DEPARTMENT OF THE INTERIOR

# BULLETIN

OF THE

# UNITED STATES

# GEOLOGICAL SURVEY

## No. 156

WASHINGTON
GOVERNMENT PRINTING OFFICE
1898

UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

---

# BIBLIOGRAPHY AND INDEX

OF

# NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY

FOR

# THE YEAR 1897

BY

FRED BOUGHTON WEEKS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1898

# CONTENTS

# LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF GEOLOGY,
*Washington, D. C., August 1, 1898.*

SIR: I have the honor to transmit herewith the manuscript of a Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1897, and to request that it be published as a bulletin of the Survey.

Very respectfully, F. B. WEEKS.

HON. CHARLES D. WALCOTT,
*Director United States Geological Survey.*

# BIBLIOGRAPHY AND INDEX OF NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY FOR THE YEAR 1897.

By FRED BOUGHTON WEEKS.

## INTRODUCTION.

The method of preparing and arranging the material of the Bibliography and Index for 1897 is similar to that adopted for the previous publications on this subject (Bulletins Nos. 130, 135, 146, and 149). The geological papers printed in the Transactions of the American Institute of Mining Engineers, volume 27, were entered in Bulletin No. 149 (Bibliography and Index for 1896), although the publication bears the date 1897. These papers were printed and issued as separates in 1896, but without pagination or volume number. In order to make the bibliography complete for the calendar year these papers appear again in this bulletin. The same course has been followed with volume 28, which bears the date 1898. A few other publications, which bear the date 1898, are included for the same reason.

*Bibliography.*—The bibliography consists of full titles of separate papers, classified by authors; an abbreviated reference to the publication in which the paper is printed, and a brief summary of the contents, each paper being numbered for index reference. The extent of papers less than a single page in length is indicated as ½ p., 5 l. (lines).

*Index.*—The subject headings, their subdivisions and arrangement, are shown in the Classified Key to the Index. They comprise geographic, geologic, mineralogic, paleontologic, and petrologic subdivisions. Under Economic Geology is given a list of useful minerals and ores described in publications examined; under Mineralogy, a list of minerals described in such publications; under Paleontology, a list of genera and species of fossils therein described, and under Petrology, a list of rocks described, reference being made in each case, by author's name and number of article in the Bibliography, to the paper in which the fossil, mineral, or rock is described. The Index has been enlarged by the addition of the names of all geological subdivisions that are described in the publications examined. They are not grouped together, but occur in the regular alphabetical order.

# LIST OF PUBLICATIONS EXAMINED.

Alabama, Geological Survey: Bulletin No. 5, 1896; Report upon the Valley Regions of Alabama, Part II, 1897. Montgomery, Ala.

Alabama Industrial and Scientific Society: Proceedings, Vol. VII, 1897. Tuscaloosa, Ala.

American Academy of Arts and Sciences: Proceedings, Vol. XXXII, Nos. 3–17, Vol. XXXIII, Nos. 1–8, 1897. Boston, Mass.

American Association for the Advancement of Science: Proceedings, Vol. XLV, 1897. Salem, Mass.

American Geologist, Vols. XIX–XX, 1897. Minneapolis, Minn.

American Institute of Mining Engineers: Transactions, Vol. XXVI, 1897, Vol. XXVII, 1898. New York, N. Y.

American Journal of Science, 4th ser., Vols. III–IV, 1897. New Haven, Conn.

American Museum of Natural History: Bulletin, Vol. IX, 1897. New York.

American Naturalist, Vol. XXXI, 1897. Philadelphia, Pa.

American Paleontology: Bulletins, Nos. 7–8, 1897. Ithaca, N. Y.

American Philosophical Society: Proceedings, Vol. XXXV, Nos. 154–156, 1897. Philadelphia, Pa.

Annals and Magazine of Natural History: 6th ser., Vols. XIX–XX, 1897. London, England.

Annales des Mines, 9th ser., Vols. XI–XII, 1897. Paris, France.

Appalachia, Vol. VIII, No. 3, 1897. Boston, Mass.

Boston Society of Natural History: Proceedings, Vol. XXVII, pp. 242–330, Vol. XXVIII, Nos. 1–6, 1897. Boston, Mass.

Botanical Gazette, Vols. XXIII–XXIV, 1897. Chicago, Ill.

British Association for the Advancement of Science: Report, 1897, 1898. London, England.

California Academy of Science: Proceedings, Geology, 3d ser., Vol. I, Nos. 1–3, Occasional Papers, V, 1897. San Francisco, Cal.

California State Mining Bureau: Bulletin No. 11, 1897. Sacramento, Cal.

Canada, Geological and Natural History Survey: Paleozoic fossils, Vol. III, Part 3, 1897. Montreal, Quebec.

Canada, Royal Society: Proceedings and Transactions, 2d ser., Vol. II, 1896. Montreal, Quebec.

Canadian Institute: Transactions, new ser., Vol. I, Part I, No. 1, 1897. Toronto, Ontario.

Canadian Mining Review, Vol. XVI, 1897. Ottawa, Ontario.

Canadian Record of Science, Vol. VII, Nos. 4–6, 1897. Montreal, Quebec.

Chicago Academy of Sciences: Bulletin, No. II, 1897.

Cincinnati Society of Natural History: Journal, Vol. XIX, No. 3, 1897. Cincinnati, Ohio.

Cornwall Royal Geological Society: Transactions, Vol. XII, Part II, 1897. Cornwall, England.

Davenport Academy of Natural Sciences: Proceedings, Vol. VI, 1897.

Denison University, Scientific Laboratories: Bulletin, Vol. IX, Part II, 1897. Granville, Ohio.

Dublin Royal Society: Transactions, ser. 2, Vol. V, Part 13, 1897. Dublin, Ireland.
Edinburgh Royal Society: Transactions, Vol. XXXVIII, Part 2, 1897. Edinburgh, Scotland.
Elisha Mitchell Scientific Society: Journal, 1896 and 1897. Chapel Hill, N. C.
Engineering and Mining Journal, Vols. LXIII–LXIV, 1897. New York, N. Y.
Field Columbian Museum, Geological series, Vol. I, No. 2, 1897. Chicago, Ill.
Geological Magazine, Decade IV, Vol. IV, 1897. London, England.
Geological Society of America: Bulletin, Vol. VIII, 1897. Rochester, N. Y.
Harvard College, Museum of Comparative Zoology: Memoir, Vol. XXIII, No. 1, Bulletin, Vol. XXX, Nos. 4–6, Vol. XXXI, Nos. 1–4, 1897. Cambridge, Mass.
Illinois, State Laboratory of Natural History: Bulletin, Vol. V, Articles 1–3, 1897. Peoria, Ill.
Illinois, State Museum of Natural History: Bulletin, 12, 1897. Springfield, Ill.
Indiana, Department of Geology and Natural Resources: 21st Annual Report, 1897. Indianapolis, Ind.
Iowa, Academy of Sciences: Proceedings, Vol. IV, 1897. Des Moines, Iowa.
Iowa, Geological Survey, Vol. VI, 1897. Des Moines, Iowa.
Iowa State University, Laboratories of Natural History: Bulletin, Vol. IV, No. 1, 1897. Iowa City, Iowa.
Johns Hopkins University: Circulars, Nos. 128–133, 1897. Baltimore, Md.
Journal of Geology, Vol. V, 1897. Chicago, Ill.
Journal of Morphology, Vol. XIII, Nos. 1–3, Vol. XIV, No. 1, 1897. New York, N. Y.
Kansas, University Geological Survey, Vol. II, 1897. Topeka, Kans.
Kansas University Quarterly, Vol. VI, 1897. Lawrence, Kans.
Leland Stanford University: Publications, No. XI, 1897. Palo Alto, Cal.
Liverpool, Geological Association: Journal, Vol. XVI, 1897. Liverpool, England.
Liverpool Geological Society: Proceedings, Vol. VIII, Part 1, 1897. Liverpool, England.
London, Geological Society: Quarterly Journal, Vol. LIII, 1897. London, England.
London, Geologists' Association: Proceedings, Vol. XV, Parts 1–4, 1897. London, England.
London, Royal Society: Proceedings, Vol. LXI, Nos. 379–381, 1897. London, England.
Manchester Geological Society: Transactions, Vol. XXV, Parts I–XI, 1897. Manchester, England.
Maryland Geological Survey, Vol. I, 1897. Baltimore, Md.
Mexico, Instituto geologica: Boletin, 4–9, 1897. City of Mexico.
Mining, Vol. III, Nos. 1–6, 1897. Spokane, Wash.
Mining and Scientific Press, Vols. LXXIV–LXXV, 1897. San Francisco, Cal.
Minnesota Geological and Natural History Survey: Paleontology, Vol. III, Part II, 1897. Minneapolis, Minn.
National Geographic Magazine, Vol. VIII, 1897. Washington, D. C.
Natural Science, Vols. X–XI, 1897. London, England.
Nature, Vol. LV, Nos. 1419–1435, Vol. LVI, Vol. LVII, Nos. 1462–1470, 1897. London, England.
Nautilus, Vol. X, Nos. 9–12, Vol. XI, Nos. 1–8, 1897. Philadelphia, Pa.
Neues Jahrbuch für Mineralogie, Geologie und Palaeontologie: 1897, Bander I–II, Hefte 1–3. Stuttgart, Germany.
New Brunswick Natural History Society: Bulletin No. XV. St. John, New Brunswick.
New Jersey, Geological Survey: Annual Report for 1896, 1897. Trenton, N. J.
New York Academy of Sciences: Annals, Vol. IX, Nos. 4–12, 1897. New York, N. Y.
New York State Museum: Bulletin, Vol. IV, Nos. 16–17, 1897. Albany, N. Y.
North of England Institute of Mining and Mechanical Engineers: Transactions, Vol. XLV, Parts 4–5, Vol. XLVI, Part 1, 1896; Parts 2–5 and Vol. XLVII, Part 1, 1897. Newcastle-upon-Tyne, England.
Nova Scotian Institute of Science: Proceedings and Transactions, 2d ser., Vol. II, Part 3, 1897. Halifax, Nova Scotia.

Ottawa Naturalist, Vol. X, Nos. 10–12, Vol. XI, Nos. 1–9. Ottawa, Ontario.

Paläontologischen Institutes der Universität Wien, Mittheilungen, Band XI, hefte I–III, 1897. Leipzig and Wien.

Philadelphia Academy of Natural Sciences: Proceedings 1897, Parts I–II, 1897: Journal, 2d ser., Vol. XI, Part I, 1897. Philadelphia, Pa.

Popular Science Monthly, Vol. L, Nos. 3–6, Vol. 51, Vol. 52, Nos. 1–2, 1897. New York, N. Y.

Royal Irish Academy: Proceedings, 3d ser., Vol. IV, Nos. 2–3, 1897. Dublin, Ireland.

St. Louis Academy of Science: Transactions, Vol. VII, Nos. 10–17, 1897. St. Louis, Mo.

School of Mines Quarterly, Vol. XVII, Nos. 1–4, 1896. New York, N. Y.

Science, new ser., Vols. V–VI, 1897. New York, N. Y.

Scientific American, Vols. LXXVI–LXXVII, 1897. New York, N. Y.

Scientific American Supplement, Vols. XLIII–XLIV, 1897. New York, N. Y.

Smithsonian Institution: Annual Report, 1894, 2 vols., Annual Report, 1895, 1896; Contributions to Knowledge, Vols. XXX–XXXII, 1895 and No. 1034, 1896; Miscellaneous Collections, Nos. 1075–1077, 1084, 1087. Washington, D. C.

Societa geologica italiana: Bulletin, Vol. XVI, fascicle I, 1897.

Société Belge de Géologie, de Paléontologie et d'Hydrologie: Bulletin, Vols. IX, 1896, X–XI, 1897. Brussels, Belgium.

Société géologique de Belgique: Annals, Vol. XXIV, 1897. Liège, Belgium.

Société géologique de France: Bulletin, 3d ser., Vol. XXIV, Nos. 8–11, 1896, Vol. XXV, Nos. 1–7, 1897. Paris, France.

Stone, Vol. XIV, Nos. 2–6, Vol. XV, Vol. XVI, No. 1, 1897. Chicago, Ill.

Technology Quarterly, Vol. X, 1897. Boston, Mass.

The Colliery Engineer, Vol. XVII, Nos. 6–12, Vol. XVII, Nos. 1–5, 1897. Scranton, Pa.

The Mineral Industry, its statistics, technology, and trade in the United States and other countries to the end of 1896. The Scientific Publishing Company, 1897. New York, N. Y.

The Plant World, Vol. I, Nos. 1–3, 1897. Binghamton, N. Y.

Torrey Botanical Club: Bulletin, Vol. XXIV, 1897. New York, N. Y.

United States Geological Survey: 18th Annual Report, Parts I, IV, V, and V (cont.), 1897; Parts II–III, 1898. Monograph, Vol. XXVIII, 1897. Bulletins, Nos. 87, 148–149, 1897. Geological Atlas of the United States, folios 36–41, 1897. Water Supply and Irrigation Papers, Nos. I–XI, 1897. Washington, D. C.

United States National Museum: Proceedings, Vol. XIX, 1897. Washington, D. C.

Washington Geological Society: Address of retiring President, Samuel Franklin Emmons, 1897. Washington, D. C.

Wyoming, University of, School of Mines, Petroleum series, Bulletin, No. 2, 1897. Laramie, Wyo.

Zeitschrift für praktische Geologie, Hefte 1–12, 1897. Berlin, Germany.

# BIBLIOGRAPHY.

## A.


1 **Adams** (Frank D.). On the structure and origin of certain rocks of the Laurentian system.

Brit. Assoc. Adv. Sci., Rept. 1897, pp. 665–666, 1898.

Describes the origin and structure of certain igneous and altered sedimentary rocks.

2 —— Notes on the geology of the Admiralty group of the Thousand Islands, Ontario.

Can. Rec. Sci., vol. vii, pp 267–272, 1897.

Gives notes on the character of the granites and occurrence of the other igneous rocks.

3 —— [Review of some recent papers on the influence of granitic intrusions upon the development of crystalline schists.]

Jour. of Geol., vol. v, pp. 293–302, 1897.

4 —— [Review of "Lakes of North America, a reading lesson for students of geography and geology," by Israel C. Russell.]

Can. Rec. Sci., vol. vii, pp. 326–328, 1897.

5 —— and **Barlow** (Alfred E.). With remarks by R. W. Ells. On the origin and relations of the Grenville and Hastings series in the Canadian Laurentian.

Can. Rec. Sci., vol. vii, pp. 304–316, 1897.

Describes the occurrence, character, and age of the Fundamental Gneiss, and Grenville and Hastings series.

6 —— —— Origin and relations of the Grenville Hastings series of the Canadian Laurentian.

Abstract, Geol. Soc. Am., Bull., vol. viii, pp. 398–401, 1897.

Describes the petrographic characters of the series and their relations to the Laurentian.

7 —— —— and **Ells** (R. W.). Origin and relations of the Grenville and Hastings series in the Canadian Laurentian.

Am. Jour. Sci., 4th ser., vol. iii, pp. 173–180, 1897.

Describes the character and relations of the Fundamental Gneiss, Grenville and Hastings series.

8 **Adams** (Frank D.) and **Nicolson** (John T.). Preliminary notice of some experiments on the flow of rocks.
Brit. Assoc. Adv. Sci., Rept., 1897, pp. 642-643, 1898.
Describes the methods employed and the results.

9 **Adams** (George I.). On the extinct Felidæ.
Am. Jour. Sci., 4th ser., vol. iv, pp. 145-149, figs. 1-8, 1897.
Describes the synonymy of the group.

10 **Agassiz** (Alexander). The elevated reefs of Florida.
Jour. of Geol., vol. 5, pp. 312-313, 1897.
Review by J. Edmund Woodman.

11 **Aguilera** (José G.). Antonio del Castillo.
Inst. Geol. de Mexico, Bulls. Nos. 4-6, pp. 3-7, 1897.
Gives a sketch of the life of A. del Castillo and a list of his published works.

12 —— Bosquejo geologico de Mexico. Prologo.
Inst. Geol. de Mexico, Bulls. Nos. 4-6, pp. 11-15, 1897.
Describes the general results of the work of the Geological Survey of Mexico.

13 —— Itinerarios geologicos.
Inst. Geol. de Mexico, Bulls. Nos. 4-6, pp. 78-166, 1897.
Describes the occurrence and character of the Cretaceous, Tertiary, and Pleistocene strata, and of the volcanic and metamorphis rocks in various parts of Mexico.

14 —— Sinopsis de geologia Mexicana.
Inst. Geol. de Mexico, Bulls. Nos. 4-6, pp. 189-250, 1897.
Describes the general characters of the igneous rocks, the petrographic and paleontologic characters of the sedimentaries, and the occurrence of economic mineral products in Mexico.

15 —— and **Ordonez** (Ezequiel). Fisiografia de la Sierra de Pachuca [Mexico].
Inst. Geol. de Mexico, Bulls. Nos. 7-9, pp. 19-26, pl. ii, 1897.
Describes the physiography of the region.

16 —— —— Geologia general de la Sierra de Pachuca [Mexico].
Inst. Geol. de Mexico, Bulls. Nos. 7-9, pp. 27-50, pls. iii-v, 1897.
Describes the occurrence and character of Tertiary eruptive rocks.

17 —— —— Las vetas [Sierra de Pachuca, Mexico].
Inst. Geol. de Mexico, Bulls. Nos. 7-9, pp. 51-80, 1897.
Describes the vein systems in this region.

18 **Aldrich** (T. H.). Notes on Eocene Mollusca, with descriptions of some new species.
Am. Paleont., Bull., vol. ii, No. 8, 2 pp., 5 pls., 1897.
Gives notes on various species and describes and figures a number of new species.

19 —— A new Cancellaria from the Alabama Eocene.
The Nautilus, vol. xi, pp. 27-28, 1 fig., 1897.
Describes C. lanceolata n. sp.

20 **Allen** (E. T.). Native iron in the Coal Measures of Missouri.
Am. Jour. Sci., 4th ser., vol. iv, pp. 99–104, 1897.
Describes its occurrence and character.

21 **Ami** (Henry M.). Notes on some of the fossil organic remains comprised in the geological formations and outliers of the Ottawa Paleozoic basin [Canada].
Can. Roy. Soc., Proc. and Trans., 2d ser., vol. ii, sect. iv, pp. 151–158, 1896.
Gives a list of fossils found in each of the subdivisions of the Ordovician and Silurian systems occurring in the Ottawa basin.

22 —— Contribution to the paleontology of the post-Pliocene deposits of the Ottawa valley [Canada].
Ottawa nat., vol. xi, pp. 20–26, 1897.
Gives lists of species collected at various localities.

23 **Andersen** (Carl). The mineral belt of the Mogollon range [New Mexico].
Eng. and Mg. Jour., vol. lxiv, pp. 276–278, 1897.
Describes the geologic features of the region and the occurrence and character of the gold ores.

24 **Ashley** (George H.). Geology of the Paleozoic area of Arkansas south of the novaculite region. With an introduction by John C. Branner.
Am. Phil. Soc., Proc., vol. xxxvi, pp. 217–318, 37 figs., 1897; Leland Stanford Jr. Univ. Pub., No. xi, 1897.
Describes the geologic and geographic position of the region, the lithologic and faunal characters of the formations, and their structure, and discusses the correlations of the various beds.

25 **Atwood** (Wallace Walter), **Salisbury** (Rollin D.) and. Drift phenomena in the vicinity of Devils Lake and Baraboo, Wisconsin.
See Salisbury (R. D.) and Atwood (W. W.), No. 521.

**B.**

26 **Bagg** (R. M.). See **Clark** (W. B.), No. 128.

27 **Bailey** (E. H. S.) and **Whitten** (W. M.). On the chemical composition of some Kansas gypsum rocks.
Kan. Univ. Quart., vol. vi, pp. 29–34, 1897.
Gives chemical analyses of specimens from several localities.

28 **Bailey** (L. W.). Some typical sections in southwestern Nova Scotia.
Brit. Assoc. Adv. Sci., Rept. 1897, p. 640 (½ p.), 1898.
Contains brief notes on the stratigraphy and structure of the region.

29 **Bain** (Harry Foster). Relations of the Wisconsin and Kansas drift sheets in central Iowa and related phenomena.
Iowa Geol. Surv., vol. vi, pp. 433–476, pls. xxvii–xxviii, figs. 45–54, 1897.
Describes the character and relations of the two drift sheets, and discusses the time ratios employed in estimating the length of Glacial time. Includes map of the Iowa drift sheets.

30 **Bain** (Harry Foster). [Review of "Geology of Castle Mountain mining district, Montana," by W. H. Weed and L. V. Pirsson.]
Jour. of Geol., vol. v, pp. 210–212, 1897.

31 —— A sketch of the geology of Mexico.
Jour. of Geol., vol. v, pp. 384–390, 1897.
Gives a summary of the report of Jose G. Aguilera on the geology of Mexico.

32 —— [Review of "Missouri Geological Survey, vol. xi, Clay deposits," by H. A. Wheeler.]
Jour. of Geol., vol. v, pp. 399–400, 1897; Science, new ser., vol. v, p. 852, 1897.

33 —— Geology of Polk County, Iowa.
Am. Geol., vol. xx, p. 334 (¾ p.), 1897.
Review by U. S. G[rant].

34 **Bannister** (H. M.). The drift and geologic time.
Jour. of Geol., vol. v, pp. 730–743, 1897.
Discusses previous estimates of the duration of the Glacial period and its probable duration, estimated from a study of the transportation of erratics.

35 **Barbour** (Erwin Hinkley). Nature, structure, and phylogeny of Daemonelix.
Geol. Soc. Am., Bull., vol. viii, pp. 305–314, pls. 31–39, 1897.
Review by A. H[ollick], Torrey Bot. Club, Bull., vol. xxiv, pp. 266–267, 1897.
Describes and illustrates the occurrence and characters of Daemonelix.

