadrangle: Schrader, 947.

New York: Newland, 761.

bluestone of Ashokan dam: Berkey, 93.

South Carolina: Sloan, 984.

United States (general): 1072.

Steatite.

South Carolina: Sloan, 984.

Stenomylus gracilis: Peterson, 824.

Stratigraphic (general). *For regional, see under the various States. See also the various systems.**General.*

Continental formations of the American Paleozoic: Grabau, 403.

Laramie formation: Cross, 256.

Correlation.

Cretaceous and Tertiary of western Colorado: Gale, 372.

Grand Canyon formations: Ransome, 845, 847.

Mesozoic: Diller, 289.

Red beds, stratigraphic position of: Keyes, 592.

Tertiary, Pacific coast: Anderson, 16.

Unconformity between Mississippian and Pennsylvanian: Butts, 159.

Utah, Iron Springs district and Colob Plateau: Leith and Harder, 657.

Nomenclature.

Kansas coal measures: Haworth and Bennett, 447.

Pre-Cambrian: Van Hise, 1078.

Tables of geologic formations.

Alaska, Controller Bay region: Martin, 711.

Fairbanks and Rampart quadrangles: Prindle, 836.

Paleozoic of upper Yukon: Brooks and Kin-
dle, 139.

Seward Peninsula: Collier *et al.*, 241.

southeastern: Wright and Wright, 1202.

California, Taylorsville region: Diller, 291.

Canada, Pre-Cambrian: Adams, 2.

Stratigraphic—Continued.*Tables of geologic formations—Continued.*

Carboniferous, Kansas: Schrader, 947.

Kenova quadrangle: Phalen, 826.

Cincinnati group: Cumings, 258.

Colorado, Rangely district: Gale, 372.

Florida: Sellards, 961.

Idaho, pre-Cambrian: Ransome and Calkins, 851.

Illinois, Paleozoic of southwestern: Savage, 937.

Kansas, Carboniferous: Schrader, 947.

Kentucky, western: Fohs, 360.

Mesozoic of Oregon and California: Diller, 289.

Michigan, Ann Arbor quadrangle: Russell and
Leverett, 928.

Missouri, Morgan County: Marbut, 706.

southwestern: Buckley, 151.

New Mexico, Lake Valley district: Keyes, 586.

New York series: Chadwick, 188.

New York, Ordovician: Cushing, 260.

upper Devonian: Clarke and Luther, 210.

Niagara of west Tennessee: Pate and Bassler, 804.

Ohio, Devonian and Silurian: Stauffer, 1010.

Pennsylvania, Shenandoah group: Stose, 1029.

Pleistocene deposits in northeastern New Eng-
land: Clapp, 203.

Pre-Cambrian: Lane, 639; Van Hise, 1078.

Idaho: Ransome and Calkins, 851.

South Carolina: Sloan, 984.

South Dakota, Black Hills region: O'Harra, 776.

Tennessee, Niagara of western: Pate and
Bassler, 804.

Tertiary and Pleistocene formations, marine, of
Pacific coast: Lee, 648.

Texas, Paleozoic of El Paso and Van Horn
quadrangles: Richardson, 886.

Triassic: Merriam, 729.

Utah, Iron Springs district and Colob Plateau:
Leith and Harder, 657.

Virginia, western: Bassler, 72.

Wyoming: Darton, 267.

Bighorn basin: Washburne, 1109.

Uinta County: Schultz, 951.

Stromatoporoids: Parks, 798.

Stromatoporoids from Hudsons Bay: Parks, 801.

Strontium.

United States (general): 1072.

Study and teaching. *See* Educational.

Stylolites: Hopkins, 515.

Subsidence. *See* Changes of level.

Subterranean water. *See* Underground water.

Sulphur.

Florida: Sellards, 961.

United States (general): 1072.

Wyoming: Beeler, 82.

Cody: Woodruff, 1191.

Surveys.

Oklahoma geological survey: Gould, 391.

State geological surveys: Carney, 178.

U. S. Geological Survey: Henning, 468.

29th annual report: Smith, 986.

Tables of geologic formations. *See under* Strati-
graphic.

Tar sands of Athabasca River: Bell, 86.

Talc.

- New York: Newland, 761.
- South Carolina: Sloan, 984.
- United States (general): 1072.
- Vermont: Perkins, 816, 820.

Tantalum: Baskerville, 70.

Technique.

- Apparatus for instruction in structural geology: Hobbs, 505.
- Barium in rocks, determination of: Langley, 642.
- Bi-quartz wedge plate: Wright, 1198.
- Fossil skeletons, excavating, preparing, and mounting: Hermann, 469.
- Goniometer: Rogers, 905.
- Interference phenomena device: Wright, 1200.
- Measurement of extinction angles: Wright, 1197.
- Projection apparatus: Goldschmidt and Wright, 388.
- Representation of land forms in the physiography laboratory: Tarr and Engeln, 1042.
- Telemeter with micrometer screw adjustment: Wright, 1199.

Tennessee.

Stratigraphic.

- Niagaran of west Tennessee: Pate and Bassler, 804.

Paleontology.

- Chazy Gastropoda: Raymond, 853.

Terraces. See also Shore lines.

General.

- Ice present during formation of glacial terraces: Gulliver, 422.
- Alaska, Controller Bay region: Martin, 711.
- California, Mt. Diablo Range: Anderson, 16.
- Illinois Valley: Barrows, 69.
- Minnesota, Saint Anthony Falls: Sardeson, 933.
- New England high-level terraces: Spencer, 1000.
- North Dakota, Tower quadrangle: Willard and Hibbard, 1159.
- Ohio rock terraces near Columbus: Hubbard, 536.
- southeastern: Hubbard, 532.
- Ontario, shore lines between Georgian Bay and the Ottawa Bay: Hunter, 540.
- Vermont, northwestern: Merwin, 742, 743.

Tertiary.

Stratigraphy.

- Alaska, Controller Bay region: Martin, 711.
- Porecupine River: Kindle, 595.
- southeastern: Wright and Wright, 1202.
- upper Yukon region: Brooks and Kindle, 139.
- Arizona, western: Lee, 648.
- British Columbia, New Westminster and Nanaimo districts: Leroy, 658.
- California, Coalinga district: Arnold and Anderson, 32.
- Mt. Diablo Range: Anderson, 16.
- San Pablo formation: Weaver, 1114.
- Santa Cruz Mountains: Arnold, 28.
- Taylorville region: Diller, 291.
- Colorado, Florissant area: Wheeler, 1129.
- Rangely district: Gale, 372.
- Florida: Sellards, 961.
- Georgia, Altamaha formation: Veatch, 1088.

Tertiary—Continued.

Stratigraphy—Continued.

- Louisiana, Lafayette beds: Harris, 436; McGee, 698.
- Mexico, northeastern: Dumble, 311.
- Nebraska, Elk Point quadrangle: Todd, 1048.
- northeastern: Condra, 245.
- northwestern: Osborn, 791.
- Nevada: Reid, 873.
- Truckee region: Louderback, 679.
- New Mexico, Lake Valley district: Keyes, 586.
- Panama, Isthmus of: Howe, 527, 528.
- St. Croix: Quin, 843.
- South Carolina: Sloan, 984.
- Utah, southern: Leith and Harder, 657.
- Wyoming: Darton, 267.

Paleontology.

- Alabama, Eocene fossil from Claiborne: Aldrich, 9.
- American Eocene horses: Granger, 406.
- British Columbia, Tertiary plants: Penhallow, 812.
- Brittle star from Miocene of Santa Cruz Mountains of California: Arnold, 29.
- California, echinoids: Weaver, 1114.
- Santa Barbara County, Tertiary Mollusca from: Arnold, 24.
- Santa Cruz Mountains: Arnold, 28.
- Cercopithecids from Florissant: Cockerell, 216.
- Colorado, Florissant Elateridae: Wickham, 1144.
- larrid wasp: Rohwer, 907.
- Tenthredinoidea of the Florissant shales: Rohwer, 908, 909.
- Crabs from California: Rathbun, 852.
- Eocene fossils from Alabama and Mississippi: Aldrich, 10.
- Evolution and migrations of mammals: Depéret, 283.
- Fort Union beds vertebrates: Douglass, 297.
- Grass from Miocene of Florissant: Brues and Brues, 149.
- Horse from the Miocene: Loomis, 677.
- Horses from North Dakota and Montana: Douglass, 299.
- Hymenoptera from Florissant: Brues, 147.
- Idaho, oak wood from the Pliocene: Schuster, 952.
- Insecta from Green River and Florissant: Cockerell, 215.
- Kansas fishes: McClung, 694.
- Lizards from the Oligocene: Douglass, 300.
- Mammals of North America, origin and relationship: Grant, 407.
- Miocene mammals, new locality for: Cockerell, 230.
- Miocene Scala from Alaska: Dall, 263.
- Miocene species of *Lymnaea*: Cockerell, 231.
- Montana, liverwort from Fort Union beds: Knowlton, 607.
- Moropus, skull of: Barbour, 60.
- Nebraska, northwestern: Osborn, 791.
- Orthopterous insect from Florissant: Cockerell, 223.
- Florida from Florissant, Colo.: Brues, 148.
- Plants from Florissant, Colo.: Cockerell, 224, 229.

Tertiary—Continued.*Paleontology*—Continued.

- Rhinoceroses from Oligocene and Miocene deposits of North Dakota and Montana: Douglass, 298.
- Rhinocerotidae of the Miocene: Loomis, 677.
- Saskatchewan, Oligocene of Cypress Hills: Lambe, 627.
- Sawfly *Perga coloradensis*: Cockerell, 214.
- Titanotheres from the Eocene and Oligocene: Osborn, 790.
- Trinidad, fossil shells: Guppy, 423.
- Wasp, mellinoid, from Colorado: Rohwer, 910.
- Whales, ancestors of: Gilbert, 383.
- Woods, fossil, from Western States: Platen, 830.

Texas.*Economic.*

- Cement materials near El Paso: Richardson, 889.
- Clays: Ries, 896.
- Rare-earth minerals at Baringer Hill, Llano County: Hess, 481.

Physiographic.

- Gulf coastal plains: Sutherland, 1037.

Stratigraphic.

- Permian horizons: Cummins, 259.
- Salt domes: Harris, 435.
- Trans-Pecos region, Paleozoic formations in: Richardson, 886.

Paleontology.

- Cycad from Cretaceous of Maverick County: Udden, 1064.
- Guadalupean fauna: Girty, 386.
- Labidosaurus hamatus, mounted skeleton of: Brolli, 135.
- Lysorophus, Permian Urodele: Williston, 1171.
- Lysorophus tricarinatus, skull of: Case, 182.
- Pelycosaurian, four-horned, from Permian: Matthew, 721.
- Permian amphibians: Williston, 1173.
- Permian vertebrates: Leuchs, 659.
- Permian vertebrate fossils, localities and horizons: Cummins, 259.
- Tracks in the Del Rio clay: Udden, 1063.
- Woods, fossil: Platen, 830.
- Mineralogy.*
- Baringer Hill pegmatite dike: Hess, 476.
- Calcite: Schaller, 942.
- Powellite: Schaller, 941.
- Rare-earth minerals at Baringer Hill, Llano County: Hess, 481.

Text-books.

- Mineralogy simplified: Ernst and Brown, 332.
- Minerals, pocket handbook of: Butler, 158.
- Physical geography: Davis, 273.

Thermal waters.

- Mexico, Guanajuato: Villafaña, 1091.

Thorium: Baskerville, 70.**Tides,** influence upon earth's rotation: Chamberlin, 193.**Tin.**

- Alaska, Seward Peninsula: Knopf, 602, 604.
- Nova Scotia: Piers, 828.
- New Ross: Faribault, 344; Young, 1209.
- South Carolina: Sloan, 984.
- United States (general): 1072.
- Washington, Spokane: Collier, 240.

Titanium.

- United States (general): 1072.

Titanotheres, evolution of: Osborn, 788.**Titanotheres** from the Eocene and Oligocene: Osborn, 790.**Torreya,** mid-Cretaceous species of: Berry, 99.**Trap.**

- New York: Newland, 761.

Tracks, fossil, in the Del Rio Clay, Texas: Udden, 1063.**Triassic.***Stratigraphy.**General.*

- Formations: Merriam, 729.
- Alaska, upper Yukon region: Brooks and Kindle, 139.
- British Columbia, New Westminster and Nanaimo districts: Leroy, 658.
- California, Taylorsville region: Diller, 291.
- Connecticut: Schuchert, 950.
- New Jersey, Passaic quadrangle: Darton *et al.*, 269.
- Mexico, Zacatecas: Amador, 14.
- Pennsylvania, Newark series: Wherry, 1133.
- South Carolina: Sloan, 984.
- Wyoming: Darton, 267.