36 **Barlow** (Alfred E.). On the occurrence of cancrinite in Canada.
Can. Rec. Sci., vol. vii, p. 288, 1897.
Describes the character of the mineral from elaeolite syenite of Quebec.

37 —— **Adams** (Frank D.) and. With remarks by R. W. Ellis. On the origin and relations of the Grenville and Hastings series in the Canadian Laurentian.
See Adams (Frank D.) and Barlow (A. E.), No. 5.

38 —— —— Origin and relations of the Grenville-Hastings series of the Canadian Laurentian.
See Adams (F. D.) and Barlow (A. E.), No. 6.

39 —— —— and **Ells** (R. W.). On the origin and relations of the Grenville and Hastings series in the Canadian Laurentian.
See Adams (F. D.), Barlow (A. E.), and Ells (R. W.), No. 7.

40 —— and **Ferrier** (W. F.). On the relations and structure of certain granites and associated arkoses of Lake Temiscaming, Canada.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 659–660, 1898.
Describes the microscopic characters and relations of the rocks.

41 **Barrell** (Robert W.). The mineral formation of the Golden Leaf mines [Montana].

Eng. and Mg. Jour., vol. lxiv, p. 64, 1897.

Describes the geologic features of the region and the occurrence of gold and silver.

42 **Barton** (George H.). Glacial observations in the Umanak district, Greenland.

Tech. Quart., vol. x, pp. 213-244, figs. 1-27, 1897. Review by W. U[pham], Am. Geol., vol. xx, pp. 329-330, 1897.

Describes the glacial features of the region.

43 **Bascom** (Florence). Aporhyolites of South Mountain, Pennsylvania.

Geol. Soc. Am., Bull., vol. viii, pp. 393-396, 1897.

Describes the topography of the region and the petrographic structure of the aporhyolites.

44 —— The relations of the streams in the neighborhood of Philadelphia to the Bryn Mawr gravel.

Am. Geol., vol. xix, pp. 50-57, 1897.

Gives a sketch of the geologic history of the region and discusses the evidence of the stream erosion as indicating the age of the Bryn Mawr gravel.

45 —— [Review of "The geology of the Fox Islands, Maine, a contribution to the study of old volcanics," by George Otis Smith].

Am. Geol., vol. xix, pp. 214-219, 1897.

46 —— The ancient volcanic rocks of South Mountain, Pennsylvania.

Review by N. H. W[inchell], Am. Geol., vol. xix, pp. 139-140, 1897.

Review by J. P. Iddings, Jour. of Geol., vol. v, pp. 213-216, 1897.

47 **Bayley** (William Shirley). A summary of progress in Petrography in 1896.

Waterville, Me., 1897.

48 —— **Van Hise** (C. R.) and. The Marquette iron-bearing district of Michigan. With atlas.

See Van Hise (C. R.) and Bayley (W. S.), No. 648.

49 **Bayley** (W. S.). See **Van Hise** (C. R.) and **Bayley** (W. S.), No. 648.

50 **Beals** (William, jr.). The building stones of New England.

Stone, vol. xiv, pp. 545-567, 10 pls., vol. xv, pp. 1-7, 213-223, 9 pls., 1897.

Describes the character and occurrence of New England building stones.

51 **Becker** (George F.). Reconnoissance of the gold fields of southern Alaska, with some notes on general geology.

U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 7-86, pls. i-xxxi, figs. 1-6, 1898.

Includes notes on some igneous rocks and on the glacial features and volcanic phenomena of the region. Describes the occurrence and character of the auriferous deposits and veins.

52 **Becker** (George F.). Witwatersrand banket, with notes on other gold-bearing pudding stones.

U. S. Geol. Surv., 18th Ann. Rept., Pt. V, pp. 153–184, pl. i, fig. 1, 1897.

Describes the occurrence of gold on the Witwatersrand and the occurrence of auriferous conglomerates in various parts of the United States.

53 —— Some queries on rock differentiation.

Am. Jour. Sci., 4th ser., vol. iii, pp. 21–40, 1897. Review by C. F. Tolman, jr., Jour. of Geol., vol. v, pp. 393–398, 1897.

Discusses the hypotheses of rock differentiation from homogeneous magmas of great volume.

54 —— Computing diffusion.

Am. Jour. Sci., 4th ser., vol. iii, pp. 280–286, 1897.

Describes methods and gives tables for computing diffusive phenomena.

55 —— Fractional crystallization of rocks.

Am. Jour. Sci., 4th ser., vol. iv, pp. 257–261, fig. 1, 1897.

Describes the solidification of material in certain dikes and laccolites, and discusses its bearing on the theory of magmatic segregation or differentiation.

56 —— Lewis on the diamond.

Science, new ser., vol. vi, pp. 664–667, 1897.

Discusses the paper by George F. Kunz on the genesis of the diamond and review of Prof. Lewis's papers on the "Genesis and matrix of the diamond."

57 **Beecher** (Charles E.). Outline of a natural classification of the trilobites.

Am. Jour. Sci., 4th ser., vol. iii, pp. 89–106, and 181–207, pl. iii, 1897.

Reviews previous classifications and describes the principles and application of a natural classification. Gives diagnoses of the orders and families and a list of the genera.

58 —— Morphology of the brachia.

U. S. Geol. Surv., Bull. No. 87, pp. 105–112, figs. 2–6, 1897.

Describes the different stages of development.

59 —— [Review of "Synopsis of American fossil Brachiopoda," by Charles Schuchert.]

Am. Nat., vol. xxxi, pp. 1053–1055, 1897.

60 —— See **Kingsley** (J. S.), No. 337.

61 **Beede** (J. W.), **Haworth** (E.) and. The McPherson Equus beds [Kansas].

See Haworth (E.) and Beede (J. W.), No. 268.

62 **Bell** (Robert). Evidence of northeasterly differential rising of the land along Bell River [Canada].

Geol. Am., Bull., vol. viii, pp. 241–250, pls. 23–24, 1897.

Describes the characters of the drainage and its bearing on the evidence of an earth movement.

63 **Berkey** (C. P.). Chemical analysis of the Fisher meteorite.
Am. Geol., vol. xx, pp. 317-318, 1897.
Describes its mineralogic and chemical characters.

64 —— Geology of the St. Croix Dalles [Minnesota-Wisconsin].
Am. Geol., vol. xx, pp. 345-383, pls. xx-xxii, 1897.
Describes the physiographic features, the glacial geology, the lithologic characters and distribution of the Cambrian subdivisions, and the characters of the igneous rocks. Presents a geological and topographical map of the region.

65 **Beyer** (Samuel Walker). The Sioux quartzite and certain associated rocks.
Iowa Geol. Surv., vol. vi, pp. 69-112, figs. 24-28 and geologic map, 1897. Published in 1896.
Describes the occurrence of Niobrara chalk, the character of the Sioux quartzite and slate, the petrographic characters of the olivine diabase, quartzite, and slate, and discusses their origin.

66 —— Evidence of a sub-Aftonian till sheet in northeastern Iowa.
Iowa Acad. Sci., Proc, vol. iv, pp. 58-62, pls. ii-iii, 1897.
Discusses the evidence as to the line separating the various stages of the ice sheet in this region.

67 **Bibbins** (Arthur), **Clark** (W. B.) and. The stratigraphy of the Potomac group in Maryland.
See Clark (W. B.) and Bibbins (A.), No. 130.

68 **Blake** (William P.). Gold in granite and plutonic rocks.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 290-298, 1897.
Describes the occurrence of gold in Arizona, California, and South Dakota.

69 —— The Fortuna gold mine, Arizona.
Eng. and Mg. Jour., vol. lxiii, pp. 664-665, 1897.
Describes the geologic occurrence and character of the ore body.

70 **Blandy** (John F.). An Arizona copper deposit.
Eng. and Mg. Jour., vol. lxiv, p. 97, 1897.
Describes the occurrence of copper near the rim of the Grand Canyon of the Colorado.

71 **Blatchley** (W. S.). The petroleum industry in Indiana.
Ind. Dept. Geol. and Nat. Res., 21st Ann. Rept., pp. 27-96, with map, 1897.
Describes the origin and occurrence of petroleum in Indiana, and gives local details, accompanied by map of productive area in northeastern Indiana.

72 —— Indiana caves and their fauna.
Ind. Dept. Geol. and Nat. Res., 21st Ann. Rept., pp. 121-212, pls. iv-xiii, 1897.
Describes the formations of caves in limestones and the character and fauna of the caves in southern Indiana. Includes a bibliography.

73 **Blue** (Archibald). Sixth report of the bureau of mines [Ontario].
Ottawa, 289 pp., 2 geological maps, 1897.
Includes notes on the occurrence of building materials, petroleum, natural gas, mica, graphite, iron, nickel, copper, gold, and corundum and two geological maps.

74 **Bonney** (T. G.). [Review of "The glaciers of North America," by I. C. Russell.]
Nature, vol. lv, p. 556, 1897.

75 **Boss** (C. M.). Some dike features of the Gogebic iron range [Michigan-Wisconsin].
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 556-563, 1898.
Gives local details regarding the dikes of the region.

76 **Branner** (John Casper). Bacteria and the decomposition of rocks.
Am. Jour. Sci., 4th ser., vol. iii, pp. 438-442, 1897.
Discusses the agency of bacteria in the decomposition of rocks, and reviews some recent literature on the subject.

77 —— The former extension of the Appalachians across Mississippi, Louisiana, and Texas.
Am. Jour. Sci., 4th ser., vol. iv., pp. 357-371, two geological maps, 1897; Abstract, Brit. Assoc. Adv. Sci., Rept. 1897, pp. 643-644, 1898; Review by A. H. Purdue, Jour. of Geol., vol. v, pp. 759-760, 1897.
Discusses the character and extent of the southwestern Appalachian depression and its bearing on the probable extension of the Appalachians across the lower Mississippi region.

78 —— The bauxite deposits of Arkansas.
Jour. of Geol., vol. v, pp. 263-289, pls. i-ii, figs. 1-4, 1897.
Describes the composition and structure of the bauxite material, and discusses the geologic age, origin, and forms of the deposits. Gives a bibliography of the subject.

79 —— [Review of "The Bedford oolitic limestone of Indiana," by T. C. Hopkins and C. E. Siebenthal.]
Jour. of Geol., vol. v, pp. 529-531, 1897.

80 —— The phosphate deposits of Arkansas.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 580-598, 1897.
Describes the character of the Devonian strata in which the deposits occur, and the occurrence and characteristics of the phosphate material, and discusses its origin. Gives chemical analyses.

81 —— The cement materials of southwest Arkansas.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 42-63, figs. 1-6, 1898.
Describes the occurrence of the chalk beds, and gives chemical analyses of the material.

82 —— The introduction of new terms in geology.
Science, new ser., vol. v, pp. 912-913, 1897.

83 —— New terms in geology.
Science, new ser., vol. vi, pp. 133-134, 1897.

84 **Branner** (John Casper). See **Ashley** (George H.), No. 24.

85 —— **Newsom** (J. F.) and. The Red River and Clinton monoclines.
See Newsom (J. F.) and Branner (J. C.), No. 439.

86 **Bratnober** (H.). The Klondike gold fields [British Columbia].
Eng. and Mg. Jour., vol. lxiv, p. 484, 1897.
Describes the occurrence of gold placers.

87 **Brewer** (William M.). Further notes on the Alabama and Georgia gold fields.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 464–472, 1897.
Contains notes on the occurrence of gold ores and associated rocks in these States.

88 —— Metal mining in Alabama.
Eng. and Mg. Jour., vol. lxiii, p. 256, 1897.
Describes the occurrence of gold in certain districts of Alabama.

89 —— Gold mining in Georgia.
Eng. and Mg. Jour., vol. lxiii, p. 280, 1897.
Describes the occurrence of gold in northwest Georgia.

90 —— The Villa Rica mining district, Georgia.
Eng. and Mg. Jour., vol. lxiii, p. 483, 1897.
Describes the occurrence of gold in this district.

91 —— Some auriferous quartz bodies in Alabama.
Eng. and Mg. Jour., vol. lxiv, pp. 458–459, 1897.
Describes the occurrence of gold in northern Alabama.

92 —— Copper mining in Alabama.
Ala. Ind. and Sci. Soc., Proc., vol. vii, pp. 13–16, 1897.
Gives brief notes on the occurrence of copper in Cleburne County.

93 —— Gold fields of the South.
Colliery Eng., vol. xvii, pp. 333–335, 1897.
Describes the geologic formations and occurrence of gold in Georgia and Alabama.

94 **Brigham** (Albert Perry). Glacial flood deposits in Chenango Valley [New York].
Geol. Soc. Am., Bull., vol. viii, pp. 17–30, pl. 1, 1897.
Describes the glacial phenomena of the region.

95 **Brooks** (Alfred Hulse), **Wolff** (J. E.) and. The age of the Franklin White limestone of Sussex County, New Jersey.
See Wolff (J. E.) and Brooks (A. H.), No. 733.

96 **Brown** (Lucius P.). Phosphate mining in Tennessee.
Mineral Industry, 1896, pp. 453–456, 1897.
Describes the character and occurrence of phosphate rocks in certain parts of the State.

97 **Brush** (George J.). Manual of determinative mineralogy, with an introduction of blowpipe analysis.
New York, John Wiley & Sons, 1882.
Review by O. C. Farrington, Jour. of Geol., vol. v, pp. 86–87, 1897.

98 **Bryson** (John). The Hempstead Plains, Long Island [New York].
Am. Geol., correspondence, vol. xx, pp. 61–65, 1897.
Describes the glacial phenomena.

99 **Buelna** (Ramon Felix y). Itinerarios geologicos. Estados de Durango, Chihuahua, Sonora y Sinaloa.
Inst. geol. de Mexico, Bulls., Nos. 4–6, pp. 19–29, 1897.
Describes the occurrence of gold and silver ore deposits in these States.

100 —— The Copalquin and Lemon mineral zone, Durango, Mexico.
Eng. and Mg. Jour., vol. lxiv, p. 217, 1897.
Describes the geologic features of the region.

101 **Burwash** (Edward M.). Geology of the Nipissing-Algoma line [Ontario].
Ontario Bureau of Mines, 6th Ann. Rept., pp. 167–184, 1897.
Describes the occurrence of Huronian rocks and the glacial phenomena of the region.

## C.

102 **Calvin** (Samuel). Memoir of Charles Wachsmuth.
Geol. Soc. Am., Bull., vol. viii, pp. 374–376, 1897.
Gives a sketch of his life and list of his published papers.

103 —— The State quarry limestone [Iowa].
Iowa Acad. Sci., Proc., vol. iv, pp. 16-21, 1897.
Describes its lithologic and faunal characters and discusses its taxonomic relations.

104 —— Synopsis of the drift deposits of Iowa.
Am. Geol., vol. xix, pp. 270–272, 1897.
Gives brief statements regarding the various stages of the Glacial epoch.

105 —— Geology of Johnson County [Iowa].
Am. Geol., vol. xx, pp. 273, 1897.
Review by W. U[pham].

106 **Campbell** (Marius R.). Erosion at base level.
Geol. Soc. Am., Bull., vol. viii, pp. 221–226, pl. 20, 1897.
Describes local base-levels of the Appalachian region.

107 —— Rapid section work in horizontal rocks.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 298–315, pls. i–iv, 1897.
Describes methods of studying areal geology in regions where the strata lie in a nearly horizontal position.

108 **Case** (E. C.). Foramina perforating the cranial region of a Permian reptile and on a cast of its brain cavity.
Am. Jour. Sci., 4th ser., vol. iii, pp. 321–326, 1897.
Describes the characters of Dimetrodon incisivus Cope and the occurrence of the foramina.

109 —— On the osteology and relationships of Protostega.
Jour. of Morph., vol. xvi, pp. 21–55, pls. iv–vi, 1897.
Describes material from the Niobrara Cretaceous of Kansas.

110 —— [Review of "The Dinosaurs of North America," by O. C. Marsh.]
Jour. of Geol., vol. v, pp. 87–88, 1897.

111 **Catlett** (Charles). Some of the manganese deposits of the Valley of the Virginia.
Eng. and Mg. Jour., vol. lxiv, pp. 156–157, 1897.
Describes the occurrence and character of the ores and gives a chemical analysis.

112 **Chalmers** (Robert). The pre-Glacial decay of rocks in eastern Canada.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 655–656, 1898.
Describes beds of decayed rock beneath the glacial covering.

113 —— The gold bearing deposits of the eastern townships of Quebec.
Can. Mg. Rev., vol. xvi, pp. 74–77, 1897.
Describes their geological occurrence and discusses their origin.

114 **Chamberlin** (T. C.). [Note on the former extension of the inland ice sheet of Greenland.]
Jour. of Geol., vol. v, pp. 81–85, 1897.
Reviews certain interpretations of the author's views on this subject.

115 —— Glacial studies in Greenland, X.
Jour. of Geol., vol. v, pp. 229–240, figs. 64–68, 1897.
Continues the description of the author's observations of the glacial features of Greenland.

116 —— [Review of "Glaciers of North America, a reading lesson for students in geography and geology," by Israel C. Russell.]
Jour. of Geol., vol. v, pp. 302–303, 1897.

117 —— [Review of "Former extension of Cornell glacier near the southern end of Melville Bay," by Ralph S. Tarr.]
Jour. of Geol., vol. v. pp. 303–307, pl. 1, figs. 1–2, 1897.

118 —— [Review of "Geological Survey of Canada, Annual Report, vol. viii, 1895."]
Jour. of Geol., vol. v, pp. 641–642, 1897.

118*a* —— [Review of "Iowa Geological Survey, vol. vi, Report on lead, zinc, artesian wells, etc."]
Jour. of Geol., vol. v, pp. 642–644, 1897.

118*b* **Chamberlin** (T. C.). [Review of "Geology and Natural Resources of Indiana, 21st Annual Report."]
Jour. of Geol., vol. v, pp. 644–646, 1897.

118*c* —— [Review of "Report on the valley regions, Part II. On the Coosa Valley," by Henry McCalley.]
Jour. of Geol., vol. v, pp. 646–647, 1897.

118*d* —— [Review of "Glacial observations in the Umanak district, Greenland," by G. H. Barton.]
Jour. of Geol., vol. v, pp. 650–651, 1897.

119 —— A group of hypotheses bearing on climatic changes.
Jour. of Geol., vol. v, pp. 653–683, 1897; Brit. Assoc. Adv. Sci., Rept. 1897, pp. 644–647, 1898.
Discusses the indications of glaciations during geologic time and the theories as to the origin and development of the earth and the atmosphere.

120 —— Supplementary hypothesis respecting the origin of the loess of the Mississippi Valley.
Jour. of Geol., vol. v, pp. 795–802, 1897.
Describes the distribution of the loess and discusses its origin.

121 —— Studies for students. The method of multiple working hypotheses.
Jour. of Geol., vol. v, pp. 837–848, 1897.
Discusses the use of multiple hypotheses and their value in geological investigation.

122 —— [Review of "The Glacial Lake Agassiz," by Warren Upham.]
Jour. of Geol., vol. v, pp. 851–853, 1897.

123 —— Former extension of Greenland glaciers.
Science, new ser., vol. v, pp. 400–401, 1897.
Discusses Prof. Tarr's statements on this subject.

124 —— The former extension of ice in Greenland.
Science, new ser., vol. v, p. 516, 1897.
Discusses briefly the indications of glaciation by topography

125 —— Former extension of Cornell glacier near the southern end of Melville Bay.
Science, new ser., vol. v, pp. 748–753, figs. 1–3, 1897.
Reviews some of the questions discussed in previous papers by Prof. Tarr and the author.

126 **Clark** (Maurice). Notes on mining in Oaxaca, Mexico.
Eng. and Mg. Jour., vol. lxiv, pp. 35–36, 1897.
Describes occurrence of silver ores in this region.

127 **Clark** (William Bullock). Eocene deposits of the Middle Atlantic slope in Maryland, Delaware, and Virginia.
Jour. of Geol., vol. v, pp. 310–312, 1897.
Review by C. R. Keyes.

128 **Clark** (William Bullock). (With the collaboration of R. M. Bagg and George B. Shattuck.) Upper Cretaceous formations of New Jersey, Delaware, and Maryland.

Geol. Soc. Am., Bull., vol. viii, pp. 315–358, pls. 40–50, 1897.

Describes the occurrence, characters, and distribution of the Matawan, Monmouth, Rancocas, Manasquan, and Shark River formations. Discusses the interpretation of the sedimentary and faunal records.

128*a* —— Historical sketch embracing an account of the progress of investigation concerning the physical features and natural resources of Maryland.

Md. Geol. Surv., vol. i, pp. 43–138, pls. ii–v, 1897.

129 —— Outline of present knowledge of the physical features of Maryland, embracing an account of the physiography, geology, and mineral resources.

Md. Geol. Surv., vol. i, pp. 141–228, pls. vi–xiii, 1897.

Describes the physiographic features of the State, the character and distribution of the igneous and sedimentary rocks, and the mineral resources.

130 —— and **Bibbins** (Arthur). The stratigraphy of the Potomac group in Maryland.

Jour. of Geol., vol. v, pp. 479–506, 1897.

Describes the lithologic and faunal characters of the Patuxent, Arundle, Patapsco, and Raritan formations. Discusses the relations and age of the deposits and the views of other writers.

131 —— and **Shattuck** (George B.). The geology of the sand hills of New Jersey.

Johns Hopkins Univ. Circ., vol. xvi, pp. 13–16, 1897.

Reviews the literature on this region and describes the stratigraphic relations and correlations of the deposits. Discusses the evidence of their age.

132 **Clarke** (F. W.) and **Hillebrand** (W. F.). Analyses of rocks with a chapter on analytical methods.