Paleontology.

- Dinosaurs: Huene, 537.
- Hallopus victor: Huene and Lull, 538.
- Ichthyosauria: Merriam, 729, 731.

Trilobites. *See* Crustacea.**Trinidad.***Economic.*

- Cement materials of Naparima: Guppy, 423.
- Mineral resources: Cadman, 162.

Paleontology.

- Fossil shells from Comparo Road: Guppy, 423.

Tripoli.

- Missouri, Seneca: Siebenthal and Mesler, 980.
- Oklahoma: Gould, 394; Gould *et al.*, 395.
- United States (general): 1072.

Tungsten.

- Arizona, Mohave County: Schrader, 948.
- California, Raymond: Hess, 480.
- Canada: Walker, 1101.
- Idaho, Cœur d'Alene district: Auerbach, 44 Rowe, 920.
- Nevada, White Pine County: Weeks, 1117.
- Nova Scotia: McCallum, 692.
- United States (general): 1072.

Turquoise.

- New Mexico: Cowan, 250.
- Burro Mountains: Zalinski, 1212.

Turtles. *See* Reptilia.**Unconformities.**

- New Mexico, Estancia Plains: Keyes, 588.
- Pennsylvania, western: Butts, 160.

Underground water (general). *See also* Geysers, Mineral waters, and Thermal waters. *For regional, see under the various States.**General:* Lane, 637.

- Artesian flows, controlling factors of: Fuller, 369.
- Assay of mine waters: Lane, 634.
- Field assay of mine waters: Lane, 634.
- Investigation, present trend of: Kemp, 584.

Underground water (general)—Continued.

- Meteoric, depth of: Kemp, 584.
 Meteoric and magmatic: Hixon, 501; Kemp, 582; Rickard, 893.
 Mine waters, composition and value: Lane, 635.
 Mineral wells and springs: Clarke, 205.

Upper Silurian. *See* Silurian.

Uranium.

- Colorado, Routt County: Gale, 371.

Uranium and geology: Joly, 566.

Utah.*Economic.*

- Antimony in southern Utah: Richardson, 887.
 Fortuna mine, Bingham: Zalinski, 1213.
 Garfield copper mill: Brinsmade, 129.
 Honarine mine, Stockton: Wilson, 1177.
 Iron Springs district: Leith and Harder, 657.
 Molybdenum deposits: Hess, 478.
 Newhouse and vicinity: Jensen *et al.*, 548.
 Park City, Daly-West mine: Brinsmade, 127.
 Petroleum in southern Utah: Richardson, 888.
 Phosphate deposits: Weeks, 1118.
 Rio San Juan: Lakes, 624.
 Stateline district: 1214.
 Stockton district: Brinsmade, 128.
 Tintic district: Brinsmade, 126.

Dynamic and structural.

- Wind erosion in the plateau country: Cross, 255.

Physiographic.

- Lakes of the Uinta Mountains: Atwood, 38.

Stratigraphic.

- Beaver Valley: Lee, 647.
 Cambrian formations: Walcott, 1096, 1100.
 Iron Springs district: Leith and Harder, 657.
 Jefferson limestone: Kindle, 596.
 Newhouse and vicinity: Jensen *et al.*, 548.

Paleontology.

- Jefferson limestone fauna: Kindle, 596.
 Silurian fauna: Kindle, 594.

Petrology.

- Iron Springs district: Leith and Harder, 657.
 Newhouse and vicinity: Jensen *et al.*, 548.

Mineralogy.

- Anhydrite, new occurrence of: Lindgren, 667.
 Topaz-bearing rhyolite of the Thomas Range: Patton, 805.

Underground water.

- Beaver Valley: Lee, 647.

Vanadium.

- Colorado, Routt County: Gale, 371.
 Colorado, Telluride: Zalinski, 1211.
 United States (general): 1072.

Vermes. *See also* Annelida.

- Palaeocampa anthrax from Mazon Creek: Fritsch, 366.

Vermont.*General.*

- State geologist's report, 1907-1908: Perkins, 815.

Economic.

- Granites: Dale, 261.
 Mineral industries: Perkins, 816.
 Talc and soapstone: Perkins, 820.

Stratigraphic.

- Cambrian rocks: Perkins, 821.
 Chittenden County: Perkins, 819.
 Franklin County: Perkins, 818.
 Glacial Lake Memphremagog: Hitchcock, 496.

Vermont—Continued.*Stratigraphic*—Continued.

- Glacial shore-lines: Merwin, 742, 743.
 Hanover quadrangle: Hitchcock, 495.
 Newport, Troy, and Coventry: Richardson, 885.
 Swanton, geology of: Edson, 319.

Paleontology.

- Cetacea from Pleistocene: Perkins, 817.
 Chazy Gastropoda: Raymond, 853.
 Strephochetus: Seely, 958.

Vertebrata (general). *See also* Amphibia, Aves, Mammalia, Pisces, and Reptilia.*General.*

- American Society of Vertebrate Paleontology: Loomis, 676.
 Evolution through rectigradations and fluctuations: Osborn, 789.
 Fossil skeletons, excavating, preparing, and mounting: Hermann, 469.
 Mammalian migrations between Europe and North America: Matthew, 720.
 Types of vertebrates in American Museum of Natural History: Hussakof, 543.
 Alaska, Pleistocene vertebrates: Giltmore, 385.
 Canada: Lambe, 626.
 Kansas: Sternberg, 1013.
 Mexico, Vallee de Oaxaca: Conzatti, 246.
 Pennsylvania: Raymond, 854.
 Saskatchewan, Cypress Hills: Lambe, 627.

Virginia.*Economic.*

- Cement materials: Bassler, 72.
 Mineral resources: Froehling and Robertson, 367.
 Russell Fork coal basin: Stone, 1023.

Paleontology.

- Miocene cypress swamp: Berry, 102.

Mineralogy.

- Minerals: Froehling and Robertson, 367.

Volcanic ash.

- Montana: Rowe, 913.
 Oklahoma: Gould *et al.*, 395.

Volcanoes.*General.*

- Conditions of eruptions: Perret, 823.
 Curves illustrating coincident volcanic, seismic, and solar phenomena: Huntington, 541.
 Volcanic gases: Clarke, 205.
 Volcanic waters: Hastings, 443.
 Alaska, Bogoslof Islands: Smith, 990.
 Bogoslof Island, volcanic eruptions: Eakle, 313.
 Bogoslof Volcano: Jaggar, 546.
 Guatemala: Anderson, 19.
 Hawaii, Kilauea in action: Hitchcock, 497.
 Mexico: Dannenberg, 266.
 Colima: Köhler, 609.
 Colima, Toluca, and Popocatepetl: Hovey, 524, 525.
 Mount Pelé: Anderson, 18.
 after its eruptions: Lacroix, 617.
 eruption of: Heilprin, 461.
 present condition: Hovey, 521.
 Oregon, Mount Hood: Sylvester, 1039.
 St. Vincent, Soufrière: Anderson, 20.

Watchung trap: Fenner, 348, 349.

Washington.

General.

Okanogan Mountains: Evans, 334.

Economic.

Copper deposits of Lake Osoyoos: Evans, 336.

Tin ore at Spokane: Collier, 240.

Physiographic.

Fjords of Puget Sound: Upham, 1074.

Stratigraphic.

Correlation of international strata: Evans, 335.

Petrology.

Minette, apatitic: Ransome, 850.

Water, function of: McGee, 697.

Water, underground. *See* Underground water.

Water-planes, ancient, and crustal deformation: Robinson, 904.

Water-planes in Lake Michigan basin: Goldthwait, 389.

Weathering.

Dolomite, decomposition: Knight, 600.

Rocks, alteration of: Steidtmann, 1012.

decomposition of: Clarke, 205.

West Indies. *See the various islands.*

West Virginia.

Economic.

Coal: Alderson, 8.

Coal fields: Stoeck, 1021.

Coal report: White, 1139.

Map of coal, oil, gas, and limestone areas: 1125.

Limestone: Grimsley, 416.

Kenova quadrangle: Phalen, 826.

Stratigraphic.

Accident and Grantsville quadrangles: Martin, 712.

Wind work.

Arid monadnocks: Keyes, 589.

Blowing of soils: Reagan, 858.

Coastal drift sands: Olsson-Seffer, 779.

Erosion in the plateau country: Cross, 255.

Intermont plains of the arid region: Keyes, 587.

Lake basins of Mexican tableland: Keyes, 591.

Sand waves: Willey, 1162.

Wisconsin.

General.

Water powers: Smith, 988.

Economic.

Etna Hill ores: Wheeler, 1128.

Platte River geology: Mathey, 715.

Zinc district: Delestry, 281; Mathey, 715.

Physiographic.

Algonquin beach: Goldthwait, 390.

Baraboo region: Mansfield, 704, 705.

Peneplain of north-central Wisconsin: Davis, 274.

Paleontology.

Devonian plants: Penhallow, 810.

Petrology.

Igneous rocks of Wisconsin: Weidman, 1120.

Wulfenite.

Utah: Hess, 478.

Wyoming.

Economic.

Bighorn basin gas field: Washburne, 1109.

Coal mines of southern Wyoming: Parsons, 803.

Diamondville coal field: Shurick, 977.

Iron ore at Sunrise: Vallat, 1076, 1077.

Labarge oil field: Schultz, 951.

Mines in 1907: Beeler, 82.

Phosphate deposits: Weeks, 1118.

South Pass gold mining district: Beeler, 83.

Sulphur deposits at Cody: Woodruff, 1191.

Dynamic and structural.

Disruption of rock by lightning: Barnett, 66.

Stratigraphic.

Jefferson limestone: Kindel, 596.

Paleozoic and Mesozoic of central Wyoming: Darton, 267.

Pre-Cambrian rocks in southeastern Wyoming: Blackwelder, 105.

Paleontology.

Allosaurus: Matthew, 718.

Insects from Tertiary deposits: Cockerell, 215.

Jefferson limestone fauna: Kindel, 596.

Woods, fossil: Platen, 830.

Yukon.

General.

Bibliography of geology and mining industry: Gwillim, 425.

Conrad and Whitehorse districts: Cairnes, 165.

Mining and mining methods: Paré, 796.

Whitehorse and Tantalus districts: Cairnes, 164.

Economic.

Conrad and Whitehorse districts: Cairnes, 165.

Klondike, geology of: Everett, 339.

White Horse copper deposits: Elmendorf, 325; Rickard, 894.

Zinc.

Arizona, Mohave County: Schrader, 948.

Colorado, Montezuma district: Ritter, 899, 901.

Idaho, Cœur d'Alene district: Ransome and Calkins, 851.

Illinois, Millbrig sheet: Grant and Perdue, 408.

Kansas, Joplin district: Ruhl, 924.

Mexico, Santa Barbara: Rice, 878.

Missouri: Buckley, 151; Finlay, 352; Keyes, 590.

Joplin district: Ruhl, 924.

southwestern: Garrison, 375; Ruhl, 923.

New Jersey, Franklin Furnace quadrangle: Spencer *et al.*, 997.

New Mexico, Magdalena: Argall, 22.

Silver City: Brinsmade, 131.

Oklahoma: Gould *et al.*, 395.

Miami district: Ruhl, 924.

northeastern: Siebenthal, 979.

United States (general): 1072; Ingalls, 550.

Wisconsin, Etna Hill: Wheeler, 1128.

Platte River district: Delestry, 281; Mathey, 715.

Zircon.

United States (general): 1072.



LISTS.

CHEMICAL ANALYSES.

[The numbers refer to entries in the bibliography.]

- | | |
|---|--|
| Actinolite, 1106. | Cookose, 205. |
| Adamellose, 205, 327. | Copper ore, 1202. |
| Adirondackiase, 205. | Cortlandite, 205. |
| Akerose, 205, 775. | Cortlandtose, 205. |
| Alaskose, 205. | Cumberlandite, 1108. |
| Albanose, 205. | Custerose, 205. |
| Amber, 513. | Dacite, 205, 657. |
| Andesite, 205, 265, 657. | Danburite, 604. |
| Andose, 205, 775. | Delessite, 572. |
| Anorthosite, 205. | Deweylite, 572. |
| Anthophyllite, 337. | Diabantite, 572. |
| Antigorite, 572. | Diabase, 205, 269, 661, 851, 1181. |
| Aphrodite, 572. | Diorite, 205, 304, 327, 775. |
| Argentite, 1081, 1082. | Dolerite, 265. |
| Arkansose, 205. | Diopside, 12. |
| Arkite, 205. | Dolomite, 205, 600, 809, 928. |
| Augite, 205, 662. | Dunite, 205. |
| Auvergnose, 205, 775. | Dunose, 205. |
| Baltimoriase, 205. | Eclogite, 205. |
| Bandose, 205. | Epidosite, 205. |
| Barite, 205. | Euctolite, 205. |
| Basalt, 205, 265, 209, 662. | Essexite, 304. |
| Basanite, 205. | Essexose, 205, 775. |
| Bauxite, 205, 1072, 1089. | Feldspar, 120, 269, 662. |
| Beebachose, 205. | Fire clay, 896. |
| Beemerose, 205. | Fuller's earth, 961, 984. |
| Belcherose, 205. | Gabbro, 205, 327, 1107 |
| Bergenose, 205. | Garnet, 1202. |
| Bog ore, 205. | Gedrite, 337. |
| Bowenite, 572. | Gehlenite, 1201. |
| Brine, 437. | Genthite, 572. |
| Calaverite, 205. | Gibbsite, 205. |
| Camptenose, 205. | Glass sand, 180. |
| Camptonite, 205, 1187. | Glauconite, 205, 984. |
| Canadase, 205. | Glaucofane schist, 30, 205. |
| Carnotite, 205. | Gneiss, 2, 3, 205, 269, 997. |
| Cassellase, 205. | Gold, native, 205. |
| Casselose, 205. | Granite, 74, 205, 262, 816, 984, 1012. |
| Cecilose, 205. | Granodiorite, 304, 327. |
| Celadonite, 205, 572. | Granodiorite-porphry, 327. |
| Cement, 152. | Graywacke, 516. |
| Cement rock, 72, 163. | Greenalite, 205. |
| Chalk rock, 245. | Gypsum, 205, 913. |
| Champlainiase, 205. | Gyrolite, 114. |
| Chert, 205. | Harzose, 205, 327. |
| Chotose, 205. | Heronite, 205. |
| Chromite, 205. | Hessose, 1107. |
| Clay, 35, 74, 120, 152, 163, 205, 269, 355, 600, 675, 816, 896, 911, 984. | Highwoodose, 205. |
| Coal, 55, 118, 119, 157, 205, 284, 321, 506, 711, 712, 976, 1023, 1067, 1139. | Hillebrandite, 1201. |
| | Hornblende, 205. |
| | Hortonolite, 1106, 1108. |

- Houghite, 572.
 Hulsite, 606.
 Ijolite, 205.
 Iridium, native, 205.
 Iron, native, 205.
 Iron ore, 156, 186, 205, 269, 321, 494, 690, 760, 762, 825,
 835, 929, 992, 993, 997, 1022, 1072, 1175.
 Janeirose, 205.
 Jollyte, 572.
 Judithose, 205.
 Kaersutite, 1110.
 Kallerudose, 205.
 Kaolin, 5, 120, 896, 1090.
 Kedabekase, 205.
 Kentallenose, 205.
 Krennerite, 205.
 Kulaite, 205.
 Kupferite, 12.
 Kyschtyrnase, 205.
 Kyschtyrnite, 205.
 Lampadite, 205.
 Lamprophyre, 205.
 Lassenose, 205, 775.
 Laterite, 205.
 Latite, 205.
 Laurdalose, 205.
 Laurvikose, 205.
 Leucitite, 205.
 Lherzolite, 205.
 Lignite, 145, 205, 1048.
 Limburgite, 265.
 Limburgose, 205.
 Limestone, 72, 74, 152, 155, 163, 205, 321, 515, 657, 712,
 776, 809, 835, 984, 997.
 Limestone, magnesian, 205.
 Liparose, 205.
 Litchfieldite, 205.
 Loess, 205.
 Lujavrose, 205.
 Madupite, 205.
 Madupose, 205.
 Magdeburgose, 205.
 Magnesite, 482.
 Magnetite, 434.
 Malignose, 205.
 Marble, 268.
 Maricose, 205.
 Marl, 896, 928, 984.
 Meerschau, 1016.
 Meteorites, 530, 531, 1044, 1046.
 Meymacite, 1102.
 Miaskose, 205.
 Mica schist, 205.
 Minette, 205, 850.
 Missouriite, 205.
 Molybdite, 941.
 Monazite, 205.
 Monchiquite, 205.
 Monchiquose, 205.
 Monzanose, 327.
 Monzonite, 205.
 Monzonite porphyry, 1012.
 Monzonose, 205.
 Mud, 205.
 Nickel silicates, 205.
 Nordmarkite, 205, 304.
 Norite, 205.
 Olivine gabbro, 327.
 Ormeose, 205.
 Orthoclase gabbro, 327.
 Paigeite, 604, 606.
 Peat, 205.
 Pegmatite, 205.
 Peridotite, 73, 205, 265.
 Petroleum, 51, 205, 1072.
 Petzite, 205.
 Phlegrose, 205.
 Phonolite, 205.
 Phosphate, 205, 984.
 Picrite, 205, 265.
 Picrofluite, 572.
 Pilolite, 572.
 Platinum, native, 205.
 Porphyry, 205, 304.
 Powellite, 941.
 Proustite, 1081, 1082.
 Prowersose, 205.
 Psilomelane, 205.
 Pulaskite, 120, 304.
 Pulaskose, 205.
 Pyrolusite, 205.
 Pyroxenite, 205.
 Quartz diorite, 205.
 Quartz porphyry, 205.
 Quartzite, 205.
 Randose, 205.
 Red clay, 205.
 Rhyolite, 205, 657.
 Rhyolitic tuff, 291, 805.
 Rock salt, 205.
 Sand, 205.
 Sandstone, 205.
 Saponite, 572.
 Saxinite, 205.
 Schist, 205.
 Serpentine, 30, 205, 304.
 Shale, 152, 205, 776.
 Shonkinite, 205.
 Shonkinose, 205.
 Shoshonose, 205, 327.
 Silver ore, 359.
 Slate, 205, 984.
 Spinel, 205.
 Spinellite, 205.
 Spurrite, 1201.
 Steatite, 205.
 Stephanite, 361.
 Succinite, 513.
 Syenite, 120, 205, 760, 851, 1187.
 Sylvanite, 205.
 Tehamose, 205.
 Theralite, 205.
 Thermophyllite, 572.
 Tin ore, 240.
 Tonalite, 205.
 Tinguaitite, 205, 304, 1187.
 Tonalose, 205, 327.
 Topaz, 604, 805.
 Toscanose, 205.
 Trachyte, 205, 657.
 Tremolite, 12.
 Tripoli, 980.
 Tungstite, 1102.
 Tuolumnose, 205.

Umptekose, 205.
 Unakite, 205.
 Uralose, 205.
 Uraninite, 205.
 Urtite, 205.
 Urtose, 205.
 Uvaldose, 205.
 Vaalose, 205.
 Varvicite, 205.
 Venanzite, 205.
 Venanzose, 205.
 Viezenose, 205.

Volcanic ash, 1072.
 Water, 205, 601, 633, 634, 689, 928, 962, 979, 1066, 1104.
 Webskyite, 572.
 Websterite, 205.
 Wehrlite, 205.
 Wehrlose, 205.
 Wyomingite, 205.
 Wyomingose, 205.
 Xylotile, 572.
 Yellowstonose, 775.
 Zinnwaldite, 604.

MINERALS DESCRIBED.

Achrematite, 70.
 Acmite, 205.
 Actinolite, 205, 1106.
 Ægirite, 205.
 Ænigmatite, 205.
 Agate, 794.
 Åkermannite, 205.
 Albite, 205.
 Alexandrite, 70.
 Allanite, 205, 481.
 Almandite, 205.
 Amphibole, 1110.
 Analcite, 205.
 Anatase, 205.
 Andalusite, 205.
 Andradite, 205.
 Anglesite, 314, 346.
 Anhydrite, 674.
 Anorthite, 205.
 Anorthoclase, 205.
 Anthophyllite, 205, 337.
 Antigorite, 572.
 Apatite, 205.
 Aphrodite, 572.
 Apophyllite, 794.
 Aragonite, 132, 205.
 Arcanite, 314.
 Arfvedsonite, 205.
 Argentite, 1081, 1082.
 Auerlite, 70.
 Augite, 205, 604.
 Axinite, 604.
 Barite, 346.
 Barkevikite, 205.
 Benitoite, 26, 109, 610, 681, 906, 1146.
 Bertrandite, 346.
 Beryl, 70, 205, 710.
 Beryllonite, 70.
 Biotite, 205.
 Bixbyite, 805.
 Bornite, 981.
 Bowenite, 572.
 Brochantite, 314.
 Brookite, 205.
 Calamine, 132, 346.
 Calcite, 132, 205, 346, 942.
 Caledonite, 314.
 Cancrinite, 205.
 Carnotite, 466.
 Cassiterite, 205, 604.
 Celadonite, 572.
 Celestite, 314.

Cerussite, 132.
 Chabazite, 794.
 Chalcocite, 981.
 Chalcopyrite, 132, 981.
 Chloritoid, 205.
 Chromite, 205.
 Chrysoberyl, 70.
 Clinocllore, 1106.
 Columbite, 70.
 Cordierite, 205, 337.
 Corundum, 205.
 Crocidolite, 205.
 Cummingtonite, 205.
 Cyanite, 205.
 Cyrtolite, 481.
 Danalite, 70.
 Danburite, 604.
 Delessite, 572, 575.
 Deweylite, 572.
 Diabantite, 572.
 Diamond, 205.
 Diopside, 205.
 Dolomite, 132, 205.
 Dumortierite, 205.
 Elæolite, 205.
 Enargite, 314, 981.
 Enstatite, 205.
 Eosite, 70.
 Epidote, 205.
 Epsomite, 346.
 Eucryptite, 205.
 Fayalite, 205.
 Fergusonite, 70, 481.
 Fibrolite, 205.
 Fluorite, 205, 604.
 Forsterite, 205.
 Gadolinite, 481.
 Gahnite, 358.
 Galena, 132.
 Garnet, 805.
 Gedrite, 337.
 Gehlenite, 205, 1201.
 Genthite, 572.
 Glaucophane, 205.
 Graphite, 205.
 Greenockite, 132.
 Grossularite, 205.
 Gyrolite, 114.
 Hatchettolite, 70.
 Haunite, 205.
 Hedenbergite, 205.
 Hematite, 132, 205, 805.

- Hercynite, 205.
 Herderite, 70.
 Hillebrandite, 1201.
 Hornblende, 205.
 Hortonolite, 1106, 1108.
 Houghite, 572.
 Hulsite, 604, 606.
 Hydrozincite, 132.
 Hypersthene, 205.
 Ilmenite, 205.
 Ilsemanite, 70.
 Ilvaite, 834.
 Iolite, 205.
 Jadeite, 205.
 Jollyte, 572.
 Kaersutite, 1110.
 Kaliophilite, 205.
 Kaolinite, 205, 745.
 Kyanite, 205.
 Lawsonite, 205.
 Leadhillite, 346.
 Lepidolite, 205.
 Leucite, 205.
 Limonite, 132.
 Linarite, 314, 346.
 Loranskite, 70.
 Ludwigite, 604.
 Magnesite, 205.
 Magnetite, 205.
 Malachite, 132.
 Marcasite, 132.
 Marialite, 205.
 Meerschauum, 1014, 1016.
 Meionite, 205.
 Melanite, 205.
 Melilite, 205.
 Meymacite, 1102.
 Microcline, 205.
 Microlite, 70.
 Mimetite, 346.
 Monticellite, 205.
 Monazite, 70, 205.
 Molybdenite, 70.
 Molybdite, 70.
 Muscovite, 205.
 Nephelite, 205.
 Neptunite, 1146.
 Noselite, 205.
 Octahedrite, 205, 346.
 Olivenite, 346.
 Opal, 205.
 Orangite, 70.
 Orpiment, 346.
 Orthite, 205.
 Orthoclase, 205, 362.
 Palgeite, 604, 606.
 Paragonite, 205.
 Pectolite, 794.
 Perovskite, 205.
 Phacelite, 205.
 Phenacite, 70, 346.
 Phlogopite, 205.
 Picrofluite, 572.
 Piedmontite, 205.
 Pilolite, 572.
 Polycrase, 481.
 Proustite, 1081, 1082.
 Pseudobrookite, 205.
 Pyrite, 132, 205, 981.
 Pyrochlore, 70.
 Pyrolusite, 132.
 Pyrope, 205.
 Pyroxene, 604.
 Pyrrhotite, 205.
 Quartz, 132, 205, 604, 1131.
 Realgar, 346.
 Reyerite, 114.
 Riebeckite, 205.
 Rutile, 205, 346.
 Samarskite, 70.
 Saponite, 572.
 Scapolite, 205.
 Scheelite, 604.
 Scolecite, 794.
 Serpentine, 205.
 Siderite, 205.
 Sillimanite, 205.
 Smithsonite, 132.
 Sodalite, 205.
 Spessartite, 205.
 Sphalerite, 132, 346, 604.
 Spinel, 205, 358.
 Spodumene, 205.
 Spurrite, 1201.
 Stannite, 604.
 Staurolite, 205.
 Stephanite, 361.
 Stibnite, 314.
 Tale, 205.
 Tantalite, 70.
 Thermophyllite, 572.
 Thorianite, 70.
 Thorite, 70.
 Titanite, 205.
 Topaz, 205, 805.
 Tourmaline, 107, 205, 604.
 Tremolite, 205, 604.
 Tridymite, 205.
 Tungstite, 1102.
 Turquoise, 250.
 Uranothorite, 70.
 Uvarovite, 205.
 Vesuvianite, 205, 604.
 Vivianite, 346.
 Webskyite, 572.
 Willemite, 674.
 Wolframite, 604.
 Wollastonite, 205.
 Wulfenite, 70.
 Xenotime, 205.
 Xylotile, 572.
 Yttrotantolite, 70.
 Zircon, 205.
 Zoisite, 205.