U. S. Geol. Surv., No. 148, 306 pp., 1897.

Includes analyses of a large number of igneous and sedimentary rocks from various parts of the United States.

133 **Clarke** (John M.). The Lower Silurian trilobites of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, Pt. II, pp. 695–759, figs. 1–82, 1897.

Gives the terminology of the trilobites and notes on various species; also descriptions of new species.

134 —— The Lower Silurian Cephalopoda of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, Pt. II, pp. 761–812, pls. xlvii–lix, figs. 1–9, 1897.

135 —— [Review of "Paleozoic fossils, vol. iii, pt. iii. The fossils of the Galena-Trenton and Black River formations of Lake Winnipeg and its vicinity," by J. F. Whiteaves.]

Am. Geol., vol. xx, pp. 187–188, 1897.

136 **Clarke** (John M.). The morphology of graptolites.
Am. Geol., vol. xx, pp. 188–189, 1897.
Reviews some recent literature on graptolites.

137 —— A sphinctozoan calcisponge from the Upper Carboniferous of eastern Nebraska.
Am. Geol., vol. xx, pp. 387–392, pl. xxiii, 1897.
Describes the characters of the material.

138 **Claypole** (E. W.). A new Dinichthys-Dinichthys kepleri.
Am. Geol., vol. xix, pp. 322–324, pl. xx, 1897.
Describes and figures a new species from the Cleveland shale of Ohio.

139 —— [Review of "Pleistocene features and deposits of the Chicago area," by Frank Leverett.]
Am. Geol., vol. xx, p. 57, 1897.

140 —— [Review of "Geological Survey of Canada, Annual Report for 1895."]
Am. Geol., vol. xx, pp. 130–131, 1897.

141 —— [Review of "On the southern Devonian formation," by H. S. Williams.]
Am. Geol., vol. xx, pp. 133–134, 1897.

142 —— [Review of "Geological Survey of Mexico, Bulletins 4, 5, 6."]
Am. Geol., vol. xx, pp. 184–186, 1897.

143 **Coleman** (Arthur P.). Glacial and Interglacial deposits at Toronto [Canada].
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 650–651, 1898.
Describes glacial phenomena of the vicinity.

144 —— Third report on the West Ontario gold regions.
Ontario Bureau of Mines, 6th rept., pp. 71–124, 1897.
Describes the occurrence of gold in the region.

145 —— Anthraxolite or anthracite carbon.
Ontario Bureau of Mines, 6th rept., pp. 159–161, 1897.
Describes its occurrence in Ontario.

146 —— "Notes on the western Ontario gold fields."
Can. Mg. Review, vol. xvi, pp. 115–116, 1897.

147 —— The anorthosites of the Rainy Lake region [Ontario].
Can. Rec. Sci., vol. vii, pp. 230–235, 1897.
See Bibliography and Index for 1896, No. 133.

148 **Cooper** (J. G.). On some new Cretaceous (and Eocene?) Mollusca of California.
Cal. Acad. Sci., Proc., vol. vi, pp. 330–336, pls. 47–48, 1897.
Describes and figures five new species.

149 **Cope** (E. D.). On new Paleozoic vertebrata from Illinois, Ohio, and Pennsylvania.

Am. Phil. Soc., Proc., vol. xxxv, pp. 71–91, 3 pls., 1897.

Describes new species of fishes and batrachia from the Catskill and Coal Measure series of these States.

150 **Cragin** (F. W.). Discovery of marine Jurassic rocks in southwestern Texas.

Jour. of Geol., vol. v, pp. 813–820, 1897.

Discusses the fossil evidence of the occurrence of strata in southwestern Texas and names the beds the Malone formation.

151 —— Observations on the Cimarron series.

Am. Geol., vol. xix, correspondence, pp. 351–363, 1897.

Describes the author's observations of this series in Kansas, Oklahoma, and Texas, and discusses the classification and nomenclature of the beds.

152 —— Notes on some fossils of the Comanche series.

Science, new ser., vol. vi, pp. 134–136, 1897.

Includes notes on certain species and description of Turritella belviderei n. sp.

153 —— Stratigraphic names for Caprina and Caprotina (or Requienia) beds.

Science, new ser., vol. vi, p. 136, 1897.

Suggests that the name Barton Creek be abandoned, and proposes the name Stonewall limestone for it. Proposes the local names Granbury bed for the Caprotina limestone.

154 **Crook** (A. R.). Some geological causes of the scenery of the Yellowstone National Park.

Am. Geol., vol. xx, pp. 159–167, 1897.

Describes the general physiographic features and geological history of the Park.

155 **Crosby** (W. O.). Contribution to the geology of Newport Neck and Conanicut Island [Rhode Island].

Am. Jour. Sci., 4th ser., vol. iii, pp, 230-236, figs. 1–2, 1897.

Reviews previous descriptions of the geology of the region and describes the characters and relations of the Carboniferous and igneous rocks.

156 —— The great fault and accompanying sandstone dikes of Ute Pass, Colorado.

Science, new ser., vol. v, pp. 604–607, 1897.

Describes the occurrence of the fault and discusses the origin of the dikes.

157 —— and **Fuller** (M. L.). Origin of pegmatite.

Am. Geol., vol. xix, pp. 147–180, pls. viii–ix, 1897.

Describes the character of acid pegmatites and discusses the theories of their igneous and aqueo-igneous origin.

158 **Cross** (Whitman). Igneous rocks of the Leucite Hills and Pilot Butte, Wyoming.

Abstract, Science, new ser., vol. v, p. 361, 1897.

Describes the occurrence and petrographic and chemical characters of wyomingite, orendite, and madupite. Discusses the classification and nomenclature, and describes the inclusions in the Leucite Hills rocks.

159 —— An analcite basalt from Colorado.

Jour. of Geol., vol. v, pp. 684–693, 1897.

Describes the petrographic and chemical characters of the material, and discusses its relations with closely allied rocks.

160 —— and **Penrose** (R. A. F., jr.). Geology and mining industry of the Cripple Creek district, Colorado.

Jour. of Geol., vol. v, pp. 197–203, 1897.

Review by Arthur Winslow.

161 **Cushing** (H. P.). Notes on hypersthene andesite from Mt. Edgecumbe, Alaska.

Am. Geol., vol. xx, pp. 156–159, 1897.

Includes a letter from H. F. Reid describing its occurrence, and a discussion of the petrographic characters of the material.

162 **Dall** (William H.). A table of North American Tertiary horizons correlated with one another and with those of western Europe, with annotations.

U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 327–348, 1898.

Defines the main divisions of the Tertiary and includes notes on the table.

163 —— **Guppy** (R. J. L.) and. Descriptions of Tertiary fossils from the Antillean region.

See Guppy (R. J. L.) and Dall (W. H.), No. 255.

164 **Daly** (Reginald Aldworth). Studies of the so-called porphyritic gneiss of New Hampshire.

Jour. of Geol., vol. v., pp. 694–722, figs. 1–2, pp. 776–794, 1897.

Reviews previous descriptions of the gneiss, describes its field relations and structure, and discusses the age of the intrusions.

165 **Darton** (Nelson Horatio). New developments in boring and irrigation in eastern South Dakota.

U. S. Geol. Surv., 18th Ann. Rept., Pt. IV, pp. 567–615, pls. xxxviii–xlvii, figs. 78–85, 1897.

Describes the progress of well sinking, the extent of the artesian basin, and the irrigation by artesian waters in 1896.

166 —— Preliminary report on artesian waters of a portion of the Dakotas.

Am. Geol., vol xix, pp. 274–276, 1897.

Review by J. E. T[odd].

167 **Davidson** (George). The submerged valleys of the coast of California, U. S. A., and of Lower California, Mexico.

Cal. Acad. Sci., Proc. Geol., 3d ser., vol. 1, No. 2, pp. 73–103, pls. iv–xii, 1897. Review by W. S. T. Smith, Jour. of Geol., vol. v, pp. 533–534, 1897.

Describes the submerged valleys of the coast of California, and presents a number of contour maps of the coast line.

168 **Davis** (William M.). The Triassic formation of Connecticut.

U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 9–192, pls. i–xx, figs. 1–52, 1898.

Describes the deposition, character, and occurrence of the Triassic strata, the occurrence and characters of the igneous rocks, and the deformation and denudation of the region.

169 —— Is the Denver formation lacustrine or fluviatile?

Science, new ser., vol. vi, pp. 619–621, 1897.

Discusses the origin of the Denver formation.

170 **Dawson** (George M.). Are the bowlder clays of the Great Plains marine?

Jour. of Geol., vol. v, pp. 257–262, 1897.

Describes the occurrence of Cretaceous marine organisms in the bowlder clays of the Great Plains in British Columbia. Gives a list of the fossils determined by Mr. Joseph Wright.

171 —— [Review of "Genesis of Lake Agassiz," by J. B. Tyrrell.]

Jour. of Geol., vol. v, pp. 78–81, 1897.

172 —— Opening address. Section C, British Association for the Advancement of Science, 1897.

Brit. Assoc. Adv. Sci., Rept. 1897, pp. 628–640, 1897; Nature, vol. lvi, pp. 396–401, 1897; Sci. Am. Suppl., vol. xliv, pp. 18089–18090, 1897.

Discusses the relations of the pre-Cambrian rocks of Canada and other parts of North America.

173 —— The physical geography and geology of Canada.

Toronto, 48 pp., 1897.

Gives a general outline of the physiography and geologic features of Canada.

174 **Dawson** (J. William). Note on Carboniferous Entomostraca from Nova Scotia, in the Peter Redpath museum, determined and described by Prof. T. Rupert Jones, F. R. S., and Mr. Kirkby.

Can. Rec. Sci., vol. vii, pp. 316–323, figs. 1–9, 1897.

Describes and figures a number of species.

175 —— Additional notes on fossil sponges and other organic remains from the Quebec group of Little Metis, on the lower St. Lawrence. With notes on some of the specimens by G. J. Hinde.

Can. Roy. Soc., Proc. and Trans., 2d ser., vol. ii, sect. iv, pp. 91–121, pls. i–iv, 1896.

Discusses the nomenclature of the subdivisions of the Quebec group, and describes the geologic features at Little Metis. Gives general remarks on the fossil sponges and descriptions of the species, including several new ones.

176 **Dawson** (J. William). Note on cryptzoön and other ancient fossils.
Can. Rec. Sci., vol. vii, pp. 203–219, figs. 1–3, 1897.
Gives a review of the knowledge of certain ancient fossils, mainly pre-Cambrian, and describes one new species from the grand canyon of the Colorado.

177 **Day** (David T.). A suggestion as to the origin of Pennsylvania petroleum.
Am. Phil. Soc., Proc., vol. xxxvi, pp. 112–115, 1897.
Discusses a theory suggested by John N. MacGonigle.

178 **Diller** (Joseph Silas). Crater Lake, Oregon.
Am. Jour. Sci., 4th ser., vol. iii, pp. 165–172, pl. v, 1897.
Nat. Geog. Mag., vol. 8, pp. 33–48, pl. i, 7 figs., 1897.
Describes the peculiar features of the lake and discusses its origin.

179 —— Hornblende-basalt in northern California.
Am. Geol., vol. xix, pp. 253–255, 1897.
Describes the petrographic characters of the material and gives its chemical analysis.

180 —— The origin of Camas Swale.
Abstract, Science, new ser., vol. vi, p. 923, 1897.

181 **Dixon** (Roland B.) and **Drew** (Charles D.). Observations on the physiography of western Massachusetts.
Science, new ser., vol. vi, p. 847, 1897.
Describes the slope of the peneplain in this region.

182 **Drake** (Noah Fields). The topography of California.
Jour. of Geol., vol. v, pp. 563–578, 1897.
Describes the topographic features of the state.

183 **Draper** (Marshall). Hahn's Peak [Colorado].
Colliery Engineer, vol. xvii, pp. 437–438, 1897.
Describes the geologic features of the region and the occurrence of the gold and silver ores.

184 **Dresser** (John A.). Geological report and map of the district about Montreal [Canada].
Can. Rec. Sci., vol. vii, pp. 247–255, 1897.
Gives a summary of a report of the Geological Survey of Canada on this region.

185 **Drew** (Charles D.), **Dixon** (Roland B.) and. Observations on the physiography of western Massachusetts.
See Dixon (R. B.) and Drew (C. D.), No. 181.

186 **Duden** (Hans). Some notes on the black slate or Genesee shale of New Albany, Ind.
Ind. Dept. of Geol. and Nat. Res., 21st Ann. Rept., pp. 108–119, pls. ii–iii, 1897.
Describes the chemical composition of the slate and the methods of utilizing it. Includes a description of new genera and species of fossil plants.

187 **Dumble** (E. T.). Some Texas oil horizons.
Abstract, Science, new ser., vol. vi, p. 72 (⅛ p.), 1897.
Gives a brief statement as to the different geologic horizons at which oil occurs in this state.

## E.

188 **Eastman** (C. R.). On Ctenacanthus spines from the Keokuk limestone of Iowa.
Am. Jour. Sci., 4th ser., vol. iv, pp. 10–12, figs. 1–2, 1897.
Describes two species, including one new one.

189 —— Tamiobatis vetustus, a new form of fossil skate.
Am. Jour. Sci., 4th ser., vol. iv, pp. 85–90, pl. 1, fig. 1, 1897.
Describes material from the Devonian of Kentucky.

190 —— On the characters of Macropetalichthys.
Am. Nat., vol. xxxi, pp. 493–499, pl. xii, 1897.

191 **Ellis** (W. Hodgson). Chemical composition of the anthraxolite.
Ontario Bureau of Mines, 6th Rept., pp. 162–166, 1897.
Gives analyses of various specimens.

192 **Ells** (R. W.). Problems in Quebec geology.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 640–642, 1898. Abstract, Ottawa Nat., vol. xi, pp. 173–176, 1897.
Describes the general results of the study of the geology of this province.

193 —— Paleozoic outliers in the Ottawa River basin [Canada].
Can. Roy. Soc., Proc. and Trans., 2d ser., vol. ii, sec. iv, pp. 137–149, 1896.
Describes the occurrence of Cambro-Silurian and Upper Silurian formations in this region.

194 —— Memoir of N. J. Giroux.
Geol. Soc. Am., Bull., vol. viii, p. 377, 1897.
Gives a sketch of his life.

195 —— [Note on "Origin and relations of the Grenville-Hastings series of the Canadian Laurentian."]
Geol. Soc. Am., Bull., vol. viii, pp. 401–402, 1897.
Describes briefly the characters of the series.

196 —— See **Adams** (F. D.) and **Barlow** (A. E.), No. 5.

197 —— **Adams** (F. D.), **Barlow** (A. E.) and. On the origin and relations of the Grenville and Hastings series in the Canadian Laurentian.
See Adams (F. D.), Barlow (A. E.), and Ells (R. W.), No. 7.

198 **Emerson** (B. K.). Diabase pitchstone and mud inclosures of the Triassic trap of New England.
Geol. Soc. Am., Bull., vol. viii, pp. 59–86, pls. 3–9, 1897.
Describes the characters of the tuff, mud inclosures, pitchstone, and the petrographic character of the Greenfield bed and the Meriden ash bed. Discusses the origin of the glass and minerals.

199 **Emmons** (Samuel Franklin). Some mines of Rosita and Silver Cliff, Colorado.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 773–823, 1897.

Describes the geologic history of the region, and the occurrence and character of the ore bodies in the principal mines. Discusses their origin. Gives chemical analyses of waters from deep levels in the Geyser mine and a discussion of the results.

200 —— Origin of Green River.

Science, new ser., vol. vi, pp. 19–21, 1897.

Discusses the evidence as to the origin and development of this river.

201 —— The geology of government explorations.

Geol. Soc. of Wash., Presidential address, 39 pp., Washington, 1897; Science, new ser., vol. v, pp. 1–15, 42–51, 1897.

Gives a historical sketch of the work of geological surveys undertaken by the United States government, and a bibliography of the subject.

202 —— and **Tower** (George Warren, jr.). Economic geology of the Butte Special district [Montana].

U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 38, 1897.

Describes the fissure systems, the distribution of the ores, the ore deposition, the minerals occurring with the ores, and the character and occurrence of the lodes.

203 **Endlich** (F. M.). The Pearce mining district, Arizona.

Eng. and Mg. Jour., vol. lxiii, p. 571, 1897.

204 **Engel** (George W.). Description of a peculiar fault in the Mammoth coal bed, Panther Creek basin, Pennsylvania.

Colliery Engineer, vol. xviii, p. 100, 2 figs., 1897.

## F.

205 **Fairbanks** (Harold W.). The geology of the San Francisco peninsula [California].

Jour. of Geol., vol. v, pp. 63–76, 1897.

Reviews the report of Prof. Lawson on this subject and discusses the author's conclusions.

206 —— An interesting case of contact metamorphism.

Am. Jour. Sci., 4th ser., vol. iv, pp. 36–38, 1 fig., 1897.

Describes the geologic features of the locality in southern California and the contact phenomena.

207 —— The tin deposits at Temescal, southern California.

Am. Jour. Sci., 4th ser., vol. iv, pp. 39–42, 1897. Mg. and Sci. Press, vol. lxxv, p. 362, 1897.

Describes the geologic features of the region and the occurrence of the vein system and the tin deposits.

208 **Fairbanks** (Harold W.). Oscillations of the coast of California during the Pliocene and Pleistocene.

Am. Geol., vol. xx, pp. 213–245, pl. xv, 1897.

Reviews previous opinions concerning the subject, and discusses the evidences of the separation of the Pliocene and Pleistocene, and the evidence of a post-Pliocene disturbance and uplift.

209 —— Outline of the geology of California with reference to its mineral deposits.

Mg. and Sci. Press, vol. lxxiv, pp. 132, 152, 173, 193, 213, and 232, 1897.

Describes the general geologic features of the occurrence of mineral deposits in California.

F.

210 **Fairchild** (Herman LeRoy). Glacial geology of western New York.

Geol. Mag., dec. 4, vol. iv, pp. 529–537, with map, 1897; Brit. Assoc. Adv. Sci., Rept. 1897, p. 664, (½ p.), 1898.

Describes the glacial deposits and phenomena of this portion of the state.

211 —— Lake Warren shore lines in western New York and the Geneva beach.

Geol. Soc. Am., Bull., vol. viii, pp. 269–284. pl. 30, 1897.

Describes the occurrence of the shore lines and other glacial phenomena of the region.

212 **Farrington** (Oliver C.). Observations on Popocatepetl and Ixtaccihuatl, with a review of the geographic and geologic features of the mountains [Mexico].

Field Col. Mus., Geol. ser., vol. 1, pp. 75–120, pls. vii–xviii, figs. 1–2, 1897.

Reviews the literature on the region, and describes the geographic, geologic, and glacial features.

213 —— [Review of "Manual of determinative mineralogy, with an introduction on blowpipe analysis," by George J. Brush.]

Jour. of Geol., vol. v, pp. 86–87,1897.

214 —— The average specific gravity of meteorites.

Jour. of Geol., vol. v., pp. 126–130, 1897.

Reviews previous discussions of the subject, and gives the results of the author's studies.

215 —— The eruptive rocks of Mexico.

Jour. of Geol., vol. v, pp. 467–468, 1897.

Gives a summary of recent work by Señor Ordonez on this subject.

216 **Fenderson** (W. C.). Turquoise mining in New Mexico.

Mg. and Sci. Press, vol. lxxiv, p. 192, 1897.

Describes the occurence of turquoise in New Mexico.

217 **Ferrier** (W. F.), **Barlow** (A. E.) and. On the relations and structure of certain granites and associated arkoses of Lake Temiscaming, Canada.

See Barlow (A. E.) and Ferrier (W. F.), No. 40.

218 **Finch** (Grant E.). Drift section at Oelwein, Iowa.

Iowa Acad. Sci., Proc., vol. iv, pp. 54–58, pl. 1, 1897.

Describes the local features of the drift beds.

219 **Foerste** (August F.). A report on the geology of the Middle and Upper Silurian rocks of Clark, Jefferson, Ripley, Jennings, and southern Decatur counties, Indiana.

Ind. Dept. Geol. and Nat. Res., 21st Ann. Rept., pp. 213–288, pls. xiv–xvii, 1897.

Describes the lithologic and faunal characters and occurrence of the different subdivisions of the Silurian strata, and includes geological maps of the counties named.

220 **Foote** (H. W.), **Pratt** (J. H.) and. On wellsite, a new mineral.

See Pratt (J. H.) and Foote (H. W.), No. 485.

221 —— **Penfield** (S. L.) and. On bixbyite, a new mineral, and notes on the associated topaz.

See Penfield (S. L.) and Foote (H. W.), No. 469.

222 —— —— Note concerning the composition of ilmenite.

See Penfield (S. L.) and Foote (H. W.), No. 470.

223 **Foote** (Warren M.). Note on a new meteorite from the Sacramento Mountains, New Mexico.

Am. Jour. Sci., 4th ser., vol. iii, pp. 65–66, pls. i–ii, 1897. Nature, vol. lv, pp. 572–573, figs. 1–2, 1897.

Describes the mass and gives its chemical analysis.

224 **Fowke** (Gerard). The formation of natural bridges.

Stone, vol. xiv, pp. 355–357, 1897.

Discusses the mode of formation of natural bridges.

225 **Frazer** (Persifor). Tables for the determination of minerals by physical properties ascertainable with the aid of a few field instruments.

J. B. Lippincott & Co., Philadelphia, 4th edition, 1897.

Review by U. S. G[rant], Am. Geol., vol. xix, pp. 221–222, 1897; Review by E. B. Mathews, Science, new ser., vol. v, pp. 624–625, 1897.

226 —— Notes on the northern Black Hills of South Dakota.

Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 204–231, 1898.

Describes the general geology of the region and occurrence of the gold ores. Includes a bibliography.

227 **Fuller** (M. L.), **Crosby** (W. O.) and. Origin of pegmatite.