ROCKS DESCRIBED.

- Adamellose, 327.
 Akerose, 775.
 Alaskite, 57.
 Amphibolite, 495, 760.
 Analcite, 205, 291, 558, 560, 657, 775, 1202.
 Andesite-diorite, 205.
 Andose, 775.
 Anorthosite, 760.
 Aplite, 57.
 Arkose, 662.
 Auvergnose, 662, 775, 1196.
 Basalt, 205, 269, 291, 560, 662, 885, 1202.
 Biotite latite, 56.
 Bluestone, 93.
 Bostonite, 56, 1187.
 Breccia, 1187.
 Camptonite, 1187.
 Camptonose, 662.
 Chert, 205.
 Cumberlandite, 561, 1106, 1108.
 Dacite, 56, 657, 775.
 Diabase, 74, 205, 269, 654, 661, 662, 802, 851, 885, 1181.
 Diorite, 57, 75, 205, 304, 558, 775, 885.
 Dolerite, 558.
 Dolomite, 205.
 Essexite, 304, 775.
 Essexose, 775.
 Evergreenite, 898.
 Flint, 205.
 Gabbro, 74, 205, 327, 561, 654, 760, 1107, 1196.
 Gneiss, 56, 74, 205, 269, 760, 802, 997.
 Granite, 56, 57, 74, 205, 269, 304, 495, 560, 654, 760, 802, 885, 997, 1012.
 Granitelle, 558.
 Granodiorite, 291, 304, 327.
 Granodiorite porphyry, 327.
 Greenstone, 1202.
 Gypsum, 205.
 Hartzose, 327.
 Hessose, 327, 1107.
 Lamprophyre, 851.
 Lassenose, 775.
 Laurvikose, 775.
 Lermondose, 73, 74.
 Leucite, 205.
 Limestone, 205, 558, 654, 760, 997.
 Magnetite, 269.
 Mainare, 73.
 Mica schist, 205.
 Micropegmatite, 318.
 Minette, 850.
 Monzanose, 327.
 Monzonite, 205, 851.
 Monzonite porphyry, 1012.
 Nephelite syenite, 1187.
 Nordmarkite, 304.
 Olivine gabbro, 327.
 Ornose, 662.
 Orthoclase gabbro, 327.
 Palisadose, 662.
 Pegmatite, 57, 74, 269, 442, 802, 997.
 Peridotite, 73, 616, 805, 945.
 Porphyry, 56, 57, 205, 304.
 Pulaskite, 304.
 Quartz-bearing diorite, 327.
 Quartzite, 205, 558, 654, 760.
 Rhodose, 561, 1106.
 Rhyolite, 205, 291, 558, 560, 654, 657, 805.
 Schist, 205, 654, 802.
 Serpentine, 269, 291, 304.
 Shale, 205.
 Shoshonose, 327.
 Shoshonose-monzonose-akerose-andose, 775.
 Slate, 205, 317.
 Syenite, 205, 558, 760, 851, 1187.
 Tinguaita, 1187.
 Tonalose, 327, 1196.
 Trachyte, 558, 657.
 Trachyte-syenite, 205.
 Trap, 654.
 Washingtonose, 850.
 Yellowstonose, 775.

GEOLOGIC FORMATIONS DESCRIBED.

- Abbeville-York zone, Archean and Paleozoic?, South Carolina: Sloan, 984.
 Accabee gravels, Pleistocene, South Carolina: Sloan, 984.
 Adaville formation, Cretaceous, Wyoming: Schultz, 951.
 Admire formation, Carboniferous, Kansas: Haworth and Bennett, 447.
 Alexandrian formation, middle Silurian, Illinois: Savage, 936, 937.
 Allegheny formation, Carboniferous, Maryland: Martin, 712.
 Allegheny formation, Carboniferous, Ohio, Kentucky, and West Virginia: Phalen, 826.
 Allegheny formation, Carboniferous, Pennsylvania: Ashley, 36.
 Allegheny series, Carboniferous, West Virginia: White, 1139.
 Allen limestone, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
 Almy formation, Tertiary, Wyoming: Schultz, 951.
 Altamaha formation, Pliocene, Georgia: Veatch, 1088.
 Altamaha grit, Tertiary, Georgia: McCallie, 689.
 Altamont limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
 Amerieus limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
 Ames limestone, Carboniferous, Ohio: Griswold, 418.
 Ames limestone, Carboniferous, Pennsylvania: Ashley, 36.
 Amsden formation, Carboniferous, Wyoming: Darton, 267.
 Anderdon limestone, Silurian, Michigan: Sherzer and Grabau, 968.
 Anderson-Spartanburg zone, Archean, South Carolina: Sloan, 984.
 Animikie, pre-Cambrian, Canada: Van Hise, 1078.

- Antietam sandstone, Cambrian, Virginia: Bassler, 72.
- Antrim shale, Devonian, Michigan: Russell and Leverett, 928.
- Apison shale, Cambrian, Georgia: McCallie, 690.
- Arikaree formation, Cretaceous, Nebraska: Condra, 245.
- Arikaree ? formation, Tertiary, Nebraska: Todd, 1048.
- Arlington formation, Carboniferous, California: Diller, 291.
- Arnheim (Warren) formation, Ordovician, Tennessee: Pate and Bassler, 804.
- Ashley-Cooper phase, Eocene-Oligocene, South Carolina: Sloan, 984.
- Aspen formation, Cretaceous, Wyoming: Schultz, 951.
- Athens formation, Ordovician, Virginia: Bassler, 72.
- Austin chalk, Cretaceous, Texas: Ries, 896.
- Avenal sandstones, Eocene, California: Anderson, 16.
- Bandera shales, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Bandera shale, Carboniferous, Oklahoma: Siebenthal, 979.
- Bangor limestone, Carboniferous, Georgia: McCallie, 689, 690.
- Barnwell phase, Eocene, South Carolina: Sloan, 984.
- Batesville sandstone, Carboniferous, Arkansas: Branner, 120.
- Battle quartzite, Cambrian, Maine: Bastin, 74.
- Bays formation, Ordovician, Virginia: Bassler, 72.
- Bearpaw shale, Cretaceous, Montana: Fisher, 354.
- Bear River formation, Cretaceous, Wyoming: Schultz, 951.
- Beaver limestone, Cambrian, Georgia: Watson, 1113.
- Bedrock complex, Nevada: Louderback, 679.
- Beech River formation, Silurian, Tennessee: Pate and Bassler, 804.
- Beekmantown limestone, Ordovician, Pennsylvania: Stose, 1029.
- Beekmantown limestone, Ordovician, Vermont: Perkins, 819.
- Bella shales, Devonian, New Mexico: Keyes, 586.
- Benton formation, Cretaceous, Wyoming: Darton, 267.
- Benton group, Cretaceous, Nebraska: Condra, 245; Todd, 1048.
- Benwood limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Berea sandstone, Carboniferous, Michigan: Russell and Leverett, 928.
- Berenda limestone, Devonian, New Mexico: Keyes, 586.
- Bethany Falls limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
- Bulger limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Blacknell sandstone, Jurassic, California: Diller, 291.
- Big Cottonwood formation, Cretaceous, Minnesota: Sardeson, 934.
- Bighorn limestone, Ordovician, Wyoming: Darton, 267.
- Birdsville formation, Carboniferous, Kentucky: Fohs, 360.
- Black Creek phase, Cretaceous, South Carolina: Sloan, 984.
- Black Mingo phase, Eocene, South Carolina: Sloan, 984.
- Black River limestone, Ordovician, New York: Cushing, 260.
- Black River limestone, Ordovician, Vermont: Perkins, 819.
- Blacksmith formation, Cambrian, Utah: Walcott, 1100.
- Blacksmith formation, Cambrian, Utah and Idaho: Walcott, 1096.
- Blacksville limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Bliss sandstone, Cambrian, Texas: Richardson, 886.
- Bloomington formation, Cambrian, Utah: Walcott, 1100.
- Bloomington formation, Cambrian, Utah and Idaho: Walcott, 1096.
- Bob formation, Silurian, Tennessee: Pate and Bassler, 804.
- Bohicket marl-sands, Pleistocene, South Carolina: Sloan, 984.
- Bohio formation, Oligocene, Panama: Howe, 527.
- Bolin Creek sandstone, Cambrian, Missouri: Marbut, 706.
- Bolivar fire clay, Carboniferous, Pennsylvania: Ashley, 36.
- Bonaventure conglomerate, Devonian and Carboniferous, Quebec: Clarke, 208.
- Boone formation, Carboniferous, Arkansas: Branner, 120.
- Boone formation, Carboniferous, Kansas: Schrader, 947.
- Boone formation, Carboniferous, Oklahoma: Siebenthal, 979.
- Bosworth formation, Cambrian, British Columbia: Walcott, 1096, 1100.
- Bow River group, Cambrian, British Columbia: Walcott, 1095, 1096.
- Bradford schist, Ordovician, Vermont: Richardson, 885.
- Brier Creek phase, Oligocene, South Carolina: Sloan, 984.
- Brigham formation, Cambrian, Utah: Walcott, 1100.
- Brigham formation, Cambrian, Utah and Idaho: Walcott, 1096.
- Britannia group, Devonian-Carboniferous, British Columbia: LeRoy, 658.
- Brownsport beds, Silurian, Tennessee: Pate and Bassler, 804.
- Browntown sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Brunswick formation, Triassic, New Jersey: Darton *et al.*, 269.
- Buena Vista shale, Ordovician, Virginia: Bassler, 72.
- Buffalo Creek sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Burches Ferry phase, Cretaceous, South Carolina: Sloan, 984.
- Burgen sandstone, Ordovician, Oklahoma: Siebenthal, 979.
- Burgoon sandstone, Carboniferous, Pennsylvania: Butts, 160.

- Burke formation, pre-Cambrian, Idaho: Ransome and Calkins, 851; Rowe, 920.
- Burlingame limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
- Burlington limestone, Mississippian, Missouri: Buehler, 152; Marbut, 706; Rowley, 921.
- Butler sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Buxton formation, Carboniferous, Kansas: Schrader, 947.
- Buxton formation, Carboniferous, Oklahoma: Siebenthal, 979.
- Byram gneiss, pre-Cambrian, New Jersey: Darton *et al.*, 269; Spencer, 1005.
- C  che Creek series, Carboniferous or Devonian, Yukon: Cairnes, 165.
- Calaveras group, Carboniferous, California: Diller, 291.
- Calhoun shales, Carboniferous, Kansas: Haworth and Bennett, 447.
- Calico Bluff formation, Carboniferous, Alaska: Brooks and Kindle, 139.
- Cambridge limestone, Carboniferous, Ohio: Griswold, 418.
- Cambridge limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Camden chert, Devonian, Tennessee: Pate and Bassler, 804.
- Campan series, California: Lawson *et al.*, 643.
- Campbell's Creek limestone, Carboniferous, West Virginia: White, 1139.
- Cannelton (Stockton) limestone, Carboniferous, West Virginia: White, 1139.
- Cape Barr   beds, Devonian, Quebec: Clarke, 208.
- Cape Bon Ami beds, Devonian, Quebec: Clarke, 208.
- Cape Canon massive, Silurian, Quebec: Clarke, 208.
- Cape Girardeau limestone, Silurian, Illinois: Savage, 936, 937.
- Capitan limestone, Carboniferous (Guadalupian), Texas: Richardson, 886.
- Capitan limestone, Carboniferous (Permian), Texas: Girty, 386.
- Carlile shale, Cretaceous, Nebraska: Condra, 245; Todd, 1048.
- Carlile formation, Cretaceous, Wyoming: Darton, 267.
- Carolina gneiss, Archean, South Carolina: Sloan, 984.
- Carthage limestone, Carboniferous, Illinois: DeWolf, 284.
- Cashaqua shale, Devonian, New York: Clarke and Luther, 210.
- Casper formation, Carboniferous, Wyoming: Darton, 267.
- Cassville plant shale, Carboniferous, Pennsylvania: Ashley, 36.
- Castle Mountain group, Cambrian and Ordovician, British Columbia: Walcott, 1096.
- Cathedral formation, Cambrian, British Columbia: Walcott, 1095, 1096, 1100.
- Catoclin schist, Algonkian(?), Virginia: Bassler, 72.
- Catskill formation, Devonian, Maryland: Martin, 712.
- Catskill formation, Carboniferous, Pennsylvania: Butts, 160.
- Chambersburg limestone, Ordovician, Pennsylvania: Stose, 1029.
- Chambersburg limestone, Ordovician, Virginia: Bassler, 72.
- Chanute shales, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Chatooga zone, Archean, South Carolina: Sloan, 984.
- Chattahoochee formation, Tertiary, Georgia: McCallie, 689.
- Chattanooga black shale, Devonian, Tennessee: Pate and Bassler, 804.
- Chattanooga shale, Devonian, Oklahoma: Siebenthal, 979.
- Chauga zone, Cambrian (?), South Carolina: Sloan, 984.
- Chazy limestone, Ordovician, Vermont: Edson, 319; Perkins, 819.
- Chemehuevis gravel, Quaternary, Arizona: Lee, 648.
- Chemung formation, Devonian, Pennsylvania: Butts, 160.
- Chemung group, Devonian, New York: Clarke and Luther, 210.
- Cherokee shales, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Cherokee formation, Pennsylvanian, Missouri: Buehler, 152.
- Cherokee formation, Carboniferous, Oklahoma: Siebenthal, 979.
- Cherokee zone, Cambrian(?), South Carolina: Sloan, 984.
- Cherryvale shales Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Chester group, Carboniferous, Oklahoma: Siebenthal, 979.
- Chester group, Mississippian, Missouri: Buehler, 152.
- Chico formation, Cretaceous, California: Arnold, 28; Lawson *et al.*, 643.
- Chickamauga limestone, Ordovician, Georgia: McCallie, 689, 690.
- Chickamauga limestone, Ordovician, Virginia: Bassler, 72.
- Chouteau limestone, Mississippian, Missouri: Buehler, 152; Marbut, 706; Rowley, 921.
- Chugwater red beds, Permian-Triassic(?), Wyoming: Darton, 267.
- Claggett formation, Cretaceous, Montana: Fisher, 354.
- Claiborne formation, Eocene, Mississippi: Logan, 675.
- Claiborne formation, Tertiary, Georgia: McCallie, 689.
- Clarksburg limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Claron limestone, Tertiary, Utah: Leith and Harder, 657.
- Clear Creek formation, Devonian, Illinois: Savage, 936, 937.
- Clear Fork beds, Permian, Texas: Cummins, 259.
- Clinch formation, Ordovician, Virginia: Bassler, 72.
- Clinton formation, Silurian, Alabama: Burchard, 156.
- Clinton group, Silurian, Georgia: McCallie, 690.
- Clinton formation, Silurian, Illinois: Savage, 936, 937.

- Clinton formation, Silurian, Maryland: Prouty, 839.
- Clinton formation, Silurian, New York: Newland and Hartnagel, 762.
- Clinton formation, Silurian, Tennessee: Pate and Bassler, 804.
- Cloverly formation, Cretaceous, Montana: Fisher, 354.
- Cloverly sandstone, Cretaceous, Wyoming: Darton, 267.
- Coalburg sandstone, Carboniferous, West Virginia: White, 1139.
- Coalinga beds, Miocene, California: Anderson, 16.
- Coast Range batholith, Jurassic(?), British Columbia: LeRoy, 658.
- Coffeyville formation, Carboniferous, Kansas: Schrader, 947.
- Coffeyville limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
- Coldwater shale, Carboniferous, Michigan: Russell and Leverett, 928.
- Colorado formation, Cretaceous, Wyoming: Darton, 267.
- Columbia formation, Tertiary, Mississippi: Logan, 675.
- Columbia sands, Pleistocene, Georgia: McCallie, 689.
- Columbian formation, Florida: Clapp, 204.
- Columbus limestone, Devonian, Ohio: Stauffer, 1010.
- Colvin Run limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Combabehe phase, Eocene, South Carolina: Sloan, 984.
- Conasauga shales, Cambrian, Georgia: Watson, 1113.
- Concreto shale member, Carboniferous, Kansas: Schrader, 947.
- Conemaugh formation, Carboniferous, Maryland: Martin, 712.
- Conemaugh formation, Carboniferous, Ohio: Griswold, 418.
- Conemaugh formation, Carboniferous, Ohio, Kentucky, and West Virginia: Phalen, 826.
- Conemaugh formation, Carboniferous, Pennsylvania: Ashley, 36.
- Conemaugh series, Carboniferous, West Virginia: White, 1139.
- Conevango formation, Carboniferous, Pennsylvania: Butts, 160.
- Congaree phase, Eocene, South Carolina: Sloan, 984.
- Connasauga shale, Cambrian, Georgia: McCallie, 690.
- Connellsville sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Connelly conglomerate, Devonian, New York: Chadwick, 188.
- Connoquenessing sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Conococheague limestone, Cambrian, Pennsylvania: Stose, 1029.
- Conway group, Vermont and New Hampshire: Hitchcock, 495.
- Coombs limestone member, Cambrian, Maine: Bastin, 74.
- Coos group, Vermont and New Hampshire: Hitchcock, 495.
- Copper Queen intrusion, Mexico: Spurr and Garrey, 1009.
- Cortlandt series, New York: Berkey, 97.
- Cottonwood limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
- Council Grove stage, Carboniferous, Kansas: Haworth and Bennett, 447.
- Courtland quartzite, pre-Cambrian, Minnesota: Sardeson, 934.
- Coventry phase of Waits River limestone, Cambro-Ordovician, Vermont: Richardson, 885.
- Culebra beds, Oligocene, Panama: Howe, 527.
- Dakota sandstone, Cretaceous, Colorado: Gale, 372.
- Dakota sandstone, Cretaceous, Nebraska: Condra, 245; Todd, 1048.
- Dakota sandstone, Cretaceous, North Dakota: Willard, 1151.
- Davis formation, Cambrian, Missouri: Buehler, 152.
- Deadwood formation, Cambrian, Wyoming: Darton, 267.
- Decatur formation, Silurian, Tennessee: Pate and Bassler, 804.
- Decker limestone, Silurian, New Jersey: Kummel, 614.
- Deer Creek limestones, Carboniferous, Kansas: Haworth and Bennett, 447.
- Delaware limestone, Devonian, Ohio: Stauffer, 1010.
- Delaware Mountain formation, Carboniferous (Permian), Texas: Girty, 386.
- Delaware Mountain formation, Carboniferous (Gualupian), Texas: Richardson, 886.
- Del Rio clay, Texas: Udden, 1063.
- Dennis limestone, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Des Moines, Pennsylvanian, Missouri: Buehler, 152.
- Dinsmore limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Dixon formation, Silurian, Tennessee: Pate and Bassler, 804.
- Dolores formation, Triassic, Colorado: Cross, 254.
- Dome formation, Cambrian, Utah: Walcott, 1096, 1100.
- Donley limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Double Mountain beds, Permian, Texas: Cummins, 259.
- Douglas stage, Carboniferous, Kansas: Haworth and Bennett, 447.
- Drum limestone, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Drum limestone, Carboniferous, Oklahoma: Siebenthal, 979.
- Dundee limestone, Devonian, Michigan: Russell and Leverett, 928.
- Dunderberg shale, Cambrian, Utah: Walcott, 1100.
- Dunkard formation, Carboniferous, Maryland: Martin, 712.
- Dunkard series, Carboniferous, Pennsylvania: Ashley, 36.
- Dunkard Creek series, Carboniferous, West Virginia: White, 1139.
- Eagle formation, Cretaceous, Montana: Fisher, 354.
- Eagle limestone, Carboniferous, West Virginia: White, 1139.
- Eagle Ford formation, Cretaceous, Texas: Ries, 896.

- Edgefield-Chesterfield zone, Algonkian?, South Carolina: Sloan, 984.
- Edisto phase, Miocene, South Carolina: Sloan, 984.
- Elbrook formation, Cambrian, Pennsylvania: Stose, 1029.
- Eldon formation, Cambrian, British Columbia: Walcott, 1095, 1096, 1100.
- Eldorado limestone, Cambrian, Utah: Walcott, 1100.
- Elgin sandstone, Carboniferous, Kansas: Schrader, 947.
- Elkhorn division, Ordovician, Indiana: Cumings, 258.
- Elk Lick limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Elmdale formation, Carboniferous, Kansas: Haworth and Bennett, 447.
- El Pasan limestones, Ordovician, New Mexico: Keyes, 586.
- El Paso limestone, Ordovician, Texas: Richardson, 886.
- Embar formation, Carboniferous, Wyoming: Darton, 267.
- Empire limestone, Oligocene, Panama: Howe, 527.
- Emporia limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
- Eskridge shales, Carboniferous, Kansas: Haworth and Bennett, 447.
- Etehegoin beds, Pliocene, California: Anderson, 16.
- Etehegoin formation, Tertiary, California: Arnold and Anderson, 32.
- Eutaw formation, Cretaceous, Georgia: McCallie, 689.
- Evanston formation, Tertiary, Wyoming: Schultz, 951.
- Fairview formation, Cambrian, British Columbia: Walcott, 1096, 1100.
- Fant meta-andesite, Jurassic, California: Diller, 291.
- Fayette stage, Tertiary, Mexico: Dumble, 311.
- Fayetteville formation, Carboniferous, Arkansas: Branner, 120.
- Ferndale formation, Ordovician, Tennessee: Pate and Bassler, 804.
- Fish Creek sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Fishpot (Sewickley) limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Florina shales, Carboniferous, Kansas: Haworth and Bennett, 447.
- Floyd shale, Carboniferous, Georgia: McCallie, 689, 690.
- Forelle limestone, Carboniferous, Wyoming: Darton, 267.
- Foreman formation, Jurassic, California: Diller, 291.
- Fort Payne chert, Carboniferous, Georgia: McCallie, 689, 690.
- Fort Scott limestone, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Fort Scott limestone, Carboniferous, Oklahoma: Siebenthal, 979.
- Franciscan formation, Jurassic?, California: Arnold and Anderson, 32.
- Franciscan series, Cretaceous?, California: Lawson *et al.*, 643.
- Franklin limestone, pre-Cambrian, New Jersey: Darton *et al.*, 269; Spencer, 1005.
- Franklin Furnace band, pre-Cambrian, New Jersey: Spencer, 1005.
- Fredonia limestone, Carboniferous, Kentucky: Fohs, 360.
- Freeport limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Frio stage, Tertiary, Mexico: Dumble, 311.
- Frontier formation, Cretaceous, Wyoming: Schultz, 951.
- Fulton loam, Quaternary, Kentucky: Fohs, 360.
- Furnaceville iron ore, Silurian, New York: Newland and Hartnagel, 762.
- Fusselman limestone, Silurian, Texas: Richardson, 886.
- Galena dolomite, Ordovician, Illinois: Grant and Perdue, 408.
- Galena formation, Ordovician, Illinois: Savage, 936, 937.
- Galesburg shales, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Gant bed, Silurian, Tennessee: Pate and Bassler, 804.
- Gardeau flags and shale, Devonian, New York: Clarke and Luther, 210.
- Gardiner clay, Quaternary, Massachusetts: Clapp, 203.
- Garrison formation, Carboniferous, Kansas: Haworth and Bennett, 447.
- Gasconade formation, Cambrian, Missouri: Marbut, 706.
- Gaspé limestones, Devonian, Quebec: Clarke, 208.
- Gaspé sandstones, Devonian, Quebec: Clarke, 208.
- Gatun beds, Oligocene, Panama: Howe, 527.
- Genesee shale, Devonian, New York: Clarke and Luther, 210.
- Genesee shale, Devonian, Pennsylvania: Butts, 160.
- Genundewa limestone, Devonian, New York: Clarke and Luther, 210.
- Georgia group, Cambrian, Vermont: Perkins, 813.
- Gilmore sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Gladeville sandstone, Carboniferous, Virginia: Stone, 1023.
- Glenierie limestone, Devonian, New York: Chadwick, 188.
- Glenkirk, Silurian, Tennessee: Pate and Bassler, 804.
- Goose Creek phase, Miocene, South Carolina: Sloan, 984.
- Grande limestone, Carboniferous, New Mexico: Keyes, 586.
- Grand Grève limestones, Devonian, Quebec: Clarke, 208.
- Grand Gulf formation, Florida: Clapp, 204.
- Grand Gulf formation, Tertiary, Mississippi: Logan, 675.
- Graneros shale, Cretaceous, Nebraska: Condra, 245; Todd, 1048.
- Graneros shale, Cretaceous, Wyoming: Darton, 267.
- Graydon sandstone, Pennsylvanian, Missouri: Marbut, 706.
- Greenbrier limestone, Carboniferous, Maryland: Martin, 712.
- Greene formation, Carboniferous, Pennsylvania: Ashley, 36.