See Crosby (W. O.) and Fuller (M. L.), No. 157.

## G.

228 **Gemmell** (R. C.). The Camp Floyd mining district and the Mercur mine, Utah.

Eng. and Mg. Jour., vol. lxiii, pp. 403–404, 1897.

Describes the topographic and geologic features of the district.

229 **Gilbert** (Grove Karl). Recent earth movements in the Great Lakes region.

U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 601–647, pl. cv, figs. 93–101, 1898; Nat. Geog. Mag., vol. viii, pp. 233–247, figs. 1–7, 1897; Abstract, Nature, vol. lvii, pp. 211–213, fig. 1, 1897.

Describes the general features of the region and the methods of obtaining the data, and gives a discussion and summary of results.

230 —— Pueblo folio, Colorado.

U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36, 1897.

Describes the geologic history of the region, the character and occurrence of the Archean, Silurian, Carboniferous, Jura-Trias, Cretaceous, Neocene, and Pleistocene strata, the character and origin of the topographic features and the economic resources of the region. Includes topographic and geological maps.

231 —— Old tracks of Erian drainage in western New York.

Abstract, Geol. Soc. Am., Bull., vol. viii, pp. 285–286, 1897.

Describes the general features of the Glacial drainage of the region.

232 **Gill** (Theodore). Edward Drinker Cope, Naturalist. A chapter in the history of Science.

Am. Nat., vol. xxxi, pp. 831–863, 1897; Science, new ser., vol. vi, pp. 225–243, 1897; Sci. Am. Suppl., vol. xliv, pp. 18028, 18080–18081, and 18092–18094, 1897.

Gives a sketch of the life of Prof. Cope and a review of his work as a naturalist.

233 **Gilpin** (E., jr.). The geological horizons of some Nova Scotia minerals.

Brit. Assoc. Adv. Sci., Rept. 1897, p. 663 (⅛ p.). 1898.

Mentions the geologic horizons at which certain minerals occur.

234 —— Some analyses of Nova Scotia coals and other minerals.

N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 246–254, 1897.

Gives analyses of coals and iron ore.

235 **Goodrich** (Harold Beach). Recent warpings as shown by drainage peculiarities [Alaska].

U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 276–289, 1898.

Describes Alaskan drainage and the warping of the region as measured by the streams, and gives a summary of conclusions.

236 —— See **Spurr** (J. E.), No. 575.

237 **Gordon** (C. H.). [Review of "Correlation of Erie-Huron beaches with outlets and moraines in southeastern Michigan," by F. B. Taylor.]
Jour. of Geol., vol. v, pp. 313-317, 1897.

238 **Grabau** (Amadeus W.). The sand plains of Truro, Wellfleet, and Eastham [Massachusetts].
Abstract, Science, new ser., vol. v, pp. 334-335, 361, 1897.
Describes the physiography of the region and the character and occurrence of the sand plains.

239 **Grant** (U. S.). [Review of "Preliminary report on the Marquette iron-bearing district of Michigan," by C. R. Van Hise and W. S. Bayley. With a chapter on the Republic trough, by H. L. Smyth.]
Jour. of Geol., vol. v, pp. 401-404, 1897.

240 —— [Review of "Tables for the determination of minerals by physical properties ascertainable with the aid of a few field instruments," by Persifor Frazer.]
Am. Geol., vol. xix, pp. 221-222, 1897.

241 —— [Review of "Biennial report of the State geologist of Missouri," by C. R. Keyes.]
Am. Geol., vol. xix, p. 350 (½ p.), 1897.

242 —— Lakes with two outlets in northeastern Minnesota.
Am. Geol., vol. xix, pp. 407-411, 1897.
Describes the occurrence of several lakes of this character, and discusses the evidences of their probable duration.

243 —— [Review of "Treatise on rocks, rock-weathering and soils," by George P. Merrill.]
Am. Geol., vol. xx, pp. 273-274, 1897.

244 —— [Review of "Syllabus of general geology for students, with definition and references," by C. W. Hall.]
Am. Geol., vol. xx, pp. 323-324, 1897.

245 —— [Review of "Geology of Polk County, Iowa," by H. F. Bain.]
Am. Geol., vol. xx, p. 334 (½ p.), 1897.

246 **Gratacap** (L. P.). Fossils and fossilization.
Am. Nat., vol. xxxi, pp. 16-33, 191-199, 285, 293, 1897.
Continues the discussion from paper in Am. Nat., vol. xxx, p. 1003, 1896.

247 **Gregory** (J. W.). Some problems of Arctic geology. I. The polar basin.
Nature, vol. lvi, pp. 301-303, figs. 1-3, 1897.
Discusses the geologic history of the Arctic region.

248 —— Some problems of Arctic geology. II. Former Arctic climates.
Nature, vol. lvi, pp. 351-352, 1897.
Discusses the evidences as to the nature of Arctic climates in former geologic ages.

249 **Gresley** (W. S.). Traces of organic remains from Huronian (?) series at Iron Mountain, Mich., etc.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 527–534, 1897.
Describes the characteristics of markings considered to be of organic origin from the ore bodies at this locality.

250 **Grimsley** (G. P.). Gypsum deposits of Kansas.
Geo. Soc. Am., Bull., vol. viii, pp. 227–240, pls. 21–22, 1897.
Describes the topography of the areas, the origin, character, and age of the gypsum deposits, and the occurrence and character of the secondary gypsum deposits.

251 —— Gypsum in Kansas.
Kan. Univ. Quart., vol. vi, pp. 15–27, pls. iii–vi, figs. 1–6, 1897.
Describes the character and extent of the gypsum deposits of the State.

252 —— The study of natural palimpsests.
Am. Geol., vol. xix, pp. 15–21, 1897.
Discusses the phenomena of metamorphism.

253 —— [Review of "The University Geological Survey of Kansas," vol. ii.]
Am. Geol., vol. xix, pp. 272–274, 1897.

254 **Griswold** (Leon S.). Notes on the geology of Southern Florida.
Jour. of Geol., vol. v, pp. 312–313, 1897.
Review by J. Edmund Woodman.

255 **Guppy** (R. J. Lechmere) and **Dall** (William H.). Descriptions of Tertiary fossils from the Antillean region.
U. S. Nat. Mus., Proc., vol. xix, pp. 303–331, pls. xxvii–xxx, 1897.

256 **Gurley** (William F. E.), **Miller** (S. A.) and. New species of crinoids, cephalopods, and other Paleozoic fossils.
See Miller (S. A.) and Gurley (Wm. F. E.), No. 431.

257 **Gwillim** (J. C.) and **Johnson** (W. S.). Some ores and rocks of southern Slocan division, West Kootenay, British Columbia.
Can. Rec. Sci., vol. vii, pp. 293–302, 6 figs., 1897.
Describes the geologic features and the occurrence of the gold and silver ores of the region.

## H.

258 **Hall** (Christopher W.). Syllabus of general geology for students, with definitions and references.
The University Book Store, Minneapolis, Minn., 8vo, 127 pp., 1897.
Review by U. S. G[rant], Am. Geol., vol. xx, pp. 323–324, 1897.

259 **Hallock** (W.). Subterranean temperatures at Wheeling, W. Va., and Pittsburg, Pa.
School of Mines Quart., vol. xviii, pp. 148–153, 1897.
Gives notes on the temperatures in deep wells at these localities.

260 **Hanna** (George B.), **Nitze** (H. B. C.) and. Gold deposits of North Carolina.

See Nitze (H. B. C.) and Hanna (G. B.), No. 445.

261 **Hardman** (John E.). Notes on some mining districts in British Columbia.

Can. Mg. Review, vol. xvi, pp. 109–112, 1897.

Describes briefly the occurrence of gold and silver in the Rossland, Nelson, and Fort Steele districts.

262 **Hatcher** (J. B.). Diceratherium proavitum.

Am. Geol., vol. xx, pp. 313–316, pl. xix, 1897.

Makes correction of error in original description, and discusses its assignment to the genus Diceratherium rather than Aceratherium.

263 **Haworth** (Erasmus). Underground waters of southwestern Kansas.

U. S. Geol. Surv., Water-Supply and Irrigation Papers No. 6, 63 pp., pls. i–xii, figs. 1–2, 1897.

Describes the physiography of the region, the character and occurrence of the Juratrias, Cretaceous, and Tertiary beds, and the water supply. Includes a geological map.

264 —— Physiography of western Kansas.

Kan. Univ. Geol. Surv., vol. ii, pp. 11–49, pls. i–viii, fig. 1, 1897.

Describes the stream erosion of the region.

265 —— Physical properties of the Tertiary [Kansas].

Kan. Univ. Geol. Surv., vol. ii, pp. 251–284, pls. xxxvi–xliv, 1897.

Describes the physical character of the material forming the Tertiary deposits, and discusses their origin and mode of formation.

266 —— The University Geological Survey of Kansas, vol. ii.

Review by S. W. W[illiston], Jour. of Geol., vol. v, pp. 400–401, 1897; Review by G. P. G[rimsley], Am. Geol., vol. xix, pp. 272–274, 1897.

267 —— See **Logan** (W. N.), No. 388.

268 —— and **Beede** (J. W.). The McPherson Equus beds [Kansas].

Kan. Univ. Geol. Surv., vol. ii, pp. 287–296, pl. xlvii, 1897.

Describes the topographic features of the region, and the character, structure, and origin of the beds.

269 **Hayes** (C. W.). Solution of silica under atmospheric conditions.

Geol. Soc. Am. Bull., vol. viii, pp. 213–220, pls. 17–19, 1897.

Describes occurrence of this phenomenon and the chemical reactions involved.

270 —— [Review of "Report on the Valley Regions of Alabama, Part II. On the Coosa Valley region." By Henry McCalley.]

Science, new ser., vol. vi, p. 296, 1897.

271 —— The geological relations of some Southern iron ores.

Science, new ser., vol. v, p. 558, 1897.

272 **Head** (Jeremiah). The coal industry of the southeastern States of North America.

North of Eng. Inst. Mg. and Mech. Engrs., Trans., vol. xlvi, pp. 167–182, 3 figs., 1897.

Describes the character and occurrence of coal in the southern Appalachian region.

273 **Henrich** (Carl). Faulting and accompanying features observed in glacial gravel and sand in southern Michigan.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 460–464, fig. 1, 1897.

Describes the character of the strata and the faulting that has taken place.

274 **Herrick** (C. L.). The geology of a typical mining camp in New Mexico.

Am. Geol., vol. xix, pp. 256–262, pls. xiii–xiv, 1897.

Describes the general geologic features of the Magdalena Mountains and the fault phenomena of the region.

275 **Hershey** (Oscar F.). The Florencia formation.

Am. Jour. Sci., 4th ser., vol. iv, pp. 90–98, 1897.

Describes the lithologic character, distribution, and relations of the formation in Illinois, and gives a list of fossils determined by W. H. Dall.

276 —— Mode of formation of till as illustrated by the Kansan drift of northern Illinois.

Jour. of Geol., vol. v, pp. 50–62, fig. 1, 1897.

Describes the general glacial features of the region and the occurrence and mode of formation of the till.

277 —— Eskers indicating stages of glacial recession in the Kansan epoch in northern Illinois.

Am. Geol., vol. xix, pp. 197–209, 237–253, pl. xi, 1897.

Describes the distribution of the stratified gravel and sand, its mode of deposition, and the occurrence of transported rock masses. Presents a map showing the Kansan stages of recession and gives the author's conclusions.

278 —— The term Pecatonica limestone.

Am. Geol., vol. xx, correspondence, pp. 66–67, 1897.

Discusses the use of the term Pecatonica.

279 —— The physiographic development of the upper Mississippi valley.

Am. Geol., vol. xx, pp. 246–268, 1897.

Describes the peneplains in southeastern Minnesota, northeastern Iowa, northwestern Illinois, and the canyon valleys of the upper Mississippi region.

280 —— The inferior boundary of the Quaternary era.

Am. Nat., vol. xxxi, pp. 104–114, 1897.

Discusses the evidences of the beginning of the Quaternary epoch.

281 **Hershey** (Oscar F.). [Review of "The formation of the Quaternary deposits of Missouri," by James E. Todd.]
Science, new ser., vol. v, pp. 587–588, 1897.

282 —— The loess formation of the Mississippi valley.
Science, new ser., vol. v, pp. 768–770, 1897.
Describes the character and origin of the loess.

283 **Hill** (Robert T.). Memoir of Robert Hay.
Geol. Soc. Am., Bull., vol. viii, pp. 370–374, 1897.
Gives a sketch of his life and a list of his published papers.

284 —— The alleged Jurassic of Texas. A reply to Prof. Jules Marcou.
Am. Jour. Sci., 4th ser., vol. iv, pp. 449–469, 1897.
Reviews the work on the Cretaceous series of the southwest, with special reference to the work and publications of Prof. Marcou in the same region.

285 —— The easternmost volcanoes of the United States.
Science, new ser., vol. vi, pp. 594–595, 1897.
Describes occurrence of volcanic flows in eastern New Mexico.

286 —— The stratigraphic succession in Jamaica.
Brit. Assoc. Adv. Sci., Rept. 1897, p. 642 (½ p.), 1898.

287 —— and **Vaughan** (T. Wayland). Geology of the Edwards plateau and Rio Grande plain adjacent to Austin and San Antonio, Texas, with reference to the occurrence of underground waters.
U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 199–321, pls. xxi–lxiv, figs. 53–76, 1898.
Describes the physiography of the region, the character and occurrence of the Comanche and Gulf series, and the Eocene strata, and the occurrence of underground water.

288 **Hille** (F.). The western Ontario gold fields and their genesis.
Can. Mg. Review, vol. xvi, pp. 153–158, figs. 1–11, 1897.
Describes the origin of the ore bodies.

289 **Hillebrand** (W. F.), **Clarke** (F. W.) and. Analyses of rocks, with a chapter on analytical methods.
See Clarke (F. W.) and Hillebrand (W. F.), No. 132.

290 **Hinde** (G. J.). Eminent living geologists. Dr. G. M. Dawson.
Geol. Mag., dec. 4, vol. iv, pp. 193–195, 1897.
Gives a sketch of the life and work of Dr. Dawson.

291 —— See Dawson (J. William), No. 175.

292 **Hitchcock** (C. H.). Note on the stratigraphy of certain homogeneous rocks.
Abstract, Geol. Soc. Am., Bull., vol. viii, pp. 389–390, 1897.
Describes the cleavage and stratification planes of certain rocks of Vermont and New Hampshire.

293 **Hitchcock** (C. H.). Sketch of W. W. Mather.
Am. Geol., vol. xix, pp. 1–15, pl. 1, 1897.
Gives a sketch of his life and a list of his published writings.

294 —— The eastern lobe of the ice sheet.
Am. Geol., vol. xx, pp. 27–33, 1897.
Describes recent observations in the Adirondack region.

295 —— The southern lobe of the Laurentian ice sheet.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 653–654, 1898.
Contains a brief discussion of the extent of the ice sheet in northern United States.

296 —— [Review of "Annual Report of the Geological Survey of Canada for the calendar year 1894, new series, vol. vii."]
Science, new series, vol. v, pp. 621–624, 1897.

297 **Hobbs** (William H.). Note on the geology of southwestern New England.
Jour. of Geol., vol. v., pp. 175–177, 1897.
Describes observations of the structure in southwestern Massachusetts and northwestern Connecticut, and its bearing on the correlation of the Canaan limestone with the Stockbridge, the Riga schist with the Berkshire schist, and the Egremont limestone with the Bellowspipe limestone.

298 **Hollick** (A.). [Review of "Stratigraphy and paleontology of the Laramie and related formations in Wyoming" by T. W. Stanton and F. H. Knowlton.]
Torrey Bot. Club., Bull., vol. xxiv, p. 26 (½ p.), 1897.

299 —— A new fossil grass from Staten Island [New York].
Torrey Bot. Club., Bull., vol. xxiv, pp. 122–124, 1897.
Describes a new species from the Tertiary beds.

300 —— [Review of "Nature, structure, and phylogeny of Dæmonelix," by E. H. Barbour.]
Torrey Bot. Club, Bull., vol. xxiv, pp. 266–267, 1897.

301 —— [Review of "Age of the lower coals of Henry County, Missouri," by David White.]
Torrey Bot. Club, Bull., vol. xxiv, pp. 316–317, 1897.

302 —— A new fossil Monocotyledon from the Yellow gravel at Bridgeton, N. J.
Torrey Bot. Club, Bull., vol. xxiv, pp. 329–331, pls. 311–313, 1897.
Describes a new species from the Tertiary beds.

303 **Hoover** (Herbert C.). Geology of the Four Mile placer mining district, Colorado.
Eng. and Mg. Jour., vol. lxiii, p. 510, 1897.
Describes the placer mines and discusses the origin of the gold.

304 **Hopkins** (T. C.). Brownstones of Pennsylvania.

U. S. Geol. Surv., 18th Ann. Rept., Pt. V (cont.), pp. 1025–1043, 1897.

Describes the chemical and mineralogic composition and geologic occurrence of the brownstones.

305 —— Origin of conglomerates of western Indiana.

Abstract, Geol. Soc. Am., Bull., vol. viii. pp. 14–15, 1897.

Discusses the origin of the Carboniferous conglomerate.

306 —— Styolites.

Am. Jour. Sci., 4th ser., vol. iv, pp. 142–144, 1897; Stone, vol. xv, pp. 137–139, 1897.

Describes their occurrence and origin.

307 —— The building materials of Pennsylvania. I, Brownstones.

Pa. State College, Ann. Rept. for 1896, Appendix 122 pp., 26 pls., 9 figs., 1897; Stone, vol. xv, pp. 147–155, 257–265, 364–369, 1897.

Describes the general characteristics of brownstones, their lithologic and chemical characters in Pennsylvania, and their character and distribution in other parts of the United States.

308 —— and **Siebenthal** (C. E.). The Bedford oolitic limestone of Indiana.

Ind. Dept. of Geol. and Nat. Res., 21st Ann. Rept., pp. 291–427, pls. xix–xxxviii, 1897; U. S. Geol. Surv., 18th Ann. Rept., Pt. v (Cont.) pp. 1050–1057, 1897; Review by J. C. Branner, Jour. of Geol., vol. v, pp. 529–531, 1897.

Describes the general stratigraphic, structural and economic features of the Bedford limestone. Includes a description of the local occurrences, a discussion of the origin of oolitic limestones, a bibliography and geologic map.

309 **Hosea** (R. M.). The Newcastle mines [Colorado].

Colliery Engineer, vol. xvii, pp. 377–382, 425–429, 13 figs., 1897.

Describes the character and occurrence of coal in these mines and the methods of working.

310 **Hovey** (E. O.). A relatively acid dike in the Connecticut Triassic area.

Am. Jour. Sci., 4th ser., vol. iv, pp. 287–292, figs. 1–3, 1897.

Describes the occurrence of the dikes, and the petrographic characters and chemical composition of the dike rock. Presents a geological map.

## I.

311 **Iddings** (J. P.). [Review of "The ancient volcanic rocks of South Mountain, Pennsylvania," by Florence Bascom.]

Jour. of Geol., vol. v, pp. 213–216, 1897.

## J.

312 **James** (Joseph F.). Manual of the paleontology of the Cincinnati group, Part VIII.

Cin. Soc. Nat. Hist., Proc., vol. xix, pp. 99–118, 1897.

Continues the paper in vol. xviii, p. 140. See Bibliography and Index for 1896, No. 360.

313 **Jefferson** (Mark S. W.). The antecedent Colorado.
Science, new ser., vol. vi, pp. 293-295, 1897.
Discusses the origin of the Colorado River.

314 **Johnson** (Guy R.). The Embreville estate, Tennessee.
Am. Inst. Mg. Engrs., Trans , vol. xxvi, pp. 138–144, 1897; Eng. and Mg. Jour., vol. lxi, p. 540, 1897.
Describes the geology of the region and the occurrence of the iron ores.

315 **Johnson** (W. S.), **Gwillim** (J. C.) and. Some ores and rocks of southern Slocan division, West Kootenay, British Columbia.
See Gwillim (J. C.) and Johnson (W. S.) No. 257.

316 **Jopling** (James E.). The Marquette range, its discovery, development, and resources.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 541–555, figs. 1–11, 1898.
Includes brief notes on the iron-ore bodies and cross sections.

317 **Jordan** (David S.). Richard Owen.
Pop. Sci. Mo., vol. li, pp. 259–265, 1897.
Gives a sketch of the life and character of Richard Owen.

## K.

318 **Keith** (Arthur). Wartburg folio, Tennessee.
U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 40, 1897.
Describes the topographic features and geologic history of the quadrangle, the character and occurrence of the Carboniferous rocks, the geologic structure, and the occurrence of coal and petroleum. Includes topographical and geological maps.

319 **Kemp** (James Furman). The Leucite hills of Wyoming.
Geol. Soc. Am., Bull., vol. viii, pp. 169–182, pl. 14, 1897.
Describes the geology of the hills and the petrographic and chemical characters of the rocks.

320 —— Physiography of the eastern Adirondacks in the Cambrian and Ordovician periods.
Geol. Soc. Am., Bull., vol. viii, pp. 408–412, pl. 51, 1897.
Describes the physiographic features of the region during Cambrian and Ordovician time.

321 —— The geology of the magnetites near Port Henry, N. Y., and especially those of Mineville.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 146–203, pls. i–ix, figs. 1–12, 1898.
Describes the general geologic features of the region, the occurrence, character, chemical composition, relations, and origin of the nontitaniferous ore bodies. Includes a bibliography of the subject.

322 **Keyes** (Charles Rollin). [Review of "Eocene deposits of the Middle Atlantic slope in Maryland, Delaware, and Virginia," by W. B. Clark.]
Jour. of Geol., vol. v, pp. 310–312, 1897.

323 **Keyes** (Charles Rollin). Dual character of the Kinderhook fauna.
Am. Geol., vol. xx, pp. 167–176, 1897.
Discusses the character of the Kinderhook fauna and its bearing on the evidence of the line separating the Carboniferous and Devonian systems.

324 —— Memorial of Charles Wachsmuth.
Iowa Acad. Sci., Proc., vol. iv, pp. 13–16, 1897.
Gives a sketch of his life.

325 —— Stages of the Des Moines or chief coal-bearing series of Kansas and southwest Missouri and their equivalents in Iowa.
Iowa Acad. Sci., Proc., vol. iv, pp. 22–25, 1897.
Discusses the succession of the beds of the coal-bearing series of the region and compares them with the series in Iowa.

326 —— Relation of the Devonian and Carboniferous in the Upper Mississippi Valley.
St. Louis Acad. Sci., Trans., vol. vii, pp. 357–369, 1897.
Discusses the separation of the Carboniferous and Devonian formations. Describes the section at Louisiana, Missouri, and gives a list of fossils.

327 —— A new method of synchronizing strata.
Science, new ser., vol. vi, pp. 655–656, 1897.
Discusses principles of geologic correlation.

328 —— Distribution and character of Missouri clays.
Mineral Industry for 1896, pp. 127–137, 1897.

329 —— Central Maryland granites III.
Stone, vol. xiv, pp. 125–129, 226–228, 1897.
Describes their character and occurrence.

330 —— Biennial report of the State Geologist [Missouri].
Am. Geol., vol. xix, p. 350 (¼ p.), 1897.
Review by U. S. G[rant].

331 —— and **Rowley** (R. R.). Vertical range of fossils at Louisiana [Missouri].
Iowa Acad. Sci., Proc., vol. iv, pp. 26–40, 1897.
Describes the section at this locality and gives a list of fossils. Discusses the faunal characters of the Lower Carboniferous and the occurrence of Devonian forms in the lower portion of the Kinderhook group.

332 **Kimball** (James P.). Physiographic geology of the Puget Sound Basin [Washington].
Am. Geol., vol. xix, pp. 225–237, 304–322, pls. xii, xix, 1897.
Describes the physiographic and orographic changes that have occurred in the region and the character and structure of the Cretaceous, Tertiary, and Pleistocene strata, with remarks on the glacial phenomena. Mentions the occurrence of coal.

333 **Kimball** (James P.). Secondary occurrences of magnetite on islands of British Columbia by replacement of limestone and by weathering of eruptives.
Am. Geol., vol. xx, pp. 13–27, pls. ii–iii, 1897.
Discusses the theory of replacement, and describes the occurrence and character of ore bodies in the region named.

334 —— On the magnetite belt at Cranberry, North Carolina, and notes on the genesis of iron ore in general in crystalline schists.
Am. Geol., vol. xx, pp. 299–312, pl. xviii, 1897.
Describes the character and form of the ore deposits, and discusses the origin of this and similar ore bodies. Gives chemical analyses of the ore.

335 **Kindle** (Edward M.). The relation of the fauna of the Ithaca group to the faunas of the Portage and Chemung.
Am. Geol., vol. xix, pp. 140–141, 1897.
Review by T. L. W[atson].

336 —— Pleistocene fossils from Baffinland and Greenland.
Science, new ser., vol. v, pp. 91–93, 1897.
Gives lists of species determined and describes their occurrence.

337 **Kingsley** (J. S.). The systematic position of the trilobites. With remarks by C. E. Beecher.
Am. Geol., vol. xx, pp. 33–40, 1897.
Discusses the characteristics of and position to which trilobites should be assigned. Includes a partial bibliography.

338 —— Edward Drinker Cope.
Am. Nat., vol. xxxi, pp. 414–419, 1897.
Gives an account of the life and works of Prof. Cope.

339 **Klittke** (M.). Die geologische Landesan fuahme der Dominion of Canada.
Zeit. prak. Geol., Heft 4, pp. 117–144, 1897.

340 **Knapp** (George N.), **Salisbury** (R. D.) and. Surface geology. Report of progress [New Jersey].
See Salisbury (R. D.) and Knapp (G. N.), No. 522.

341 **Knapp** (M. A.). The coal fields of Esmeralda County, Nevada.
Mg. and Sci. Press, vol. lxxiv, p. 133, 1897.
Describes the character and occurrence of the coal-bearing strata.

342 **Knight** (W. C.) The geology of the Popo Agie, Lander, and Shoshone oil fields [Wyoming].
Wyoming Univ., School of Mines, Petroleum ser., Bull. No. 2, 20 pp., 1897.
Describes the general geology of the region.

343 —— The petroleum fields of Wyoming.
Mineral Industry for 1896, pp. 442–450, 1897.
Describes the geologic features of the region and the occurrence of the oil.

344 **Knowlton** (F. H.). Report on a collection of fossil plants from the Yukon River, Alaska, obtained by Mr. J. E. Spurr and party during the summer of 1896.

U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 194-196, 1898.

Gives a list of the fossils collected and discusses their bearing on the age of the beds.

345 —— The fossil plants of the Payette formation [Idaho].

U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 721-736, pls. xcix-cii, 1898.

Describes a number of new species from this formation and discusses their bearing on its age.

346 —— [Review of "The flora of the Amboy clays" by J. S. Newberry, edited by Arthur Hollick.]

Torrey Bot. Club, Bull., vol. xxiv, pp. 94-96, 1897.

347 —— **Stanton** (T. W.) and. Stratigraphy and paleontology of the Laramie and related formations in Wyoming.

See Stanton (T. W.) and Knowlton (F. H.), No. 580.

348 **Krusch** (P.). Goldvorkommen in Minnesota mit besonderer Berücksichtigung des Rainy Lake district.

Zeit. fur prak., Geol., Heft 3, pp. 92-94, 1897.

See No. 548, Bull., U. S. Geol. Surv., No. 146.

349 **Kümmel** (Henry B.). The Newark system. Report of progress. [New Jersey.]

N. J. Geol. Surv., Rept. 1896, pp. 27-88, pl. viii, 1897.

Describes the topography of the Newark area, the lithologic character and distribution of the Stockton, Lockatong, and Brunswick series and of the trap rocks, and discusses the structure of the region.

350 —— The Newark system of New Jersey.

Jour. of Geol., vol. v, pp. 541-562, 1897: Review by N. H. W[inchell], Am. Geol., vol. xx, pp. 134-135, 1897.

Describes the physiography of northwestern New Jersey, the character and occurrence of the Newark strata, and their geologic structure.

Presents a geologic map of the region.

351 —— [Review of "Elementary geology," by Ralph S. Tarr.]

Jour. of Geol., vol. v, pp. 317-318, 1897.

352 **Kunz** (George F.). On the sapphires from Montana, with special reference to those from Yogo gulch, in Fergus County.

Am. Jour. Sci., 4th ser., vol. iv, pp. 417-420, 1897.

Describes their character and occurrence.

353 —— The genesis of the diamond.

Science, new ser., vol. vi, pp. 450-456, 1897.

Discusses the origin of diamonds in a review of Prof. Lewis's papers on the "Genesis and matrix of the diamond."

## L.

354 **Lakes** (Arthur). Sketch of a portion of the Gunnison gold belt, including the Vulcan and Mammoth Chimney mines [Colorado].
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 440–448. figs. 1–2, 1897.

355 —— Common freaks of nature.
Colliery Eng., vol. xvii. pp. 239–240, 1897.
Describes the occurrence and origin of concretionary structures.

356 —— Peculiar formations in the San Juan region [Colorado].
Colliery Eng., vol. xvii, pp. 350–352, 3 figs., 1897.
Describes the character and occurrence of the San Miguel conglomerate and the San Juan formation.

357 —— Rico mining district [Colorado].
Colliery Eng., vol, xvii, pp. 359–360, 6 figs., 1897.
Describes the occurrence of the gold and silver mines of the district.

358 —— Mining sketches [Colorado].
Colliery Eng., vol. xvii, pp. 383–388, 20 figs., 1897.
Describes the general geologic features of portions of the San Juan region.

359 —— Ore shoots of Cripple Creek [Colorado].
Colliery Eng., vol. xvii, pp. 481–482, 4 figs., 1897.
Describes the occurrence of the ore veins at Cripple Creek.

360 —— The La Plata mountains [Colorado].
Colliery Eng., vol. xvii, pp. 74–77, 101–103, 18 figs., 1897.
Describes the geologic and ore deposits of the region.

361 —— A study of vein formation as illustrated in Clear Creek canyon, Colorado.
Colliery Eng., vol. xvii, pp. 109–110, 10 figs., 1897.
Describes the occurrence and character of the veins.

362 —— A sketch of the mining fields of British Columbia and the great Northwest.
Colliery Eng., vol. xviii, pp. 152–157, 3 figs., 1897.
Describes the general geologic features and ore deposits of the region.

363 —— A mountain placer [Colorado].
Colliery Eng., vol. xviii, pp. 193–195, 5 figs., 1897.
Describes the character and occurrence of a placer in South Park, Colorado.

364 —— Local restriction and distribution of certain ores.
Colliery Eng., vol. xviii, p. 225, 1897.
Remarks on the local occurrences of minera'ls.

365 —— "Nigger heads," turtle stones, etc., explained.
Stone, vol. xiv, pp. 271–274, 1897.

366 **Lakes** (Arthur). The undeveloped economic resources of Colorado.
Stone, vol. xiv, pp. 358-369, 1897.
Gives a description of the geologic features of portions of Colorado and their economic resources.

367 **Lane** (Alfred C.). Grain of rocks.
Abstract, Geol. Soc. Am., Bull., vol. viii, pp. 403-407, 1897.
Describes the effect of the rate of cooling on the grain of rocks.

368 —— Nature's concentrators.
Eng. and Mg. Jour., vol lxiii, pp. 542-543, 1897.
Discusses the origin of ore deposits.

369 **Lawson** (Andrew C.). The geology of San Francisco peninsula [California].
Jour. of Geol., vol. v, pp. 173-174, 1897.
Reviews certain criticisms on the author's paper on this subject.

370 **Leach** (J. C.). Report of the State natural gas supervisor [Indiana].
Ind. Dept. of Geol. and Nat. Res., 21st Ann. Rept., pp. 428-456, 1897.
Describes the conditions of the gas industry and discusses the origin and occurrence of natural gas.

371 **Le Conte** (Joseph). Earth-crust movements and their causes.
Geol. Soc. Am., Bull., vol. viii, pp. 113-126; Science, new ser., vol. v., pp. 321-330, 1897.
Describes the causes and character of earth movements.

372 **Leonard** (A. G.). Lead and zinc deposits of Iowa.
Iowa Geol. Surv., vol. vi, pp. 11-66, 1897.
See Bibliography and Index for 1896, No. 441.

373 —— Natural gas in the drift of Iowa.
Iowa Acad. Sci., Proc., vol. iv, pp. 41-47, 1897.
Describes its occurrence at various localities and discusses its origin.

374 **Leverett** (Frank). Water resources of Indiana and Ohio.
U. S. Geol. Surv., 18th Ann. Rpt., Pt. IV, pp. 425-559, pls. xxxiii-xxxvii, figs. 76-77, 1897; Review by W. H. Norton, Jour. of Geol., vol. v, pp. 206-208; Review, Am. Geol., vol. xix, pp. 418-419, 1897.
Describes the physiography, glacial history, drainage systems, and water supply of these states.

375 —— The Pleistocene features and deposits of the Chicago area [Illinois].
Chicago Acad. Sci., Bull., No. 2, 86 pp., pls. 1-4, figs. 1-8, 1887; Review by E. W. C[laypole], Am. Geol., vol. xx, p. 57, 1897.
Describes the physiography and glacial deposits and phenomena of the region.

376 —— [Review of "The Glacial Lake Agassiz" by Warren Upham.]
Am. Geol., vol. xx, pp. 324-328, 1897.

377 **Leverett** (Frank). Changes in drainage in southern Ohio.
Denison Univ., Sci. Lab., Bull., vol. ix, pt. ii, pp. 18-21, 1897.
Describes an abandoned valley in southern Ohio.

378 **Lewis** (Henry Carvill). Papers and notes on the genesis and matrix of the diamond.
Review by N. H. Winchell, Am. Geol., vol. xx, pp. 57-59, 1897.

379 **Lewis** (J. F.). The Chicago main drainage channel.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 288-332, figs. 1-24, 1897.
Includes notes on the glacial geology of the region.

380 **Lewis** (Joseph Volney). Corundum and the basic magnesian rocks of western North Carolina.
N. C. Geol. Surv., Bull., No. 11, 167 pp., 6 pls., 8 figs., 1896.
Describes the character and distribution of the peridotites and associated rocks, and the occurrence and distribution of corundum in the state. Includes a bibliography of the literature of the corundum belt and a geological map of western North Carolina.

381 **Lindahl** (Josua). Description of a Devonian Ichthyodorulite, Heteracanthus uddeni, n. sp., from Buffalo, Iowa.
Cin. Soc. Nat. Hist., Jour., vol. xix, pp. 95-98, pl. vi, 1897.
Describes a new species and gives an emended description of the genus.

382 **Lindgren** (Waldemar). The mining districts of the Idaho basin and the Boise Ridge, Idaho. With a report on the fossil plants of the Payette formation by Frank Hall Knowlton.
U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 625-736, pls. lxxxviii-cii, figs. 55-65, 1898.
Describes the general geologic history and the occurrence and character of the ore deposits and of the Tertiary and Pleistocene strata. Includes a report on the fossil plants of the Payette formation.

383 —— Truckee folio, California.
U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 39, 1897.
Describes the geologic history and topography of the gold-belt region, the occurrence and character of the Bed Rock series, the Carboniferous, Jura-Trias?, Neocene, and Pleistocene strata, the character of the igneous rocks and the Glacial history of the region. Includes topographic and geologic maps.

384 —— The granitic rocks of the Pyramid Peak district, Sierra Nevada, Cal.
Am. Jour. Sci., 4th ser., vol. iii, pp. 301-314, fig. 1, 1897.
Describes briefly the character and distribution of the Carboniferous and Jura-Trias strata, the petrographic characters of the granite, gabbro, diorite, and granodiorite. Gives chemical analyses of the granite and a geological map.

385 —— Monazite from Idaho.
Am. Jour. Sci., 4th ser., vol. iv, pp. 63-64, 1897; Abstract, Eng. and Mg. Jour., vol. lxiv, p. 69, 1897; Mg. and Sci. Press, vol. lxxv, p. 168, 1897.
Describes the occurrence of Monazite.

386 **Lindgren** (Waldemar). The granitic rocks of the Sierra Nevada.
Abstract, Science, new ser., vol. v, p. 361, 1897.

387 —— Filling and replacement in gold-bearing fissure veins.
Eng. and Mg. Jour., vol. lxiii, p. 573, 1897.
Describes the alteration of country rock, the process of silicification, and the structure of veins.

388 **Logan** (W. N.). The upper Cretaceous of Kansas. With an introduction by Erasmus Haworth.
Kan. Univ. Geol. Surv., vol. i, pp. 197–234, pls. xxv–xxxiv, 1897.
Describes the general character and relations of the upper Cretaceous beds and the distribution and lithologic and faunal characters of the Dakota, Benton, and Niobrara subdivisions.

389 —— Some new cirriped crustaceans from the Niobrara Cretaceous of Kansas.
Kan. Univ. Quart., vol. vi, pp. 187–189, 1897.
Describes several new species.

390 **Low** (A. P.). The Labrador area.
Ottawa Nat., vol. x, pp. 208–216, 1897.
Notes discovery of iron-bearing Cambrian deposits.

## M.

391 **Macbride** (T. H.). A pre-Kansan peat bed.
Iowa Acad. Sci., Proc., vol. iv, pp. 63–66, 1897.
Describes the occurrence in drift beds at Oelwein, Iowa.

392 **McCalley** (Henry). Report on the Valley regions of Alabama (Paleozoic strata) Part I. On the Tennessee Valley region.
Jour. of Geol., vol. v, pp. 307–308, 1897.
Review by Stuart Weller.

393 —— The Coosa Valley region [Alabama].
Ala. Geol. Surv., Rept. on the Valley regions of Alabama. Pt. II, 862 pp., 35 pls., 18 figs., 1897. Review by T. C. C[hamberlin], Jour. of Geol., vol. v, pp. 646–647, 1897; Review by C. W. Hayes, Science, new ser., vol. vi, p. 296, 1897.
Describes the general physiographic features, geologic structure and formations, and occurrence of economic minerals, and gives detailed descriptions by counties.

394 —— The hematites of Alabama geologically considered.
Eng. and Mg. Jour., vol. lxiii, pp. 43–44, 1897.
Describes the geologic occurrence of the hematites and gives a section of Red Mountain.

395 —— The fluxing rocks of Alabama geologically considered.
Eng. and Mg. Jour., vol. lxiii, pp. 115–116, 1897.
Describes the occurrence of Carboniferous, Silurian, and Cambrian limestones.

396 **McGee** (W J). Sheetflood erosion.
Geol. Soc. Am., Bull., vol. viii, pp. 87–112, pls. 10–13, 1897.
Describes the erosion of the Sonoro district, Mexico.

397 —— [Review of "Elementary geology," by Ralph S. Tarr.]
Nat. Geog. Mag., vol. viii, pp. 59–60, 1897.

398 —— [Review of "An introduction to geology," by W. B. Scott.]
Nat. Geog. Mag., vol. viii, pp. 91–92, 1897.

399 —— [Review of "Glaciers of North America," by Israel C. Russell.]
Nat. Geog. Mag., vol. viii, pp. 124–125, 1897.

400 —— [Review of "A treatise on rocks, rock weathering, and soils," by George P. Merrill.]
Nat. Geog. Mag., vol. viii, pp. 126–127, 1897.

401 **Maas** (G.). [Review of "Geological and petrographical studies of the Sudbury nickel district in Canada," by T. L. Walker.]
Zeit. fur prak. Geol., Heft 8, pp. 297–300, fig. 85, 1897.

402 **Mabery** (Charles F.). On the composition of American petroleum.
Am. Phil. Soc., Proc., vol. xxxvi, pp. 126–136, 1897.
Discusses the chemical composition of petroleum.

403 **Marcou** (Jules). Jura and Neocomian of Arkansas, Kansas, Oklahoma, New Mexico, and Texas.
Am. Jour. Sci., 4th ser., vol. iv, pp. 197–212, 1897.
Discusses the classification and stratigraphy of the formations in the States named.

404 —— Rules and misrules in stratigraphic classification.
Am. Geol., vol. xix, pp. 35–47, 1897.
Reviews the history of geological classification and nomenclature and discusses the classification of Cambrian and Silurian formations of eastern North America adopted by other writers.

405 —— Rules and misrules in stratigraphic nomenclature.
Am. Geol., vol. xix, pp. 111–131, 1897.
Discusses the classification and nomenclature of various geologic formations.

406 —— Note on "The easternmost volcanoes of the United States."
Science, new ser., vol. vi, pp. 667–668, 1897.
Refers to certain statements in a paper by R. T. Hill on this subject.

407 **Marsh** (Othniel C.). The skull of Protoceras.
Geol. Mag., Dec. 4, vol. iv, pp. 433–439, pl. xix, figs. 1–2, 1897.

408 —— Affinities of Hesperornis.
Am. Jour. Sci., 4th ser., vol. iii, pp. 347–348, 1897.

409 —— The Stylinodonta, a suborder of Eocene edentates.
Am. Jour. Sci., 4th ser., vol. iii, pp. 137–146, 9 figs., 1897.
Describes and figures Stylinodon mirus and discusses the origin of the edentates.

410 **Marsh** (Othniel C.). Principal characters of the Protoceratidæ. Part I.
Am. Jour. Sci., 4th ser., vol. iv, pp. 165–176, pls. ii–vii, figs. 1–7, 1897.
Discusses the characters of Protoceras and Calops.

411 —— The Dinosaurs of North America.
Jour. of Geol., vol. v, pp. 87–88, 1897.
Reviewed by E. C. C[ase].

412 —— Dinosaurs.
Sci. Am. Suppl., vol. xliii, pp. 17828–17829, figs. 1–7, 1897.
Extract from 16th Annual Report of the U. S. Geological Survey.

412*a* **Mathews** (Edward B.). Bibliography and cartography of Maryland, including publications relating to the physiography, geology, and mineral resources.
Md. Geol. Surv., vol. i, pp. 229–401, 1897.

413 —— [Review of "Tables for the determination of minerals by physical properties ascertainable with the aid of a few field instruments based on the system of Prof. Dr. Weisbach," by Persifor Fraser.]
Science, new ser., vol. v, pp. 624–625, 1897.

414 **Matthew** (G. F.). What is the Olenellus fauna?
Am. Geol., vol. xix, pp. 396–407, 1897.
Discusses the relations of the Olenellus and Paradoxides faunas.

415 —— Abraham Gesner. A review of his scientific work.
New Brunswick Nat. Hist. Soc., Bull., No. xv, pp. 3–48, 1897.
Reviews the scientific publications of Gesner and includes his geological map of New Brunswick.

416 —— Description of an extinct Paleozoic insect and a review of the fauna with which it occurs.
New Brunswick Nat. Hist. Soc., Bull., No. xv, pp. 49–60, pls. i–ii, figs. 1–4, 1897.
Describes a new species and gives an account of the associated forms.

417 —— Some characteristic genera of the Cambrian.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 657–658, 1898.
Gives a summary of the relations of the various genera.

418 **Matthew** (W. D.). A revision of the Puerco fauna.
Am. Mus. Nat. Hist., Bull., vol. ix, pp. 259–323, 20 figs., 1897.
Reviews the characters of the fauna described from these beds and describes three new species.

419 —— Development of the foot in the Palæosyopinæ.
Am. Nat., vol. xxxi, pp. 57–58, 1897.
Gives notes on Palæosyops borealis Cope.