- Greenhorn limestone, Cretaceous, Nebraska: Condra, 245; Todd, 1048.
- Greenhorn limestone, Cretaceous, Wyoming: Darton, 267.
- Green Pond conglomerate, Silurian, New Jersey: Darton *et al.*, 269; Kümmel, 614.
- Green River formation, Tertiary, Wyoming: Schultz, 951.
- Greggs breccia, Tertiary, Arizona: Lee, 648.
- Grenville series, pre-Cambrian, Canada: Adams, 2; Van Hise, 1078.
- Grenville series, pre-Cambrian, New York: Kemp, 581; Newland, 760.
- Grenville series, pre-Cambrian, Ontario: Adams, 3.
- Grimes sandstone, Devonian, New York: Clarke and Luther, 210.
- Grizzly formation, Silurian, California: Diller, 291.
- Guadalupian series, Carboniferous (Permian), Texas: Girty, 386.
- Guardarraya intrusion, Mexico: Spurr and Garrey, 1009.
- Gunter sandstone, Cambrian, Missouri: Marbut, 706.
- Gwynedd formation, Triassic, Pennsylvania: Wherry, 1133.
- Hamburg phase, Cretaceous, South Carolina: Sloan, 984.
- Hamilton, Devonian, Illinois: Savage, 937.
- Hamilton formation, Devonian, Pennsylvania: Butts, 160.
- Hamilton shale, Devonian, Missouri: Buehler, 152; Rowley, 921.
- Hammondville gneiss, pre-Cambrian, New York: Newland, 760.
- Hannibal formation, Mississippian, Missouri: Buehler, 152; Rowley, 921.
- Hardgrave sandstone, Jurassic, California: Diller, 291.
- Hardin sandstone member, Devonian, Tennessee: Pate and Bassler, 804.
- Hardyston quartzite, Cambrian, New Jersey: Kümmel, 614.
- Harpers shale, Cambrian, Virginia: Bassler, 72.
- Harrodsburg limestone, Carboniferous, Indiana: Siebenthal, 978.
- Hartshorne sandstone, Carboniferous, Arkansas: Branner, 120.
- Hastings series, pre-Cambrian, Canada: Adams, 2; Miller and Knight, 748; Van Hise, 1078.
- Hatch flags and shale, Devonian, New York: Clarke and Luther, 210.
- Helderbergian, Devonian, Illinois: Savage, 937.
- Henderson granite, Archean, South Carolina: Sloan, 984.
- Henrietta formation, Pennsylvanian, Missouri: Buehler, 152.
- Herculean shale member, Tertiary, California: Weaver, 1114.
- Hermitage (Saltillo) formation, Ordovician, Tennessee: Pate and Bassler, 804.
- High Falls formation, Silurian, New Jersey: Kümmel, 614.
- Hilliard formation, Cretaceous, Wyoming: Schultz, 951.
- Hinchman sandstone, Jurassic, California: Diller, 291.
- Holston formation, Ordovician, Virginia: Bassler, 72.
- Homestake limestone, Carboniferous, Utah: Leith and Harder, 657.
- Homewood sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Homewood sandstone, Carboniferous, West Virginia: White, 1139.
- Hornboro zone, Juratrias, South Carolina: Sloan, 984.
- Hossekus limestone, Triassic, California: Diller, 291.
- Howard limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
- Howell formation, Cambrian, Utah: Walcott, 1096, 1100.
- Hudson schist, Ordovician, New Jersey: Darton *et al.*, 269.
- Hudson River formation, Ordovician, Missouri: Buehler, 152.
- Hudson River shale, Ordovician, Missouri: Rowley, 921.
- Hueco formation, Carboniferous (Permian), Texas: Girty, 386.
- Hueco limestone, Carboniferous, Texas: Richardson, 886.
- Hudson River slate, Ordovician, Pennsylvania: Peck, 809.
- Hull meta-andesite, Jurassic, California: Diller, 291.
- Huronian (lower), Ontario: Hore, 516.
- Huronian, pre-Cambrian, Ontario: Collins, 243.
- Huronian series, pre-Cambrian, Canada: Van Hise, 1078.
- Hygiene sandstone, Cretaceous, Colorado: Henderson, 464.
- Idaho Springs formation, pre-Cambrian, Colorado: Ball, 56.
- Indiana oolitic limestone, Carboniferous, Indiana: Siebenthal, 978.
- Iola limestone, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Ione formation, Miocene, California: Diller, 291.
- Irondequoit limestone, Silurian, New York: Newland and Hartnagel, 762.
- Islesboro formation, Cambrian, Maine: Bastin, 74.
- Jacalitos formation, Tertiary, California: Arnold and Anderson, 32.
- Jackson formation, Tertiary, Mississippi: Logan, 675.
- Jacksonburg limestone, Ordovician, New Jersey: Kümmel, 614.
- Jefferson limestone, Devonian, Rocky Mountain region: Kindle, 596.
- Jefferson City formation, Cambrian, Missouri: Marbut, 706.
- Jennings formation, Devonian, Maryland: Martin, 712.
- Johnstown cement limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Jollytown limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Judith River beds, Cretaceous, Montana: Fisher, 354.
- Juniata formation (Lorraine), Ordovician, Virginia: Bassler, 72.
- Kalkberg limestone, Devonian, New York: Chadwick, 188.
- Kanawha black flint, Carboniferous, West Virginia: White, 1139.
- Kanawha series, Carboniferous, West Virginia: White, 1139.

- Kanouse sandstone, Devonian, New Jersey: Küm-
mel, 614.
- Kanwaka shales, Carboniferous, Kansas: Haworth
and Bennett, 447.
- Karquines series, Eocene, California: Lawson *et al.*,
643.
- Katala formation, Tertiary, Alaska: Martin, 711.
- Keewatin, Ontario: Hore, 516.
- Keewatin, pre-Cambrian, Canada: Van Hise, 1078.
- Keewatin, pre-Cambrian, Ontario: Collins, 243.
- Kenai formation, Tertiary, Alaska: Brooks and
Kindle, 139.
- Keokuk limestone, Mississippian, Missouri: Bueh-
ler, 152; Rowley, 921.
- Kettle meta-andesite, Carboniferous, California:
Diller, 291.
- Keweenawan, pre-Cambrian, Canada: Van Hise,
1078.
- Keweenawan, pre-Cambrian, Ontario: Collins, 243.
- Kickapoo limestone, Carboniferous, Kansas: Ha-
worth and Bennett, 447.
- Kiglualik group, pre-Silurian?, Alaska: Collier *et al.*,
241.
- Kimmswick limestone, Ordovician, Missouri:
Buehler, 152.
- Kinderhook group, Mississippian, Missouri: Bueh-
ler, 152.
- King's Creek phase, Oligocene, South Carolina:
Sloan, 984.
- King's Mountain slates, Archean, South Carolina:
Sloan, 984.
- Kittatinny dolomites, Cambrian, Pennsylvania:
Peck, 809.
- Kittatinny limestone, Cambrian, New Jersey:
Kümmel, 614.
- Knight formation, Tertiary, Wyoming: Schultz,
951.
- Knobstone shale, Carboniferous, Indiana: Sieben-
thal, 978.
- Knox dolomite, Ordovician, Georgia: McCallie,
689, 690; Watson, 1113.
- Knox dolomite, Ordovician, Virginia: Bassler, 72.
- Knoxville formation, Cretaceous, California: Ar-
nold, 28; Lawson *et al.*, 643.
- Knoxville-Chico rocks, Cretaceous, California: Ar-
nold and Anderson, 32.
- Kootenai formation, Cretaceous, Montana: Fisher,
354.
- Kreyenhagen shales, Eocene, California: Anderson,
16.
- Kushtaka formation, Tertiary, Alaska: Martin, 711.
- Kuzitrin formation, pre-Silurian, Alaska: Collier
et al., 241.
- Labette shales, Carboniferous, Kansas: Haworth
and Bennett, 447; Schrader, 947.
- Labette shale, Carboniferous, Oklahoma: Sieben-
thal, 979.
- Ladore shales, Carboniferous, Kansas: Haworth
and Bennett, 447.
- Ladore-Dudley shale member, Carboniferous, Kan-
sas: Schrader, 947.
- Lafayette formation, Florida: Clapp, 204.
- Lafayette formation, Mississippi: Logan, 675.
- Lafayette formation, Tertiary, Georgia: McCallie,
689.
- Lafayette formation, Tertiary, Louisiana: McGee,
698.
- Lafayette gravels (?), Tertiary?, Missouri: Marbut,
706.
- Lafayette phase, Pleistocene, South Carolina:
Sloan, 984.
- Lake Louise formation, Cambrian, British Colum-
bia: Walcott, 1095, 1096, 1100.
- Lake Valley limestone, Carboniferous, New Mexico:
Keyes, 586.
- Lane shales, Carboniferous, Kansas: Haworth and
Bennett, 447.
- Langston formation, Cambrian, Utah: Walcott,
1096, 1100.
- Lansdale formation, Triassic, Pennsylvania:
Wherry, 1133.
- Laramie formation: Cross, 256.
- LaSalle limestone, Carboniferous, Illinois: Cady,
163.
- Las Esperanzas formation, Cretaceous, Mexico:
Ordoñez, 781.
- Laurel limestone, Silurian, Tennessee: Pate and
Bassler, 804.
- Laurentian, pre-Cambrian, Canada: Van Hise, 1078.
- Laurentian, pre-Cambrian, Ontario: Collins, 243.
- Laurentian system, pre-Cambrian, Canada: Adams,
2.
- Lawrence shales, Carboniferous, Kansas: Haworth
and Bennett, 447.
- Lecompton limestones, Carboniferous, Kansas:
Haworth and Bennett, 447.
- Leda clay, Quaternary, New England: Clapp, 203.
- Lee conglomerate, Carboniferous, Kentucky and
Virginia: Stone, 1023.
- Lego limestone, Silurian, Tennessee: Pate and Bas-
sler, 804.
- Leroux beds, Triassic, Plateau province: Cross, 254.
- Le Roy shales, Carboniferous, Kansas: Haworth
and Bennett, 447.
- Lewiston shale, Ordovician, New York: Chadwick,
188.
- Liberty Hall limestone, Ordovician, Virginia:
Bassler, 72.
- Linden formation, Devonian, Tennessee: Pate and
Bassler, 804.
- Lisbon formation, Eocene, Mississippi: Logan, 675.
- Lobelville formation, Silurian, Tennessee: Pate and
Bassler, 804.
- Lockatong formation, Triassic, New Jersey: Dar-
ton *et al.*, 269.
- Lockhart formation, Carboniferous, Kentucky:
Fohs, 360.
- Loess formation, Mississippi: Logan, 675.
- Long Beards Riffs sandstone, Devonian, New
York: Clarke and Luther, 210.
- Longwood shale, Silurian, New Jersey: Kümmel,
614.
- Lookout sandstone, Carboniferous, Georgia: McCal-
lie, 689, 690.
- Losee gneiss, pre-Cambrian, New Jersey: Darton
et al., 269; Spencer, 1005.
- Los Muertos formation, Cretaceous, Mexico: Spurr
and Garrey, 1009.
- Loudoun formation, Cambrian, Virginia: Bassler,
72.
- Louisiana limestone, Mississippian, Missouri: Bueh-
ler, 152; Rowley, 921.
- Lower magnesian limestone, Ordovician or Cam-
brian, Illinois: Cady, 163.