420 —— Notes on intrusive rocks near St. John, N. B., Canada.
New Brunswick Nat. Hist. Soc., Bull., No. xv, pp. 61–64, 1897.
Gives brief notes on the petrographic characters of the intrusive rocks.

421 **Maynard** (George W.). The chromite deposits of Port au Port Bay, Newfoundland.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 283-288, 1898.
Describes the occurrence of chrome ores in this region.

422 **Mendenhall** (T. C.). Life and letters of William Barton Rogers.
Science, new ser., vol. vi, pp. 1-9, 1897.
Gives a sketch of the life of Prof. Rogers.

423 **Mercer** (Henry C.). The finding of the remains of the fossil sloth at Big Bone Cave, Tennessee, in 1896.
Am. Phil. Soc., Proc., vol. xxxvi, pp. 36-70, 26 figs., 1897.
Describes the character of the remains and the strata in which they were found.

424 **Merriam** (John C.). The geologic relations of the Martinez group of California at the typical locality.
Jour. of Geol., vol. v, pp. 767-775, 1897.
Describes the character and relations of the group and gives a list of fossils. Discusses the evidence for the separation of the group.

425 —— New species of Tertiary mollusca from Vancouver Island [British Columbia].
The Nautilus, vol. xi, pp. 64-65, 1897.
Describes a number of new species.

426 **Merrill** (F. J. H.). Geology of the vicinity of greater New York.
Abstract, Science, new ser., vol. vi, pp. 815-816, 1897.

427 —— Road materials and road building in New York.
N. Y. State Mus., Bull., vol. iv, pp. 91-131, pls. i-xiv, 1897.
Includes a brief description of some of the road materials in New York.

428 **Merrill** (George P.). A treatise on rocks, rock weathering, and soils.
The Macmillan Co., New York, 8vo., xx and 411 pp., 25 pls., 42 figs., 1897.
Review by U. S. G[rant], Am. Geol., vol. xx, pp. 273-274, 1897; Review by W J M[cGee], Nat. Geog. Mag., vol. viii, pp. 126-127, 1898; Review by W. J. Woodworth, Science, new ser., vol. v, pp. 995-997, 1897.

429 —— Weathering of micaceous gneiss in Albemarle County, Virginia.
Geol. Soc. Am., Bull., vol. viii, pp. 157-168, 1897.
Describes the petrographic and chemical characters of the rock and the process of weathering.

430 **Miller** (H. H.). The Segovia gold region of Nicaragua.
Eng. and Mg. Jour., vol. lxiv, pp. 335-336, figs. 1-5, 1897.
Describes the geologic features and the occurrence of the ore bodies.

431 **Miller** (S. A.) and **Gurley** (William F. E.). New species of crinoids, cephalopods, and other Paleozoic fossils.
Ill. State Mus. Nat. Hist., Bull., No. 12, 69 pp., 5 pls., 1897.
Describes new species mainly from the Lower Carboniferous rocks of the Central Mississippi valley states and Montana.

432 **Miller** (Willet G.). On some nickeliferous magnetites.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 660–661 (½ p.), 1898.
Brief note on an occurrence in Ontario.

433 **Minot** (Charles Sedgwick). Cephalic homologies. A contribution to the determination of the ancestry of vertebrates.
Am. Nat., vol. xxxi, pp. 927–943, 1897.
Discusses the ancestry of vertebrates.

434 **Morris** (Marshall). Kentucky bituminous rock.
Eng. and Mg. Jour., vol. lxiii, p. 46, 1897.
Describes its use for road making and gives a chemical analysis.

435 **Mudge** (E. H.). Some features of pre-Glacial drainage in Michigan.
Am. Jour. Sci., 4th ser., vol. iv, pp. 383–386, 1897.
Discusses the evidences of the character and extent of pre-Glacial drainage in Michigan.

**N.**

436 **Nason** (Frank L.). British Columbia. The Big Bend district, West Kootenay.
Eng. and Mg. Jour., vol. lxiii, pp. 453–454, 1897.
Describes occurrence of gold in the district.

437 **Nevius** (J. Nelson). Kaolin in Vermont.
Eng. and Mg. Jour., vol. lxiv, p, 189, figs. 1–2, 1897.
Describes a koalin deposit at South Wallingford, Vt.

438 **Newberry** (J. S.). The flora of the Amboy clays. Edited by Arthur Hollick.
Torrey Bot. Club, Bull., vol. xxiv, pp. 94–96, 1897.
Review by F. H. K[nowlton].

439 **Newsome** (John F.) and **Branner** (John C.). The Red River and Clinton monoclines [Arkansas].
Am. Geol., vol. xx, pp. 1–13, pl. i, figs. 1–3, 1897.
Describes the general physiographic features and the character and geologic structure of the region in which the monoclines occur.

440 **Nichols** (H. W.). On the genesis of claystones.
Am. Geol., vol. xix, pp. 324–329, 1897.
Discusses the origin and formation of claystones.

441 **Nicolson** (John T.), **Adams** (Frank D.) and. Preliminary notice of some experiments on the flow of rocks.
See Adams (F. D.) and Nicolson (J. T.), No. 8.

442 **Nitze** (Henry B. C.). Some late views of the so-called Taconic and Huronian rocks in central North Carolina.
Elisha Mitchell Sci. Soc., Jour., 1896, Pt. II, pp. 53–72, 1896.
Reviews the literature on the subject.

443 —— The limonites of Cherokee County, North Carolina.
Eng. and Mg. Jour., vol. lxiii, pp. 330–331, 1897.
Describes occurrence and distribution in southwest North Carolina.

444 **Nitze** (Henry B. C.). The genesis of the gold ores in the central slate belt of the Carolinas.
Eng. and Mg. Jour., vol. lxiii, pp. 628–629, 1897.
Describes the character of the country rock, the structure of the deposits, and the formation and filling of the fissure openings.

445 —— and **Hanna** (George B.). Gold deposits of North Carolina.
N. C. Geol. Surv., Bull. No. 3, 200 pp., 14 pls., 19 figs., 1896.
Describes the occurrence, character, and age of the gold-bearing rocks, and gives local details of the occurrence of gold at the various mines. Discusses the genesis of the gold ores. Includes geological map of the State.

446 **Norton** (William Harmon). Artesian wells of Iowa.
Iowa Geol. Surv., vol. vi, pp. 115–428, pls. v–xxiv, figs. 29–43, 1897.
Describes the requisite conditions of artesian wells, the geologic features of the Iowa artesian field, the records of numerous wells, and the chemical characters of the artesian waters. Includes a bibliography.

447 —— [Review of "Water resources of Illinois," by Frank Leverett.]
Jour. of Geol., vol. v, pp. 206–208, 1897.

448 **Noyes** (W. A.). Composition of Indiana coals.
Ind. Dept. of Geol. and Nat. Hist., 21st Ann. Rept., pp. 97–107, 1897.
Describes the methods of analyses and in tabular form shows the chemical composition of coal from various mines.

## O.

449 **Ogilvie** (W. M.). Gold mining in the Yukon district [British Columbia].
Can. Mg. Rev., vol. xvi, pp. 168–170, 1897.
Describes the topography and drainage of the region and the occurrence of the placers.

450 **Ordonez** (Ezequiel). Itinerarios geologicos.
Inst. Geol. de Mexico, Bulls. Nos. 4–6, pp. 30–77, 1897.
Describes geologic features in different parts of Mexico, including occurrences of Pleistocene strata and the character of igneous rocks.

451 —— Rocas eruptivas [Mexico].
Inst. Geol. de Mexico, Bulls. Nos. 4–6, pp. 253–270, 1897.
Describes the occurrence and general characters of the eruptive rocks of Mexico.

452 —— Descripcion de las rocas [Sierra de Pachuca, Mexico].
Inst. geol. de Mexico, Bulls. Nos. 7–9, pp. 99–126, pl. vi, 1897.
Describes the volcanic rocks of the region.

453 —— **Aguilera** (J. G.) and. Fisiografia de la Sierra de Pachuca [Mexico].
See Aguilera (J. G.) and Ordonez (E.), No. 15.

454 —— —— Geologia general de la Sierra de Pachuca [Mexico].
See Aguilera (J. G.) and Ordonez (E.), No. 16.

455 **Ordonez** (Ezequiel), **Aguilera** (J. G.) and. Las vetas [Sierra de Pachuca, Mexico].

See Aguilera (J. G.) and Ordonez (E.), No. 17.

456 **Ortmann** (Arnold E.). The systematic position of Crangopsis vermiformis (Meek) from the sub-Carboniferous rocks of Kentucky.

Am. Jour. Sci., 4th ser., vol. iv, pp. 283–289, 1897.

Discusses its characters and the position to which it should be assigned.

457 —— On a new species of palinurid, genus Linuparus, found in the upper Cretaceous of Dakota.

Am. Jour. Sci., 4th ser., vol. iv, pp. 290–296, figs. 1–4, 1897.

Describes the characters of the Palinuridæ and of Linuparus atavus n. sp.

458 **Osborn** (Henry Fairfield). The Huerfano lake basin, southern Colorado, and its Wind River and Bridger fauna.

Am. Mus., Nat. Hist., Bull., vol. ix, pp. 247–258, 1897.

Reviews the literature on this region, describes the character and distribution of the beds, and gives notes on the fauna.

459 —— Reconstruction and model of Phenacodus primævus Cope.

Brit. Assoc. Adv. Sci., Rept. 1897, p. 684, (½ p.), 1898.

Gives a brief account of its relations.

460 —— The origin of the mammalia.

Brit. Assoc. Adv. Sci., Rept. 1897, pp. 686–687, 1898.

Discusses the relations of the subdivisions of the mammalia.

461 —— Lambdotherium not related to Palæosyops or the Titanotheres.

Am. Nat., vol. xxxi, pp. 55–57, 1897.

Describes Lambdotherium Cope and L. popoagicus Cope.

462 —— Wind River and Huerfano beds in the Huerfano lake basin.

Am. Nat., vol. xxxi, pp. 966–968, 1897.

Reviews the work of R. C. Hills on these beds, and gives the results of the author's observations.

463 —— Edward D. Cope.

Science, new ser., vol. v, pp. 705–717, 1897.

Gives a sketch of his life, character, and publications.

464 —— The Ganodonta or primitive edentates with enameled teeth.

Science, new ser., vol. v, pp. 611–612, 1897.

Describes their geographic distribution and osteologic characters.

## P.

465 **Pearce** (Richard). Occurrence of Tellurium in Montana.

Abstract, Eng. and Mg. Jour., vol. lxiii, p. 117, 1897.

465*a* —— Tellurium from the Griffith lode, Colorado.

Abstract, Eng. and Mg. Jour., vol. lxiii, p. 139, 1897.

466 **Pearce** (Richard). Telluride gold ores.
Eng. and Mg. Jour., vol. lxiii, p. 376 (½ p.), 1897.
Brief note on the detection of tellurium in gold ores.

467 **Peckham** (S. F.). On the nature and origin of petroleum.
Am. Phil. Soc., Proc., vol. xxxvi, pp. 103–112, 1897.
Reviews recent literature on the subject and discusses the origin of bitumens.

468 **Penfield** (S. K.). On the chemical composition of hamlinite and its occurrence with bertrandite at Oxford County, Maine.
Am. Jour. Sci., 4th ser., vol. iv, pp. 313–316, 1897.
Describes the chemical and crystallographic characters of hamlinite and the crystallographic characters of bertrandite.

469 —— and **Foote** (H. W.). On bixbyite, a new mineral, and notes on the associated topaz.
Am. Jour. Sci., 4th ser., vol. iv, pp. 105–108, 1897.
Describes its crystallographic and chemical characters.

470 —— —— Note concerning the composition of ilmenite.
Am. Jour. Sci., 4th ser., vol. iv, pp. 108–110, 1897.
Describes the crystallographic and chemical characters of ilmenite.

471 **Penhallow** (D. P.). Contributions to the Pleistocene flora of Canada.
Canada Roy. Soc., Proc. and Trans., 2d ser., vol. ii, sect. iv, pp. 59–77, 1896.
Gives notes on the characters of the species, and in tabular form shows the extent and distribution of the flora.

472 —— Myelopteris topekansis, n. sp., a new Carboniferous plant.
Bot. Gazette, vol. xxiii, pp. 15–31, pls. ii–iii, 1897.
Describes a new species from the Carboniferous of Kansas.

473 **Penrose** (R. A. F., jr.). Geology and mining industry of the Cripple Creek district, Colorado.
See Cross (W.) and Penrose (R. A. F., jr.), No. 160.

474 **Phillips** (Francis C.). On the genesis of natural gas and petroleum.
Am. Phil. Soc., Proc., vol. xxxvi, pp. 116–121, 1897.
Discusses Mendeleeff's theory as to the origin of these products.

475 —— On the occurrence of petroleum in the cavities of fossils.
Am. Phil. Soc., Proc., vol. xxxvi, pp. 121–126, 1897.
Discusses the origin of petroleum oil found in the cavities of fossils.

476 **Phillips** (William B.). Mining low-grade gold ores in Alabama.
Eng. and Mg. Jour., vol. lxiv, pp. 185–186, figs. 1–6, 1897.
Describes the occurrence and character of certain ore bodies.

477 —— The southwestern extremity of the Appalachian gold fields.
Eng. and Mg. Jour., vol. lxiv, p. 398, 1897.
Describes the occurrence of gold in northern Alabama.

478 **Phillips** (William B.). The gold regions of Alabama, U. S. A.
North of Eng. Inst. Mg. and Mech. Engrs., Trans., vol. xlvii, pp. 19–23, figs. 1–2, 1897.
Describes the general character and occurrence of gold ores in this state.

479 **Pierce** (S. J.). The pre-Glacial Cuyahoga valley [Ohio].
Am. Geol., vol. xx, pp. 176–181, pl. xiii, 1897.
Presents the data of deep wells in the vicinity of Cleveland, Ohio, and discusses its bearing on the depth and origin of Cuyahoga valley.

480 **Pirsson** (Louis V.). On the corundum-bearing rocks from Yogo gulch, Montana.
Am. Jour. Sci., 4th ser., vol. iv, pp. 421–423, 1897.
Discusses the megascopic and microscopic characters of the rocks and the origin of the sapphites found in them.

481 —— **Weed** (W. H.) and. Geology and mineral resources of the Judith Mountains of Montana.
See Weed (W. H.) and Pirsson (L. V.) No. 674.

482 **Porter** (J. A.). The Smuggler-Union mines, Telluride, Colorado.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 449–459, figs. 1–2, 1897.
Describes the occurrence and character of the gold and silver ores in these mines.

483 **Pratt** (J. H.). On the crystallography of the Montana sapphires.
Am. Jour. Sci., 4th ser., vol. iv, pp. 424–428, 2 pls., 1897.
Describes their crystallographic characters.

484 —— Notes on North Carolina minerals.
Elisha Mitchell Sci. So., Jour., 1897, pt. ii, pp. 61–83, figs. 1–5, 1897.
Includes crystallographic notes and chemical analyses of wellsite, chabazite, anorthite, anthophyllite, enstatite, beryl, cyanite, and zircon.

485 —— and **Foote** (H. W.). On wellsite, a new mineral.
Am. Jour. Sci., 4th ser., vol. iii, pp. 443–448, 1897.
Describes the crystallographic form and physical properties of a new mineral from North Carolina.

486 **Prosser** (Charles S.). Comparison of the Carboniferous and Permian formations of Nebraska and Kansas.
Jour. of Geol., vol. v, pp. 1–16, 148–172, 1897.
Reviews the previous work on these formations in Kansas and Nebraska. Discusses the character, succession, and correlation of the various subdivisions, and describes the lithologic and faunal characters of a number of sections.

487 —— The upper Permian and lower Cretaceous [Kansas].
Kan. Univ. Geol. Surv., vol. ii, pp. 51–194, pls. ix–xxiv, 1897.
Describes the character, occurrence, correlation, and classification of the upper Permian and lower Cretaceous beds of Kansas.

488 **Prosser** (Charles S.). The Permian and upper Carboniferous of southern Kansas.

Kan. Univ. Quart., vol. vi, pp. 149–175, pls. xviii–xix, 1897.

Describes several sections and discusses their correlation and faunal characters.

489 **Purdue** (A. H.). [Review of "The former extension of the Appalachians across Mississippi, Louisiana, and Texas," by J. C. Branner.]

Jour. of Geol., vol. v, pp. 759–760, 1897.

490 **Purington** (Charles Wells). Preliminary report on the mining industries of the Telluride quadrangle, Colorado.

U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 751–848, pls. ciii–cxviii, figs. 66–74, 1898.

Gives a general description of the sedimentary and igneous rocks, the fissures and vein systems, and the occurrence of the ore. Discusses the origin and age of the ore deposits.

491 —— Telluride mining district, Colorado.

Abstract, Science, new ser., vol. v, p. 890, 1897.

Gives brief notes on the geology of the region and the occurrence of the ores.

**R.**

492 **Rangel** (M.). Exploitacion de las minas [Sierra de Pachuca, Mexico].

Inst. Geol. de Mexico, Bulls. Nos. 7–9, pp. 127–141, 1897.

Describes the mining geology of the region.

493 **Ransome** (F. Leslie). The age of the California coast ranges.

Am. Geol., vol. xix, pp. 66–67, 1897.

Discusses briefly the relations of the Coast ranges and Great Valley of California in pre-Miocene time.

494 —— [Review of "The geology of Santa Catalina island," by W. S. T. Smith.]

Jour. of Geol., vol. v, pp. 208–210, 1897.

494*a* —— and **Turner** (H. W.). Sonoro folio, California.

See Turner (H. W.) and Ransome (F. L.), No. 621.

495 **Reid** (Harry Fielding). Variations of glaciers.

Jour. of Geol., vol. v, pp. 378–383, 1897.

Gives a summary of the first annual report of the International Committee on glaciers as to the state of glaciers in various parts of the world.

496 —— [Review of "The glaciers of North America," by Israel C. Russell.]

Science, new ser., vol. v, pp. 660–661, 1897.

497 **Reid** (Harry Fielding). Glacier Bay and its glaciers.
Jour. of Geol., vol. v, pp. 203-206, 1897.
Review by I. C. Russell.

498 **Rickard** (T. A.). Vein walls.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 193-241, 33 figs., 1897; Colliery Eng., vol. xvii, pp. 527-530, vol. xviii, pp. 7-10, 32 figs.; Can. Mg. Review, vol. xvi, pp. 213-217, 229-234, 33 figs.; Eng. and Mg. Jour., vol. lxiii, pp. 282-284, figs. 1-9, pp. 307-309, figs. 12-26, 1897.
Describes and illustrates the phenomena of vein walls in different mines and discusses the formation of ore bodies.

499 —— Enterprise mine, Rico, Colo.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 906-980, 48 figs., 1897.
Describes the geology of the vicinity and the occurrence, character, and structure of the ore bodies. Discusses their origin.

500 —— The Lake of the Woods gold field [Ontario].
Eng. and Mg. Jour., vol. lxiv, pp. 5-8, figs. 1-3, 1897.
Describes the occurrence of gold in northwestern Ontario.

501 **Ries** (Heinrich). The clay-working industry in 1896.
U. S. Geol. Surv., 18th Ann. Rept., Pt. V (cont.), pp. 1105-1168, 1897.
Describes deposits of clay in various parts of the United States.

502 —— The fuller's earth of South Dakota.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 333-335, 1898.
Describes its occurrence in the Black Hills.

503 —— The clays and clay working industry of Colorado.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 336-340, 1898.
Describes the occurrence, character, and chemical composition of clay deposits in parts of Colorado.

504 **Rowley** (R. R.) and **Keyes** (C. R.). Vertical range of fossils at Louisiana [Missouri].
See Keyes (C. R.) and Rowley (R. R.), No. 331.

505 **Ruedemann** (R.). Evidence of current action in the Ordovician of New York.
Am. Geol., vol. xix, pp. 367-391, pls. xxii, 1897.
Describes the evidence of the parallel arrangement in the rocks of the remains of certain fossils, as bearing on the probable course of the currents by which they were transported. Presents a geologic map of the region described.

506 —— Development and mode of growth of Diplograptus McCoy.
Am. Geol., vol. xx, p. 136 (½ p.), 1897.
Review by N. H. W[inchell].

507 —— [Review of "A handbook of the genera of the North American Paleozoic Bryozoa," by George B. Simpson.]
Am. Geol., vol. xx, pp. 330-331, 1897.

508 **Russell** (Israel Cook). Glaciers of Mount Rainier. With a paper on the rocks of Mount Rainier by George Otis Smith.

U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 355–423, pls. lxv–lxxxii, 1898.

Describes the physical features of the state of Washington and the glaciers and glacial phenomena of the region.

509 —— A reconnoisance in southeastern Washington.

U. S. Geol. Surv., Water Supply and Irrigation Papers No. 4, 96 pp., pls. i–vii, figs. 1–3, 1897.

Describes the physiography of the region, the occurrence and character of the metamorphic rocks, the Kittitas system, the Columbia lava, the John Day system, and the artesian waters conditions.

510 —— Principal features of the geology of southeastern Washington.

Mining, vol. iii, pp. 163–165, 1897.

Describes the general geologic features of the region.

511 —— "Plasticity" of glacial ice.

Am. Jour. Sci., 4th ser., vol. iii, pp. 344–346, 1897.

Discusses the relation of plasticity to the flow of glacier ice.

512 —— [Review of "Glacier Bay and its glaciers," by H. F. Reid.]

513 —— Glaciers of North America; a reading lesson for students of geography and geology. Boston and London, Ginn & Co., 1897.

Jour. of Geol., vol. v, pp. 302–303, 1897, review by T. C. C[hamberlin]; Nat. Geog. Mag., vol. viii, pp. 124–125, 1897, review by W. J. M[cGee]; Science, new ser., vol. v, pp. 660–661, 1897, review by H. F. Reid; Am. Geol., vol. xix, p. 278 (½ p.), 1897, review by N. H. W[inchell].

514 —— Volcanoes of North America, a reading lesson for students of geography and geology.

The Macmillan Company, New York, 1897.

Review, Nature, vol. lvii, pp. 70–71, 1897.

515 —— Lakes of North America, a reading lesson for students of geography and geology.

Ginn & Co., Boston, 8vo, 125 pp.

## S.

516 **Sadtler** (Samuel P.). The genesis and chemical relations of petroleum and natural gas.

Am. Phil. Soc., Proc., vol. xxxvi, pp. 93–102, 1897.

Discusses the origin of petroleum and natural gas.

517 —— [On the origin of Pennsylvania petroleum.]

Am. Phil. Soc., Proc., vol. xxxvi, pp. 136–138, 1897.

In discussion of paper by David T. Day on the same subject.

518 **Salisbury** (Rollin D.). On the origin and age of the relic-bearing sand at Trenton, N. J.
Science, new ser., vol. vi, pp. 977–981, 1897.
Discusses the evidence as to the age of these beds.

519 —— [Review of "An introduction to geology," by W. B. Scott.]
Jour. of Geol., vol. v, pp. 398–399, 1897.

520 —— [Review of "Maryland Geological Survey," Vol. I.]
Jour. of Geol., vol. v, pp. 760–761, 1897.

521 —— and **Atwood** (Wallace Walter). Drift phenomena in the vicinity of Devils Lake and Baraboo, Wisconsin.
Jour. of Geol., vol. v, pp. 131–147, figs. 1–7, 1897.
Describes glacial phenomena in the south-central portion of the State.

522 —— and **Knapp** (George N.). Surface geology. Report of progress [New Jersey].
N. J. Geol. Surv., Rept. for 1896, pp. 1–23, pls. i–vii, 1897.
Describes the character, distribution, and correlation of the Pensauken formation, and the character and distribution of the Beacon Hill formation, and of the road materials in certain portions of the State. Includes a geologic map.

523 **Sanchez** (P. C.). Sistema de fracturas [Sierra de Pachuca, Mexico].
Inst. geol. de Mexico, Bulls. Nos. 7–9, pp. 81–98, 1897.
Describes the occurrence and characters of the fracture systems of the region.

524 **Sardeson** (Frederic W.). The Galena and Maquoketa series. Part II.
Am. Geol., vol. xix, pp. 21–35, 1897.
Presents the author's classification of the series and describes their faunal relationships.

525 —— The Galena and Maquoketa series. Part III.
Am. Geol., vol. xix, pp. 91–111, pls. iv–v, 1897.
Describes a number of species of Orthis, including some new ones, and discusses their relations.

526 —— The Galena and Maquoketa series. Part IV.
Am. Geol., vol. xix, pp. 180–190, 1897.
Gives a list of the species of Plectambonites and Rhynchonella occurring in these beds and a summary of facts presented in this and former papers on the same subject.

527 —— Nomenclature of the Galena and Maquoketa series.
Am. Geol., vol. xix, pp. 330–336, 1897.
Discusses some of the principles of geologic nomenclature and the use of the names applied to the Galena and Maquoketa series.

528 —— On Streptelasma profundum (Owen), S. corniculum Hall.
Am. Geol., vol. xx, pp. 277–292, pls. xvi–xvii, 1897.
Discusses the author's conclusion that S. profundum shows all the distinctive characters of the 14 species assigned to the genus.

529 **Sardeson** (Frederic W.). On glacial deposits in the driftless area.
Am. Geol., vol. xx, pp. 392–403, 1897.
Discusses the evidences of glacial phenomena in the driftless area of the Upper Mississippi Valley.

530 **Schmidt** (A.). Die Talklagerstaaten von St. Lawrence County im Staat New York.
Zeit. für prak. Geol., Heft 1, pp. 29–30, 1897.
See Bibliography and Index for 1896, No. 637.

531 —— Die Goldeszange von Cripple Creek in Colorado.
Zeit. für prak. Geol., Heft 3, pp. 98–99, 1897.
See Bibliography and Index for 1896, No. 621.

532 —— Der Smuggler Erzgang zu Telluride in Colorado.
Zeit. für prak. Geol., Heft 3, pp. 99–100, 1897.
See Bibliography and Index for 1896, No. 550.

533 —— Die Gunnison goldzone in Colorado.
Zeit. für prak. Geol., Heft 3, pp. 100–101, 1897.
See Bibliography and Index for 1896, No. 424.

534 —— Palaozoische phosphorite in Arkansas.
Zeit. für prak. Geol., Heft 3, pp. 101–102, 1897.
See Bibliography and Index for 1896, No. 73.

535 —— Ueber das alter der Goldseifen der Sierra Nevada in Californien.
Zeit. für prak. Geol., Heft 6, pp. 226–227, 1897.
See Bibliography and Index for 1896, No. 449.

536 —— Die Magnetit-Lagerstatten bei Port Henry im Staat New York.
Zeit. für prak. Geol , Heft 9, p. 318, 1897.

537 **Schmitz** (E. J.). Copper ores in the Permian of Texas.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 97–108, 1897.
Describes the stratigraphic and lithologic features of the district and the occurrence and character of the ore bodies.

538 **Schneider** (Philip F.). A geologic fault at Jamesville, near Syracuse, N. Y.
Am Jour. Sci., 4th ser., vol. iii, pp. 455–460, 1897.
Describes fault phenomena in Devonian rocks of central New York.

539 **Schuchert** (Charles). A synopsis of American fossil Brachiopoda, including bibliography and synonymy.
U. S. Geol. Surv., Bull. No. 87, 464 pp., pl. i, figs. 1–6, 1897.
Review by C. E. B[eecher], Am. Nat., vol. xxxi, pp. 1053–1055, 1897.
Describes in tabular form the geographic and geologic distribution of brachiopod genera, discusses the biologic development and the classification of the Brachiopoda, and gives an alphabetic list of genera and species with references and synonymy. Includes a chapter on the morphology of the brachia by Charles E. Beecher.

540 **Schuchert** (Charles). On the fossil phyllopod genera Dipeltis and Protocaris of the family Apodidæ.
U. S. Nat. Mus., Proc., vol. xix, pp. 671–676, pl. lviii, 1897.

541 **Schultze** (E. A.) and **Kain** (C. Henry). The Santa Monica diatomaceous deposit, with list of references to figures of species.
Torrey Bot. Club, Bull., vol. xxiv, pp. 496–504, 1897.
Gives a brief mention of the occurrence of the deposits and a reference list of species figured from this deposit.

542 **Scofield** (W. H.), **Ulrich** (E. O.) and. The Lower Silurian Gastropoda of Minnesota.
See Ulrich (E. O.) and Scofield (W. H.), No. 628.

542*a* **Scott** (Samuel). Map of the Black Hills of South Dakota and Wyoming, with full descriptions of mineral resources, etc.
Custer City, S. D. 40 pp. and geological map, 1897.
Gives brief notes on the geologic formations and igneous rocks and the occurrence of minerals in the Black Hills. Presents a geological map of the region.

543 **Scott** (W. B.). Lakes.
Sci. Am. Suppl., vol. xliii, pp. 17756–17758, 1897.
Discusses the origin of lakes in various parts of the United States. An abstract of a lecture before the Wagner Institute.

544 —— Glaciers.
Sci. Am. Suppl., vol. xliv, pp. 18005–18006, 1897.
Comprises an abstract of a lecture on the constructive work of glaciers.

545 —— An introduction to geology.
The Macmillan Company, New York, 1897.
Review by R. D. S[alisbury], Jour. of Geol., vol. v, pp. 398–399; Review by H. S. W[illiams], Am. Jour. Sci., 4th ser., vol. iii, pp. 422–423; Review by W J M[cGee], Nat. Geog. Mag., vol. viii, pp. 91–92, 1897.

546 **Scovell** (J. T.). Geology of Vigo County, Indiana.
Ind. Dept. of Geol. and Nat. Res., 21st Ann. Rept., pp. 507–576, 1897.
Describes the character of the Carboniferous rocks, the occurrence of coal, and the glacial features of the county.

547 **Shaler** (Nathaniel S.). Geology of the Cape Cod district [Massachusetts].
U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 503–593, pls. xcvii–civ, figs. 86–92, 1898.
Describes the general relations, understructure, glacial deposits and history, and other geologic features of the Cape Cod region.

548 —— [Water supply of eastern Massachusetts.]
Abstract, Science, new ser., vol. v, p. 703 (½ p.), 1897.
Describes briefly the occurrence and character of the water supply.

549 **Shaler** (Nathaniel S.), **Woodworth** (J. B.), and **Marbut** (C. F.). The glacial brick clays of Rhode Island.
Am. Geol., vol. xx, pp. 328-329, 1897.
Review by W. U[pham].

550 **Shattuck** (George B.). See **Clark** (W. B.), No. 128.

551 ——— **Clark** (W. B.) and. The geology of the sand hills of New Jersey.
See Clark (W. B.) and Shattuck (G. B.), No. 131.

552 **Shimek** (B.). Additional observations on the surface deposits in Iowa.
Iowa Acad. Sci., Proc., vol. iv, pp. 68-72, 1897.
Describes character of drift beds at various localities.

553 **Simonds** (Frederic W.). Professor Ch. Fred. Hartt, M. A. A tribute.
Am. Geol., vol. xix, pp. 69-90, pl. iii, 1897.
Gives an account of the life and work of Prof. Hartt and a bibliographic list of his papers.

554 —— [Review of "Marine fossils from the Coal Measures of Arkansas," by J. P. Smith.]
Science, new ser., vol. v, pp. 850-852, 1897.

555 **Simpson** (George B.). A handbook of the genera of the North American Paleozoic Bryozoa.
Am. Geol., vol. xx, pp. 330-331, 1897.
Review by R. R[uedemann].

556 **Sims** (H. N.). A description of a peculiar split in the mammoth coal seam near Ashland, Pa.
Colliery Eng., vol. xix, pp. 532, 2 figs., 1897.
Describes occurrence of a syncline between two partings of the coal seam.

557 **Sisley** (L. A.). The porphyry dike mines of Montana.
Eng. and Mg. Jour., vol. lxiv, p. 399, 1897.
Describes the geologic features and occurrence of gold southwest of Helena, Mont.

558 **Skewes** (Edward). The ore shoots of Cripple Creek [Colorado].
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 553-579, 1897.
Describes the occurrence of the ore shoots and their structural features.

559 **Slosson** (Edwin E.). Analysis of Popo Agie, Lander, and Shoshone petroleum [Wyoming].
Wyoming Univ. School of Mines, Petroleum ser., Bull. No. 2, pp. 21-34, 1897.
Describes the chemical character and composition of the oils.

560 **Smith** (Eugene A.). Sketch of the life of Michael Tuomey.
Am. Geol., vol. xx, pp. 205-212, pl. i, 1897.
Gives a sketch of his life and a list of his published papers.

561 **Smith** (Frank Clemes). The occurrence and behavior of tellurium in gold ores, more particularly with reference to the Potsdam ores of the Black Hills, South Dakota.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 485-515, figs. 1-11, 1897.
Gives analyses of the ores, a description of the action of tellurium as a mineralizing agent and of the microscopic characters of the associated rocks.

562 —— The Potsdam gold ores of the Black Hills of South Dakota.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 404-428, 1898.
Describes the occurrence, character, and origin of the so-called Potsdam siliceous gold and silver ores.

563 **Smith** (George Otis). The rocks of Mount Rainier [Washington].
U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 416-423, 1898.
Describes the relations and characters of the granite and volcanic rocks of the region.

564 —— The geology of the Fox Islands, Maine. A contribution to the study of old volcanics.
Skowhegan, Me., 76 pp., 2 pls., 1896.
Review by F. B[ascom], Am. Geol., vol. xix, pp. 214-219, 1897.

565 **Smith** (James Perrin). Studies for students: Comparative study of paleontology and phylogeny.
Jour. of Geol., vol. v, pp. 507-524, pl. 1, 1897.
Discusses the law of acceleration of development, the nomenclature of stages of growth, the groups available for ontogenetic studies and methods of working.

566 —— The development of Glyphioceras and the phylogeny of the Glyphioceratidæ.
Cal. Acad. Sci., Proc., Geology, 3d ser., vol. i, pp. 105-128, 3 pls., 1897.
Discusses the classification of the Goniatites and describes the larval stages of Glyphiociras incisum Hyatt.

567 **Smith** (William Sidney Tangier). A geological sketch of San Clemente Island [California].
U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 465-496, pls. lxxxiv-xcvi, figs. 82-85, 1898.
Describes the topography and the character of the eruptive rocks and Tertiary deposits of the island.

568 —— The geology of the Santa Catalina Island [California].
Cal. Acad. Sci., Proc., Geology, 3d ser., vol. i, pp. 1-71, 3 pls., 1897.
Review by F. L. Ransome, Jour. of Geol., vol. v, pp. 208-210, 1897.
Describes the topographic features of the island and the character and occurrence of the sedimentary and eruptive rocks. Includes a geologic map and notes on the Foraminifera, by Dr. George J. Hinde.

569 **Smith** (William Sidney Tangier). [Review of "The submerged valleys of the coast of California, U. S. A., and of Lower California, Mexico," by George Davidson.]
Jour. of Geol., vol. v, pp. 533-534, 1897.

570 —— A note on the migration of divides.
Jour. of Geol., vol. v, pp. 809-812, 1897.
Describes the migration of a divide on San Clemente Island, off the coast of California.

571 **Smyth** (C. H., Jr.). Pseudomorphs from northern New York.
Am. Jour. Sci., 4th ser., vol. iv, pp. 309-312, 1897.
Describes pseudomorphs of pyroxene after wallastonite and mica after scapolite and pyroxene.

572 **Smyth** (H. L.). The Republic trough [Michigan].
U. S. Geol. Surv., Mon., vol. xxviii, pp. 525-553, pl. xxxiv, 1897. Review by U. S. Grant, Jour. of Geol., vol. v, pp. 402-404, 1897.
Describes the character and occurrence of the Upper and Lower Marquette series, and the position, relation, and origin of the iron ore deposits.

573 —— Magnetic observations in geological mapping.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 640-709, 27 figs., 1897.
Describes the magnetic rocks of the Lower Huronian series in the Upper Peninsula of Michigan, and the instruments and methods of work. Gives the results of tracing magnetic rocks by the disturbances produced in the instruments.

574 **Spencer** (J. W.). On the continental elevation of the glacial epoch.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 661-662, 1898.
Discusses the evidences of such elevation.

575 **Spurr** (Josiah Edward). Geology of the Yukon gold district, Alaska. With an introductory chapter on the history and condition of the district to 1897, by Harold Beach Goodrich.
U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 101-392, pls. xxxii-li, figs. 7-25, 1898.
Describes the occurrence, character, and distribution of the sedimentary and igneous rocks and of the auriferous veins and placer deposits of the region. Discusses the evidences of movement in the earth's crust. Includes a report by F. H. Knowlton on the fossils collected and a chapter on recent warpings of the region by H. B. Goodrich.

576 —— The measurement of faults.
Jour. of Geol., vol. v, pp. 723-729, 1897.
Abstract, Science, new ser., vol. v, p. 238, 1897.
Describes the general methods employed and gives the author's definition of the terms used in the study of fault phenomena.

577 **Squier** (C. H.). Studies in the driftless region of Wisconsin.
Jour. of Geol., vol. v, pp. 825-836, figs. 1-2, 1897.
Describes the occurrence of loess and the characteristics of the stratified and unstratified beds, and discusses the evidences of their glacial origin.

578 **Stanton** (Timothy W.). A comparative study of the Lower Cretaceous formations and faunas of the United States.
Jour. of Geol., vol. v, pp. 579–624, 1897.
Describes the general features and classification of the Lower Cretaceous strata and the lithologic and faunal characters of its subdivisions. Presents a bibliography of the subject.

579 —— On the genus Remondia Gabb, a group of Cretaceous bivalve mollusks.
U. S. Nat. Mus., Proc., vol. xix, pp. 299–301, pl. xxvi, 1897.

580 —— and **Knowlton** (F. H.). Stratigraphy and paleontology of the Laramie and related formations in Wyoming.
Geol. Soc. Am., Bull., vol. viii, pp. 127–156; Review by A. Hollick, Torrey Bot. Club., Bull., vol. xxiv, p. 26 (½ p.), 1897.
Describes the stratigraphic and paleontologic features of the various beds.

581 **Stearns** (Robert E.). Description of a new species of Actæon from the Quaternary bluffs of Spanish Bight, San Diego, California.
The Nautilus, vol. xi, pp. 14–15, 1897.
Describes Actæon traskii n. sp.

582 **Stewart** (Alban). Restoration of Oreodon culbertsoni Leidy.
Kans. Univ. Quart., vol. vi, pp. 13–14, pl. i, 1897.

583 **Stone** (George H.). To trace an invisible dike.
Colliery Eng., vol. xviii, p. 151, 1897.
Describes dike phenomena at Cripple Creek, Colo.

584 **Storms** (W. H.). Mines of the gold belt [California].
Mg. and Sci. Press., vol. lxxv, pp. 96, 194–195, 1897.
Describes the general geologic features and occurrence of gold.

## T.

585 **Tarr** (Ralph S.). Former extension of Cornell glacier near the southern end of Melville Bay.
Geol. Soc. Am., Bull., vol. viii, pp. 251–268, pls. 25–29, 1897.
Describes the glacial phenomena of the region.

586 —— Arctic sea ice as a geological agent.
Am. Jour. Sci., 4th ser., vol. iii, pp. 223–229, 1897.
Describes the erosion and transportation effected by sea and glacier ice.

587 —— Difference in the climate of the Greenland and American sides of Davis' and Baffin's Bay.
Am. Jour. Sci., 4th ser., vol. iii, pp. 315–321, 1897.
Discusses the changes of level that have taken place, and their relation to glaciation.

588 **Tarr** (Ralph S.). Former extension of Cornell glacier near the southern end of Melville Bay.
Jour. of Geol., vol. v, pp. 303–307, pl. 1, figs. 1–2, 1897.
Review by T. C. Chamberlin.

589 —— Rapidity of weathering and stream erosion in the Arctic latitudes.
Am. Geol., vol. xix, pp. 131–136, pl. vi, 1897.
Describes the characteristics of weathering and stream erosion in this region.

590 —— Evidence of glaciation in Labrador and Baffin Land.
Am. Geol., vol. xix, pp. 191–197, pl. x, 1897.
Describes the glacial phenomena of the region.

591 —— Valley glaciers of the upper Nugsuck peninsula, Greenland.
Am. Geol., vol. xix, pp. 262–267, pl. xv, 1897.
Describes the occurrence of local glaciers on this coast of Greenland.

592 —— Changes of level in the Bermuda Islands.
Am. Geol., vol. xix, pp. 293–303, pls. xvi–xviii, 1897.
Describes the physiographic and orographic features of the islands.

593 —— The margin of the Cornell glacier [Greenland].
Am. Geol., vol. xx, pp. 139–156, pls. vi–xii, 1897.
Describes and illustrates the characteristics of this glacier.

594 —— Former extension of Greenland glaciers.
Science, new ser., vol. v, p. 344, 1897.
Discusses the evidence as to the extension of glaciation over the angular peaks.

595 —— The former extension of ice in Greenland.
Science, new ser., vol. v, pp. 515–516, 1897.
Discusses certain observations on this subject.

596 —— Former extension of ice in Greenland.
Science, new ser., vol. v, pp. 804–805, 1897.
Discusses Professor Chamberlin's review of the author's paper on this subject.

597 —— The glaciers of Greenland.
Sci. Amer., vol. lxxvi, pp. 216–217, figs. 1–3, 1897.
Describes some of the glaciers of Greenland.

598 —— The Arctic sea ice as a geological agent.
Sci. Am. Suppl., vol. xliv, pp. 17941–17942, 1897.

599 —— Elementary geology.
Review by H. B. Kümmel, Jour. of Geol., vol. v, pp. 317–318, 1897; Review by W J McGee, Nat. Geog. Mag., vol. viii, pp. 59–60, 1897; Review by N. H. Winchell, Am. Geol., vol. xix, pp. 277–278, 1897.

600 **Taylor** (Frank Bursley). Correlation of Erie-Huron beaches with outlets and moraines in southeastern Michigan.

Geol. Soc. Am., Bull., vol. viii, pp. 31-58, pl. 2, 1897; Review by C. H. Gordon. Jour. of Geol., vol. v, pp. 313-317, 1897.

Describes the recent work of the author on the moraines and beaches of the region.

601 —— Moraines of recession and their significance in glacial theory

Jour. of Geol., vol. v, pp. 421-466, 1897; Am. Geol., vol. xix, correspondence, p. 290, 1897.

Describes the Cincinnati-Mackinac moraine series, and discusses its value as a basis of interpretation. Discusses the character and duration of the glacial oscillations and the effect of changes of climate on the ice sheet.

602 —— Scoured bowlders of the Matawa valley [Ontario].

Am. Jour. Sci., 4th ser., vol. iii, pp. 208-218, 1897.

Describes the characteristics and occurrence of scoured bowlders which indicate the probable course of the former outlet of the Great Lakes.

603 —— Lake Adirondack.

Am. Geol., vol. xix, pp. 392-396, 1897.

Describes the general features of a probable glacial lake in northern New York.

604 —— The Nipissing-Matawa river the outlet of the Nipissing great lakes.

Am. Geol., vol. xx, correspondence, pp. 65-66, 1897.

Describes the general features of the river.

605 —— Notes on the abandoned beaches of the north coast of Lake Superior.

Am. Geol., vol. xx, pp. 111-128, 1897.

Reviews Prof. Lawson's publications on the subject and describes the author's observations on the abandoned beaches.

606 —— The Champlain submergence and uplift, and their relation to the Great Lakes and Niagara Falls.

Brit. Assoc. Adv. Sci., Rept. 1897, pp. 652-653, 1898.