- Lowville limestone, Ordovician, New York: Cushing, 260.
- Lucas limestone, Silurian, Ohio: Stauffer, 1010.
- Lufkin formation, Tertiary, New Mexico: Keyes, 586.
- McAlester group, Carboniferous, Arkansas: Branner, 120.
- Maddox, Silurian, Tennessee: Pate and Bassler, 804.
- Madison limestone, Carboniferous, Wyoming: Darton, 267.
- Mahoning sandstone, Carboniferous, Ohio: Griswold, 418.
- Mahoning sandstone group, Carboniferous, Pennsylvania: Ashley, 36.
- Malden sandstone, Carboniferous, West Virginia: White, 1139.
- Mancos shale, Cretaceous, Colorado: Gale, 372.
- Maquoketa shale, Ordovician, Illinois: Grant and Perdue, 408.
- Marble Bay formation, Devonian-Carboniferous, British Columbia: LeRoy, 658.
- Marcellus formation, Devonian, Pennsylvania: Butts, 160.
- Mareniscan, pre-Cambrian, Canada: Van Hise, 1078.
- Marietta sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Mariposa formation, California: Diller, 291.
- Marjum formation, Cambrian, Utah: Walcott, 1096, 1100.
- Mark's Head phase, Miocene, South Carolina: Sloan, 984.
- Marmaton stage, Carboniferous, Kansas: Haworth and Bennett, 447.
- Marshall sandstone, Carboniferous, Michigan: Russell and Leverett, 928.
- Martinez group, Eocene, California: Anderson, 16; Lawson *et al.*, 643.
- Martinsburg shale, Ordovician, New Jersey: Kimmel, 614.
- Martinsburg shale, Ordovician, Virginia: Bassler, 72.
- Massanutten sandstone, Ordovician, Virginia: Bassler, 72.
- Mauch Chunk formation, Carboniferous, Maryland: Martin, 712.
- Mauch Chunk formation, Carboniferous, Pennsylvania: Butts, 160.
- Meagher limestone, Cambrian, Utah: Walcott, 1100.
- Medina sandstone, Silurian, Georgia: McCallie, 690.
- Memphremagog slates, Ordovician, Vermont: Richardson, 885.
- Meramec group, Carboniferous, Illinois: Weller, 1122.
- Merced formation, Tertiary, California: Arnold, 28.
- Merced series, Pliocene, California: Lawson *et al.*, 643.
- Mesaverde formation, Cretaceous, Colorado: Gale, 372.
- Middendorf phase, Cretaceous, South Carolina: Sloan, 984.
- Middlesex shale, Devonian, New York: Clarke and Luther, 210.
- Midway-Sabine formation, Tertiary, Georgia: McCallie, 689.
- Milton formation, Juratrias, California: Diller, 291.
- Mississippian series, Carboniferous, Ohio, Kentucky, and West Virginia: Phalen, 826.
- Missourian, Pennsylvanian, Missouri: Buehler, 152.
- Mitchell limestone, Carboniferous, Indiana: Siebenthal, 978.
- Moccasin formation, Ordovician, Virginia: Bassler, 72.
- Moencopie beds, Triassic, Plateau province: Cross, 254.
- Monclova shale, Cretaceous, Mexico: Ordoñez, 781.
- Monkey Hill formation, Oligocene, Panama: Howe, 527.
- Monongahela formation, Carboniferous, Maryland: Martin, 712.
- Monongahela formation, Carboniferous, Ohio: Griswold, 418.
- Monongahela formation, Carboniferous, Ohio, Kentucky, and West Virginia: Phalen, 826.
- Monongahela formation, Carboniferous, Pennsylvania: Ashley, 36.
- Monongahela series, Carboniferous, West Virginia: White, 1139.
- Moirre formation, Silurian, Michigan: Russell and Leverett, 928.
- Montana group, Cretaceous, Montana: Fisher, 354.
- Montana formation, Cretaceous, Wyoming: Darton, 267.
- Montauk till, Quaternary, New England: Clapp, 203.
- Monterey shale, Tertiary, California: Arnold, 28.
- Monterey shales, Miocene, California: Anderson, 16.
- Monterey series, Miocene, California: Lawson *et al.*, 643.
- Montgomery limestone, Silurian, California: Diller, 291.
- Montoya limestone, Ordovician, Texas: Richardson, 886.
- Monument formation, Tertiary, New Mexico: Keyes, 586.
- Moorefield shale, Carboniferous, Arkansas: Branner, 120.
- Morgantown sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Mormon sandstone, Jurassic, California: Diller, 291.
- Morrison formation, Cretaceous, Wyoming: Darton, 267.
- Morrow formation, Carboniferous, Arkansas: Branner, 120.
- Mound Valley limestone, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Mt. Hope phase, Eocene, South Carolina: Sloan, 984.
- Mt. Joli massive, Silurian, Quebec: Clarke, 208.
- Mt. Morris limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Mt. Whyte formation, Cambrian, British Columbia: Walcott, 1096, 1100.
- Mowry beds, Cretaceous, Wyoming: Darton, 267.
- Murat limestone, Ordovician, Virginia: Bassler, 72.
- Nation River series, Carboniferous, Alaska: Brooks and Kindle, 139.
- Natural Bridge limestone, Ordovician, Virginia: Bassler, 72.
- Navarro marls, Cretaceous, Texas: Ries, 896.
- Neosho member, Carboniferous, Kansas: Haworth and Bennett, 447.
- Neva limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
- Newark formation, New Jersey: Fenner, 348.
- Newark group, Triassic, New Jersey: Darton *et al.*, 269.

- Newark series, Triassic, Pennsylvania: Wherry, 1133.
- Newman limestone, Carboniferous, Kentucky: Stone, 1023.
- New Scotland formation, Devonian, Illinois: Savage, 936, 937.
- New Ulm conglomerate, Cambrian, Minnesota: Sardeson, 934.
- Niagara limestones, Silurian, Georgia: McCallie, 690.
- Niagara limestone, Silurian, Illinois: Burchard, 155.
- Niagara limestone, Silurian, Missouri: Rowley, 921.
- Nineveh sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Nipigon or Keweenaw formation, pre-Cambrian, Ontario: Coleman, 238.
- Niobrara formation: Cretaceous, Nebraska: Condra, 245.
- Niobrara formation, Cretaceous, Wyoming: Darton, 267.
- Noah Parker horizon, Cambrian, Vermont: Edson, 319.
- Nome group, Alaska: Collier *et al.*, 241.
- Norristown formation, Triassic, Pennsylvania: Wherry, 1133.
- Norton formation, Carboniferous, Virginia: Stone, 1023.
- Notch Peak formation, Cambrian, Utah: Walcott, 1096, 1100.
- Nounan formation, Cambrian, Utah: Walcott, 1100.
- Nounan formation, Cambrian, Utah and Idaho: Walcott, 1096.
- Nunda sandstone, Devonian, New York: Clarke and Luther, 210.
- Nuttall sandstone, Carboniferous, West Virginia: White, 1139.
- Oakland conglomerate, Cretaceous, California: Lawson *et al.*, 643.
- Obispo breccias, Panama: Howe, 527.
- Oconee Creek zone, Archean, South Carolina: Sloan, 984.
- Ohara limestone, Carboniferous, Kentucky: Fohs, 360.
- Olpe shales, Carboniferous, Kansas: Haworth and Bennett, 447.
- Onondaga, Devonian, Illinois: Savage, 937.
- Onondaga limestone, Devonian, Missouri: Buehler, 152.
- Oread limestone, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Orindan formation, California: Lawson *et al.*, 643.
- Oriskanian, Devonian, Illinois: Savage, 937.
- Orr formation, Cambrian, Utah: Walcott, 1096, 1100.
- Osgood limestone, Silurian, Tennessee: Pate and Bassler, 804.
- Paducah formation, Quaternary, Kentucky: Fohs, 360.
- Paget formation, Cambrian, British Columbia: Walcott, 1096, 1100.
- Painted Desert beds, Triassic, Plateau province: Cross, 254.
- Palisade diabase, Triassic, New Jersey: Darton *et al.*, 269.
- Pamela limestone, Ordovician, New York: Cushing, 260.
- Parachucla phase, Oligocene, South Carolina: Sloan, 984.
- Parsons formation, Carboniferous, Kansas: Schrader, 947.
- Parsons formation, Carboniferous, Oklahoma: Siebenthal, 979.
- Paso Robles formation, Tertiary, California: Arnold and Anderson, 32.
- Pawnee limestone, Carboniferous, Kansas: Haworth and Bennett, 447; Schrader, 947.
- Pawnee limestone, Carboniferous, Oklahoma: Siebenthal, 979.
- Peale formation, Carboniferous, California: Diller, 291.
- Pee Dee phase, Miocene, South Carolina: Sloan, 984.
- Peña Blanca marls, Oligocene, Panama: Howe, 527.
- Pennington shale, Carboniferous, Kentucky: Stone, 1023.
- Pennsylvanian series, Carboniferous, Ohio, Kentucky, and West Virginia: Phalen, 826.
- Periobscot formation, Cambrian, Maine: Bastin, 74.
- Pensauken formation, Quaternary, New Jersey and New York: Darton *et al.*, 269.
- Pequanac shale, Devonian, New Jersey: Kimmel, 614.
- Percé massive, Devonian, Quebec: Clarke, 208.
- Perkasie formation, Triassic, Pennsylvania: Wherry, 1133.
- Peyotes division, Cretaceous, Mexico: Ordoñez, 781.
- Pierre shale, Cretaceous, Nebraska: Condra, 245.
- Pinole tuff, California: Lawson *et al.*, 643.
- Pinto sandstone, Cretaceous, Utah: Leith and Harder, 657.
- Pioche formation, Cambrian, Utah: Walcott, 1096, 1100.
- Piqua limestone member, Carboniferous, Kansas: Schrader, 947.
- Pitkin limestone, Carboniferous, Arkansas: Branner, 120.
- Pittsburg limestone, Carboniferous, Ohio: Griswold, 418.
- Pittsburg sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Platteville limestone, Ordovician, Illinois: Grant and Perdue, 408.
- Plattin limestone, Ordovician, Missouri: Buehler, 152.
- Pleasanton shale, Pennsylvanian, Missouri: Buehler, 152.
- Pleasanton shales, Carboniferous, Kansas: Haworth and Bennett, 447.
- Pochuck gneiss, pre-Cambrian, New Jersey: Darton *et al.*, 269; Spencer, 1005.
- Pocono formation (Waverly group), Carboniferous, Pennsylvania: Butts, 160.
- Pocono sandstone, Carboniferous, Maryland: Martin, 712.
- Pomeroy sandstone, Carboniferous, Ohio: Bownocker and Condit, 119.
- Poor Mountain zone, Cambrian?, South Carolina: Sloan, 984.
- Portage formation, Devonian, Pennsylvania: Butts, 160.
- Portage group, Devonian, New York: Clarke and Luther, 210.

- Port Clarence limestone, Ordovician, Alaska: Knopf, 604.
- Port Clarence limestone, Silurian and Ordovician?, Alaska: Collier *et al.*, 241.
- Port Hudson formation, Tertiary, Mississippi: Logan, 675.
- Port Jervis formation, Devonian, New York: Chadwick, 188.
- Potomac (or Tuscaloosa) formation, Cretaceous, Georgia: McCallie, 689.
- Potsdam sandstone, Ordovician, New York: Cushing, 260.
- Pottawatomie stage, Carboniferous, Kansas: Hawthorn and Bennett, 447.
- Pottstown formation, Triassic, Pennsylvania: Wherry, 1133.
- Pottsville formation, Carboniferous, Maryland: Martin, 712.
- Pottsville formation, Carboniferous, Ohio, Kentucky, and West Virginia: Phalen, 826.
- Pottsville formation, Carboniferous, Pennsylvania: Ashley, 36.
- Pottsville series, Carboniferous, West Virginia: White, 1139.
- Proctor formation, Cambrian, Missouri: Marbut, 706.
- Prospect Mountain formation, Cambrian, Utah: Walcott, 1096, 1100.
- Prosperity limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Prichard formation, pre-Cambrian, Idaho: Ransome and Calkins, 851; Rowe, 920.
- Purisma formation, Tertiary, California: Arnold, 28; Lawson *et al.*, 643.
- Puget group, Tertiary (Eocene), British Columbia: LeRoy, 658.
- Queenston beds, Ordovician, New York: Grabau, 400.
- Quercan sandstone, Tertiary, California: Weaver, 1114.
- Raleigh sandstone, Carboniferous, West Virginia: White, 1139.
- Raritan formation, Cretaceous, New Jersey and New York: Darton *et al.*, 269.
- Red Mountain formation, Silurian, Georgia: McCallie, 690.
- Redstone limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Redwall limestone, Carboniferous, Arizona: Lee, 648.
- Reeve meta-andesite, Carboniferous, California: Diller, 291.
- Rommel granodiorite, post-Paleozoic, British Columbia: Camsell, 172.
- Revett formation, pre-Cambrian, Idaho: Ransome and Calkins, 851; Rowe, 920.
- Rhinestreet black shale, Devonian, New York: Clarke and Luther, 210.
- Richmond-Maquoketa, Ordovician, Illinois: Savage, 936, 937.
- Ripley formation, Cretaceous, Georgia: McCallie, 689.
- Roan gneiss series, Archean, South Carolina: Sloan, 984.
- Roaring Creek sandstone, Carboniferous, West Virginia: White, 1139.
- Robinson formation, Carboniferous, California: Diller, 291.
- Rochester formation, Silurian, Maryland: Prouty, 839.
- Rockford goniatite limestone, Carboniferous, Indiana: Siebenthal, 978.
- Rockland formation, Cambro-Ordovician, Maine: Bastin, 74.
- Rockport limestone member, Cambro-Ordovician, Maine, Bastin, 74.
- Rockwood formation, Silurian, Georgia: McCallie, 689, 690.
- Rome formation, Cambrian, Georgia: McCallie, 690.
- Rosalie granite, pre-Cambrian, Colorado: Ball, 56.
- Rosiclare sandstone, Carboniferous, Kentucky: Fohs, 360.
- Roubidoux formation, Cambrian, Missouri: Marbut, 706.
- Rubio shale, Cretaceous, Mexico: Ordoñez, 781.
- Sailor Canyon formation, Juratrias, California: Diller, 291.
- St. Alban beds, Devonian, Quebec: Clarke, 208.
- St. Charles formation, Cambrian, Utah: Walcott, 1100.
- St. Charles formation, Cambrian, Utah and Idaho: Walcott, 1096.
- St. Louis group, Mississippian, Missouri: Buehler, 152.
- St. Louis limestone, Carboniferous, Illinois: Weller, 1122.
- St. Peters sandstone, Ordovician, Missouri: Marbut, 706.
- St. Piran formation, British Columbia: Walcott, 1095, 1096, 1100.
- St. Regis formation, pre-Cambrian, Idaho: Ransome and Calkins, 851; Rowe, 920.
- Salem limestone, Carboniferous, Illinois: Weller, 1122.
- Salkehatchie phase, Miocene, South Carolina: Sloan, 984.
- Saltsburg sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Saluda zone, Archean, South Carolina: Sloan, 984.
- San Fernando formation, Tertiary, Mexico: Dumble, 31f.
- San Lorenzo formation, Tertiary, California: Arnold, 28; Lawson *et al.*, 643.
- San Pablo formation, Pliocene, California: Lawson *et al.*, 643; Weaver, 1114.
- Santa Catalina gneiss, pre-Cambrian, Arizona: Blake, 108.
- Santa Margarita formation, Tertiary, California: Arnold and Anderson, 32.
- Santa Rita limestone, Silurian, New Mexico: Keyes, 586.
- Santee phase, Eocene, South Carolina: Sloan, 984.
- Saranac formation, pre-Cambrian, New York: Newland, 760.
- Satanka shale, Carboniferous, Wyoming: Darton, 267.
- Savanna formation, Carboniferous, Arkansas: Branner, 120.
- Scranton shales, Carboniferous, Kansas: Haworth and Bennett, 447.
- Sea Island loams, Pleistocene, South Carolina: Sloan: 984.

- Sevier formation, Ordovician, Virginia: Bassler, 72.
 Severy shales, Carboniferous, Kansas: Haworth and Bennett, 447.
 Sewickley sandstone, Carboniferous, Pennsylvania: Ashley, 36.
 Sharon sandstone, Carboniferous, Pennsylvania: Ashley, 36.
 Shasto-Chico series, Cretaceous, California: Lawson *et al.*, 643.
 Shawangunk conglomerate, Silurian, New Jersey: Kummel, 614.
 Shawnee stage, Carboniferous, Kansas: Haworth and Bennett, 447.
 Shenandoah group, Ordovician, Virginia: Bassler, 72.
 Sherbrooke formation, Cambrian, British Columbia, Walcott, 1096, 1100.
 Sherman granite, pre-Cambrian, Wyoming: Blackwelder, 105.
 Sherwood limestone, Ordovician, Virginia: Bassler, 72.
 Shinarump conglomerate, Triassic, Plateau province: Cross, 254.
 Shinarump group, Triassic, Plateau province: Cross, 254.
 Shoal Creek limestone, Carboniferous, Illinois: Udden, 1068.
 Shoo Fly formation, Carboniferous, California: Diller, 291.
 Sierra limestone, Carboniferous, New Mexico: Keyes, 586.
 Siestan formation, California: Lawson *et al.*, 643.
 Silver shales, Devonian, New Mexico: Keyes, 586.
 Silver Peak group, Cambrian, Utah: Walcott, 1100.
 Silver Plume granite, pre-Cambrian, Colorado: Ball, 56.
 Sodus shale, Silurian, New York: Newland and Hartnagel, 762.
 Spence shale, Cambrian, Idaho and Utah: Walcott, 1096.
 Spence shale, Cambrian, Utah: Walcott, 1100.
 Spergen limestone, Mississippian, Missouri: Buehler, 152.
 Standish shale, Devonian, New York: Clarke and Luther, 210.
 Stanton limestone, Carboniferous, Kansas: Haworth and Bennett, 447.
 Stephen formation, Cambrian, British Columbia: Walcott, 1095, 1096, 1100.
 Steven's Creek slates, Archean, South Carolina: Sloan, 984.
 Stillwater formation, Tertiary, Alaska: Martin, 711.
 Stockholm band, pre-Cambrian, New Jersey: Spencer, 1005.
 Stockton formation, Triassic, New Jersey: Darton *et al.*, 269.
 Stones River limestone, Ordovician, Pennsylvania: Stose, 1029.
 Stones River limestone, Ordovician, Virginia: Bassler, 72.
 Striped Peak formation, pre-Cambrian, Idaho: Ransome and Calkins, 851.
 Sundance formation, Jurassic, Wyoming: Darton, 267.
 Swasey formation, Cambrian, Utah: Walcott, 1096, 1100.
 Swearinger slate, Triassic, California: Diller, 291.
 Sylvania sandstone, Silurian, Michigan: Russell and Leverett, 928.
 Sylvania sandstone, Silurian, Ohio: Stauffer, 1010.
 Sylamore sandstone member, Devonian, Oklahoma: Siebenthal, 979.
 Tallahatta buhrstone, Eocene, Mississippi: Logan, 675.
 Taylor marls, Cretaceous, Texas: Ries, 896.
 Taylor meta-andesite, Carboniferous, California: Diller, 291.
 Taylorsville formation, Devonian, California: Diller, 291.
 Tecumseh shales, Carboniferous, Kansas: Haworth and Bennett, 447.
 Tejon group, Eocene, California: Anderson, 16; Arnold and Anderson, 32; Lawson *et al.*, 643.
 Tellico formation, Ordovician, Virginia: Bassler, 72.
 Temblor beds, Miocene, California: Anderson, 16.
 Temple Bar conglomerate, Quaternary, Arizona: Lee, 648.
 Ten Mile sands, Pleistocene, South Carolina: Sloan, 984.
 Tennessee River gravels, Quaternary, Kentucky: Fohs, 360.
 Tensleep sandstone, Carboniferous, Wyoming: Darton, 267.
 Terneras intrusion, Mexico: Spurr and Garrey, 1009.
 Texada group, Devonian-Carboniferous, British Columbia: Lettroy, 658.
 Thebes formation, Ordovician, Missouri: Buehler, 152.
 Thebes sandstone and shale, Ordovician, Illinois: Savage, 936, 937.
 Theresa formation, Ordovician, New York: Cushing, 260.
 Thompson limestone, Jurassic, California: Diller, 291.
 Threeforks shale, Devonian, Montana: Kindle, 596.
 Tokun formation, Tertiary, Alaska: Martin, 711.
 Tomstown limestone, Cambrian, Pennsylvania: Stose, 1029.
 Tonto formation, Cambrian, Arizona: Lee, 648; Ransome, 845.
 Topeka limestones, Carboniferous, Kansas: Haworth and Bennett, 447.
 Trail formation, Jurassic, California: Diller, 291.
 Traverse formation, Devonian, Michigan: Russell and Leverett, 928.
 Trenton limestone, Ordovician, Missouri: Buehler, 152; Rowley, 921.
 Trenton limestone, Ordovician, New York: Cushing, 260.
 Trenton limestone, Ordovician, Pennsylvania: Peck, 809.
 Trenton limestone, Ordovician, Vermont: Perkins, 819.
 Truckee beds, Tertiary, Nevada: Louderback, 679.
 Tulare formation, Pliocene, California: Anderson, 16.
 Tunnel Hill zone, Archean, South Carolina: Sloan, 984.
 Tuscaloosa (or Potomac) formation, Cretaceous, Georgia: McCallie, 689; Veatch, 1090.

- Tuscarora quartzite, Ordovician, Virginia: Bassler, 72.
- Tutahi series, Cretaceous, Yukon: Cairnes, 165.
- Tyger zone, Archean, South Carolina: Sloan, 984.
- Tymochtee formation, Silurian, Ohio: Stauffer, 1010.
- Tyner formation, Ordovician, Oklahoma: Siebenthal, 979.
- Uniontown sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Ute formation, Cambrian, Utah: Walcott, 1100.
- Ute formation, Cambrian, Utah and Idaho: Walcott, 1096.
- Utica shale, Ordovician, Vermont: Perkins, 819.
- Vamos Varnos beds, Oligocene, Panama: Howe, 527.
- Van Horn sandstone, Cambrian, Texas: Richardson, 886.
- Vanport limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Vaqueros sandstone, Miocene, California: Anderson, 16; Arnold, 28; Arnold and Anderson, 32; Lawson *et al.*, 643.
- Vaucluse zone, Archean? South Carolina: Sloan, 984.
- Vermilion Cliff sandstone, Triassic, Plateau province: Cross, 254.
- Vicksburg formation, Tertiary, Mississippi: Logan, 675.
- Vicksburg limestone, Oligocene, Florida: Sellards, 961.
- Vicksburg-Jackson limestone, Tertiary, Georgia: McCallie, 689.
- Vilas shale member, Carboniferous, Kansas: Schrader, 947.
- Vilas shales, Carboniferous, Kansas: Haworth and Bennett, 447.
- Vishnu series, pre-Cambrian, Arizona: Ransome, 845.
- Wabauensee stage, Carboniferous, Kansas: Haworth and Bennett, 447.
- Waccamaw phase, Miocene-Pliocene, South Carolina: Sloan, 984.
- Wadmalaw marl, Pleistocene, South Carolina: Sloan, 984.
- Waits River limestone, Cambro-Ordovician, Vermont: Richardson, 885.
- Walden sandstone, Carboniferous, Georgia: McCallie, 689.
- Waldens Ridge sandstone, Carboniferous, Georgia: McCallie, 690.
- Waldron shales, Silurian, Tennessee: Pate and Bassler, 804.
- Wallace formation, pre-Cambrian, Idaho: Ransome and Calkins, 851; Rowe, 920.
- Walnut shales, Carboniferous, Kansas: Haworth and Bennett, 447.
- Wando clays and sands, Pleistocene, South Carolina: Sloan 984.
- Warley Hill phase, Eocene, South Carolina: Sloan, 984.
- Warsaw formation, Mississippian, Missouri: Buehler, 152.
- Warsaw limestone, Carboniferous, Illinois: Weller, 1122.
- Washington formation, Carboniferous, Ohio: Griswold, 418.
- Washington formation, Carboniferous, Pennsylvania: Ashley, 36.
- Washington phase of Waits River limestone, Cambro-Ordovician, Vermont: Richardson, 885.
- Watchung basalt, Triassic, New Jersey: Darton *et al.*, 269.
- Waynesboro formation, Cambrian, Pennsylvania: Stose, 1029.
- Waynesburg sandstone, Carboniferous, Pennsylvania: Ashley, 36.
- Waynesburg sandstone, Carboniferous, West Virginia: White, 1139.
- Weeks formation, Cambrian, Utah: Walcott, 1096, 1100.
- Weisner quartzite, Cambrian, Georgia: Watson, 1113.
- Weskeag quartzite member, Cambro-Ordovician, Maine: Bastin, 74.
- West River shale, Devonian, New York: Clarke and Luther, 210.
- Weverton sandstone, Cambrian, Virginia: Bassler, 72.
- Wichita division, Permian, Texas: Cummins, 259.
- Williamson shale, Silurian, New York: Newland and Hartnagel, 762.
- Wilson formation, Carboniferous, Kansas: Schrader, 947.
- Wilson formation, Carboniferous, Oklahoma: Siebenthal, 979.
- Windy Arm series, Yukon: Cairnes, 165.
- Windy Gap limestone, Carboniferous, Pennsylvania: Ashley, 36.
- Winifrede sandstone, Carboniferous, West Virginia: White, 1139.
- Winooski marble, Cambrian, Vermont: Edson, 319.
- Winslow formation, Carboniferous, Arkansas: Branner, 120.
- Wiscoy shales and sands, Devonian, New York: Clarke and Luther, 210.
- Wise formation, Carboniferous, Virginia: Stone, 1023.
- Wheeler formation, Cambrian, Utah: Walcott, 1096, 1100.
- White Cliff sandstone, Triassic, Plateau province: Cross, 254.
- Whyte formation, Cambrian, British Columbia: Walcott, 1095.
- Wolcott limestone, Silurian, New York: Newland and Hartnagel, 762.
- Woodbine formation, Cretaceous, Texas: Ries, 896.