Discusses the evidence of the abandoned beaches.

607 **Teall** (J. J. H.). Differentiation in igneous magmas as a result of progressive crystallization.

Brit. Assoc. Adv. Sci., Rept. 1897, pp. 661-662, 1898.

Describes certain basalts and their bearing on the theory of differentiation of igneous magmas.

608 **Tight** (W. G.). Some pre-Glacial drainage features in southern Ohio.

Denison Univ., Sci. Lab., Bull., vol. ix, pt. ii, pp. 22-32, pls. A, B, C, III, 1897.

Describes drainage features in southern Ohio.

609 **Tight** (W. G.). A pre-Glacial valley in Fairfield County [Ohio].
Denison Univ., Sci. Lab., Bull., vol. ix, pt. ii, pp. 33–37, pls. D, E, F, IV, 1897.
Describes the drainage of the region.

610 **Tilton** (J. L.). Results of recent geological work in Madison County [Iowa].
Iowa Acad. Sci., Proc., vol. iv, pp. 47–54, 1897.
Describes the character and distribution of the loess, drift, and Upper Carboniferous beds.

611 **Todd** (J. E.). Is the loess of either lacustrine or semi-marine origin?
Reviews various theories regarding the origin of the loess.

612 —— Volcanic dust in southwestern Nebraska and in South Dakota.
Science, new ser., vol. v, pp. 61–62, 1897.
Notes occurrence in the region.

613 —— The Quaternary of Missouri.
Science, new ser., vol. v, pp. 695–696 (½ p.), 1897.
Discusses certain features of the loess deposits.

614 —— [Review of "Preliminary report on artesian waters of a portion of the Dakotas," by N. H. Darton.]
Am. Geol., vol. xix, pp. 274–276, 1897.

615 —— The moraines of the Missouri couteau and their attendant deposits.
Am. Geol., vol. xx, p. 329 (¼ p.), 1897.
Review by W. U[pham].

616 **Tolman** (Cyrus Fischer, jr.). [Review of "Some queries on rock differentiation," by G. F. Becker.]
Jour. of Geol., vol. v, pp. 393–398, 1897.

617 —— [Review of "Some mines of Rosita and Silver Cliff, Colorado," by S. F. Emmons.]
Jour. of Geol., vol. v, pp. 856–857, 1897.

617*a* **Tower** (George Warren, jr.), **Emmons** (S. F.) and. Economic geology of the Butte special district [Montana].
See Emmons (S. F.) and Tower (G. W., jr.), No. 202.

618 **Turner** (Henry W.). Downieville folio, California.
U. S. Geol. Surv., Geol. Atlas of the U. S., Folio No. 37, 1897.
Describes the geologic history of the gold belt of California, the occurrence and character of the auriferous slate series, the superjacent series, the igneous rocks, the structural features of the region, and the occurrence of gold. Includes topographic and geologic maps.

619 —— Nomenclature of metamorphic lavas.
Science, new ser., vol. v, p. 226, 1897.
Discusses the nomenclature of these rocks.

620 **Turner** (Henry W.). A new amphibole-pyroxene rock and some orbicular rocks from California.
Abstract, Science, new ser., vol. v, p. 811 (½ p.), 1897.

621 —— and **Ransome** (F. L.). Sonora folio, California.
U. S. Geol. Surv., Geol. Atlas of the U. S., Folio No. 41, 1897.
Describes the geology of the gold belt, the topography of the region, the character and distribution of the sedimentary and igneous rocks, and the occurrence of gold. Includes topographic and geologic maps.

622 **Tyrrell** (J. B.). The glaciation of north-central Canada.
Brit. Assoc. Adv., Rept. 1897, pp. 662–663, 1898.
Describes the glacial history of the region.

623 —— Genesis of Lake Agassiz.
Jour. of Geol., vol. v, pp. 78–81, 1897.
Review by G. M. D[awson].

## U.

624 **Udden** (J. A.). A brief description of the section of Devonian rocks exposed in the vicinity of Rock Island, Ill., with a statement of the nature of its fish remains.
Cin. Soc. Hist., Jour., vol. xix, pp. 93–95, 1897.
Gives a summary description of the several beds and discusses their correlation with other Devonian strata in the Mississippi Valley.

625 —— Origin of the loess.
Am. Geol., vol. xx, correspondence, pp. 274–275, 1897.
Makes corrections of a report of a recent paper by the author on this subject.

626 **Ulrich** (E. O.). The Lower Silurian Lamellibranchiata of Minnesota.
Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, pt. ii, pp. 475–628, pls. xxxv–xlvi, 1897.
Gives the author's terminology, methods of study, and classification. Describes many new species.

627 —— The lower Silurian Ostracoda of Minnesota.
Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, pt. ii, pp. 629–693, pls. xliii–xliv, figs. 46–52, 1897.
Gives a provisional classification of the Paleozoic Ostracoda, and describes many new species.

628 —— and **Scofield** (W. H.). The Lower Silurian Gastropoda of Minnesota.
Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, pt. ii, pp. 813–1081, pls. lxi–lxxii, figs. 1–12, 1897.
Discusses the general characters and classification of the gastropods and describes many new species.

629 **Ulrich** (E. O.), **Winchell** (N. H.) and. The Lower Silurian deposits of the Upper Mississippi province: A correlation of the strata with those in the Cincinnati, Tennessee, New York, and Canadian provinces, and the stratigraphic and geographic distribution of the fossils.

See Winchell (N. H.) and Ulrich (E. O.), No. 730.

630 **Underhill** (James). Vein intersections in Clear Creek County, Colorado.

Eng. and Mg. Jour., vol. lxiv, p. 339, figs. 1-5, 1897.
Describes the vein phenomena.

631 —— The Seaton mine, Colorado.

Eng. and Mg. Jour., vol. lxiv, p. 550, figs. 1-4, 1897.
Describes the vein system.

632 **Upham** (Warren). Cuyahoga pre-Glacial gorge in Cleveland, Ohio.

Geol. Soc. Am., Bull., vol. viii, pp. 7-13, 1897.
Gives the records of wells and discusses their bearing on the evidence of the pre-Glacial erosion of the region.

633 —— Modified drift in Saint Paul, Minnesota.

Geol. Soc. Am., Bull., vol. viii, pp. 183-196, pl. lv, 1897.
Describes the glacial phenomena of the vicinity.

634 —— [Review of "Sixteenth Annual Report of the United States Geological Survey."]

Am. Geol., vol. xix, pp. 210-214, 1897.

635 —— Relation of the Lafayette or Ozarkian uplift of North America to Glaciation.

Am. Geol., vol. xix, pp. 339-343, 1897.
Discusses the relation of these uplifts to the glaciation of North America.

636 —— Rhythmic accumulation of moraines by waning ice-sheets.

Am. Geol., vol. xix, pp. 411-417, 1897.
Discusses the character and mode of formation of moraines.

637 —— [Review of "Summary report of the Geological Survey department of Canada for the year 1896," by G. M. Dawson.]

Am. Geol., vol. xix, pp. 417-418, 1897.

638 —— [Review of "The water resources of Illinois," by Frank Leverett.]

Am. Geol., vol. xix, pp. 418-419, 1897.

639 —— [Review of "Iowa Geological Survey, vol. vi: Report on lead, zinc, artesian wells, etc."]

Am. Geol., vol. xx, pp. 271-273, 1897.

640 **Upham** (Warren). [Review of "Geology of Johnson County, Iowa," by Samuel Calvin.]
Am. Geol., vol. xx, p. 273, 1897.

641 —— The Glacial Lake Agassiz.
Review by F. L[everett], Am. Geol., vol. xx, pp. 324–328, 1897; Review by T. C. C[hamberlin], Jour. of Geol., vol. v, pp. 851–853, 1897.

642 —— [Review of "The Glacial brick clays of Rhode Island and southern Massachusetts," by N. S. Shaler, J. B. Woodworth, and G. F. Marbut.]
Am. Geol., vol. xx, pp. 328–329, 1897.

643 —— [Review of "The moraines of the Missouri coteau and their attendant deposits," by J. E. Todd.]
Am. Geol., vol. xx, p. 329, 1897.

644 —— [Review of "Glacial observations in the Umanak district, Greenland," by George H. Barton.]
Am. Geol., vol. xx, pp. 329–330, 1897.

645 —— Drumlins containing or lying on modified drifts.
Am. Geol., vol. xx, pp. 383–387, 1897.
Discusses the origin of these drumlins.

## V.

646 **Van Hise** (Charles R.). Studies for students: Deformation of rocks V.
Jour. of Geol., vol. v, pp. 178–193, figs. 1–6, 1897.
Describes the deformation of rocks by folding and the relations of cleavage, jointing, and bedding.

647 —— Geology for quarrymen.
Stone, vol. xiv, pp. 134–142, 260–264, 349–355, 487–490, 586–589; vol. xv, pp. 42–46, 126–132, 274–279, 370–373, 1897.
Extract from the 16th Annual Report of the U. S. Geological Survey.

648 —— and **Bayley** (William Shirley). The Marquette iron-bearing district of Michigan. With atlas. Including a chapter on the Republic Trough by Henry Lloyd Smyth.
U. S. Geol. Surv., Mon., vol. xxviii, 608 pp., pls. i–xxv, figs. 1–27, atlas sheets i–xxxix, 1897. Review by U. S. Grant, Jour. Geol., vol. v, pp. 402–404, 1897.
Reviews the previous explorations and literature on the region; describes the occurrence and character of the subdivisions of the Basement complex, and the Upper and Lower Marquette series, the igneous rocks, and the geologic features and structures of the Republic trough. Includes a discussion of the general geology of the region.

649 **Vaughan** (T. Wayland). Additional notes on the outlying areas of the Comanche series in Oklahoma and Kansas.
Am. Jour. Sci., 4th ser., vol. iv., pp. 43–50, with map, 1897.
Describes sections in various parts of the region, giving lists of fossils collected, and discusses their bearing on the relation and age of parts of the Comanche series.

650 **Vaughan** (T. Wayland). The asphalt deposits of western Texas.
U. S. Geol. Surv., 18th Ann. Rept., Pt. V (cont.), pp. 930–935, 1897.
Describes its occurrence in the Cretaceous beds of the region.

651 —— Geologic notes on Kansas, Oklahoma, and Indian Territory.
Abstract, Science, new ser., vol. v, pp. 558–559, 1897.

652 —— **Hill** (R. T.) and. Geology of the Edwards plateau and Rio Grande plain adjacent to Austin and San Antonio, Texas, with reference to the occurrence of underground waters.
See Hill (R. T.) and Vaughan (T. W.), No. 287.

653 **Vogdes** (Anthony W.). Notes on Paleozoic crustacea, No. 5, Carboniferous trilobites from Missouri.
Cal. Acad. Sci., Proc., vol. vi, pp. 197–198, 1897.
Describes Proetus placidus n. sp., from the Chouteau limestone of Missouri.

## W.

654 **Wadsworth** (M. E.). The origin and mode of occurrence of the Lake Superior copper deposits.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 669–696.
Discusses the phenomena of the alteration of rock masses, the formation of ore deposits, and the character and relations of the Keweenawan and Potsdam series, and the lava flows.

655 **Walcott** (Charles Doolittle). The post-Pliocene elevation of the Inyo range, and the lake beds of Waucobi embayment, Inyo County, California.
Jour. of Geol., vol. v, pp. 340–348, figs. 1–5, 1897.
Presents evidence as to the occurrence of recent orographic movement in the region and describes the character and occurrence of the lake beds.

656 —— Note on the genus Lingulepis.
Am. Jour. Sci., 4th ser., vol. iii, pp. 404–405, 1897.
Describes Lingulepis meeki n. sp. from the Middle Cambrian.

657 —— Cambrian Brachiopoda: Genera Iphidia and Yorkia, with descriptions of each and of the genus Acrothele.
U. S. Nat. Mus., Proc. vol. xix, pp. 707–718, pls. lix–lx, 1897.

658 —— Report of the Director U. S. Geological Survey for the fiscal year ending June 30, 1897.
U. S. Geol. Surv., 18th Ann. Rept., Pt. I, pp. 11–440, pls. i–iv, figs. 1–2, 1897.
Describes the work of the geologic, topographic, and paleontologic divisions of the United States Geological Survey and gives summaries of the results obtained by the various field parties.

659 **Walker** (T. L.). Geological and petrographical studies of the Sudbury nickel district [Canada].
London Geol. Soc., Quart. Jour., vol. liii, pp. 40–66, 1897; review by G. Maas, Zeit. fur prak. Geol., Heft. 8, pp. 297–300, fig. 85, 1897.
Describes the petrographic characters of the nickel-bearing and associated rocks and discusses the origin of the ore.

660 **Ward** (Lester F.). Professor Fontaine and Dr. Newberry on the age of the Potomac formation.
Science, new ser., vol. v, pp. 411-423, 1897.
Reviews certain papers and discusses the conclusions as to the evidences of the age of the Potomac formation.

661 —— A new species of Eucalyptus from the Dakota group of southwestern Kansas.
Torrey Bot. Club, Bull., vol. xxiv, pp. 576-577, 2 figs., 1897.
Describes Eucalyptus gouldii n. sp.

662 —— The Cretaceous formation in southwestern Kansas.
Abstract, Science, new ser., vol. vi, pp. 814-815, 1897.

663 **Waring** (W. George). The gold fields of Altar, Mexico.
Eng. and Mg. Jour., vol. lxiii, pp. 257-258, 1897.
Describes the occurrence of gold in western Mexico.

664 **Warren** (E. R.). Vein walls.
Eng. and Mg. Jour., vol. lxiii, p. 424, 1897.
Describes vein structure near Crested Butte, Colorado.

665 —— Some mineral veins of Gunnison County, Colorado.
Eng. and Mg. Jour., vol. lxiii, pp. 597-598, 1897.
Discusses occurrence of silver-lead ore bodies near Crested Butte, Colo.

666 **Watson** (Thomas L.). Evidences of recent elevation of the southern coast of Baffinland.
Jour. of Geol., vol. v, pp. 17-33, 1897.
Describes the topographic features of the region, and the occurrence of raised beaches and their contained fossils. Discusses their occurrence as evidence of recent elevation. Gives a partial bibliography of the subject.

667 —— [Review of "The relation of the fauna of the Ithaca group to the faunas of the Portage and Chemung," by Edward M. Kindle].
Am. Geol., vol. xix, pp. 140-141, 1897.

668 —— Lakes with more than one outlet.
Am. Geol., vol. xix, pp. 267-270, 1897.
Reviews the literature describing such phenomena and describes occurrences in Baffinland.

669 —— A bibliography of the geological, mineralogical, and paleontological literature of the State of Virginia.
Am. Pal., Bull., vol. 2, No. 7, p. 109, 1897.
Gives a list of journals consulted, and a bibliography arranged alphabetically by authors' names.

670 **Watts** (W. L.). Oil and gas yielding formations of Los Angeles, Ventura, and Santa Barbara counties [California].
Cal. State Mg. Bureau, Bull. No. 11, p. 94, 35 figs., 1897.
Describes the occurrence of oil and the character and structure of the Tertiary beds. Gives a list of fossils determined. Includes geological sketch maps of the several districts.

671 **Weaver** (W. J.). River adjustment in North Carolina.
Elisha Mitchell Sci. Soc., Jour., 1896, pt. i, pp. 13–24, figs. 1–2, 1896.
Discusses the changes in the drainage lines of North Carolina.

671*a* **Weed** (Walter Harvey). [Areal Geology, Butte quadrangle, Montana.]
U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 38, 1897.
Describes the physiography, igneous intrusions, and rocks of the region.

672 —— Laccoliths in folded strata.
Abstract, Science, new ser., vol. v., pp. 811–812, 1897.

673 —— and **Pirsson** (L. V.). Geology of Castle Mountain mining district, Montana.
Review, Jour. of Geol., vol. v, pp. 210–212, 1897.

674 —— Geology and mineral resources of the Judith Mountains of Montana.
U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 446–616, pls. lxix–lxxxvi, figs. 32–54b, 1898.
Describes the physiography, geologic history, occurrence and character of the Paleozoic and Mesozoic rocks, the detailed geology, the character and occurrence of the igneous rocks, the dynamic and structural geology, and the mineral resources of the region.

675 **Weeks** (Fred Boughton). Bibliography and index of North American geology, paleontology, petrology, and mineralogy for 1896.
U. S. Geol. Surv., Bull. No. 149, 152 pp., 1897.
Contains a list of titles of papers arranged alphabetically by authors' names and a subject index.

676 **Weller** (Stuart). [Review of "Report on the Valley Regions of Alabama (Paleozoic strata) Part I. On the Tennessee Valley region" by Henry McCalley.]
Jour. of Geol., vol. v, pp. 307–308, 1897.

677 —— [Review of "Final report on the geology of Minnesota, Paleontology, vol. iii, pt. ii."]
Jour. of Geol., vol. v, p. 308, 1897.

678 —— [Review of "Bulletins of American Paleontology, vol. i."]
Jour. of Geol., vol. v, pp. 309–310, 1897.

679 —— Correlation of the Devonian faunas in southern Illinois.
Jour. of Geol., vol. v, pp. 625–635, 1897.
Gives a list of fossils collected in Illinois on the Mississippi River, and discusses the relations of the Illinois, Iowa, and New York Devonian faunas.

680 —— On the presence of problematic fossil Medusæ in the Niagara limestone of northern Illinois.
Jour. of Geol., vol. v, pp. 744–751, fig. a, and one plate, 1897.
Describes the general characters of the material and the characters of four new species.

681 **Weller** (Stuart). Cryptodiscus Hall.
Jour. of Geol., vol. v, pp. 803–808, pls. A. B., 1897.
Describes material from the Niagara limestone of Wisconsin, and discusses its correlation with Callicrinus.

682 **Wells** (J. Walter). The mispickel gold ores of Deloro, Ontario.
Can. Mg. Rev., vol. xvi, pp. 120–121, 1897.
Describes the character of the gold ores and their geologic occurrence.

683 **Wheeler** (H. A.). Clay deposits.
Jour. of Geol., vol. v, pp. 398–400, 1897.
Review by H. F. Bain.

684 **White** (David). Age of the lower coals of Henry County, Missouri.
Geol. Soc. Am., Bull., vol. viii, pp. 287–304, 1897. Review by A. H[ollick], Torrey Bot. Club., Bull., vol. xxiv, pp. 316–317, 1897.
Describes the stratigraphy of the coal beds, the composition and distribution of the flora, and its bearing on the age of the beds. Includes a discussion of the early Carboniferous flora.

685 —— [Review of "Zur palaozoischen Flora der Arktischen zone," by A. G. Nathorst, Stockholm, 1894.]
Am. Nat., vol. xxxi, pp. 43–45, 1897.

686 **White** (Theodore G.). A contribution to the petrography of the Boston Basin [Massachusetts].
Boston Soc. Nat. Hist., Proc., vol. xxv, pp. 117–156, 5 pls., 1897.
Describes the character and occurrence of the Cambrian slates, the petrographic characters of the granitoid, porphyritic, and felsitic rocks, and the occurrence of granite dikes and contact phenomena.

687 **Whiteaves** (J. F.). The fossils of the Galena-Trenton and Black River formations of Lake Winnipeg and its vicinity [Canada].
Canada Geol. Surv., Paleozoic Fossils, vol. iii, pt. iii, pp. 129–242, pls. 16–22, figs. 19, 1897. Review by J. M. Clarke, Am. Geol., vol. xx, pp. 187–188, 1897.
Describes the characters of the fossils collected, including a number of new species.

688 —— Note on a fish tooth from the Upper Arisaig series of Nova Scotia.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 656–657, 1898.
Discusses its bearing on the age of the beds.

689 —— Description of a new genus and species of cystideans from the Trenton limestone at Ottawa [Ontario].
Can. Rec. Sci., vol. vii, pp. 287–292, 3 figs., 1897.
Describes Astrocystites ottawaensis n. sp.

690 **Whitfield** (Robert P.). Note on the hypostome of Lichas (Teratapsis) grandis Hall.
Am. Mus. Nat. Hist., Bull., vol. ix, pp. 45–46, 3 figs., 1897.
Describes the characters of the material.

691 **Whitfield** (Robert P.). Description of new species of Silurian fossils from near Fort Cassin and elsewhere on Lake Champlain.

Am. Mus. Nat. Hist., Bull., vol. ix, pp. 177–184, pls. iv–v, 1897.
Describes fossils from the Fort Cassin beds of Vermont.

692 —— Descriptions of species of Rudistæ from the Cretaceous rocks of Jamaica, W. I., collected and presented by Mr. F. C. Nicholas.

Am. Mus. Nat. Hist., Bull., vol. ix, pp. 185–196, pls. vi–xxii, 1897
Describes a number of new species.

693 —— Observations on the genus Barrettia Woodward, with descriptions of two new species.

Am. Mus. Nat. Hist., Bull., vol. ix, pp. 233–246, pls. xxvii–xxxviii, 1897.
Discusses the character of the genus and describes two new species.

694 **Whitten** (W. M.), **Bailey** (E. H. S.) and. On the chemical composition of some Kansas gypsum rocks.

See Bailey (E. H. S.) and Whitten (W. M.) No. 27.

695 **Wieland** (George R.). Eopaleozoic hot springs and the origin of the Pennsylvania siliceous oolite.

Am. Jour. Sci., 4th ser., vol. iv, pp. 262–264, fig. 1, 1897.
Discusses the origin of certain material.

696 **Williams** (E. H., jr.). Greenland glaciers.

Science, new ser., vol. v, p. 448, 1897.
Compares certain features of glaciation in Greenland and Pennsylvania.

697 **Williams** (Henry S.). On the southern Devonian formations.

Am. Jour. Sci., 4th ser., vol. iii, pp. 393–403, with map, 1897. Review by E. W. C[laypole], Am. Geol., vol. xx, pp. 133–134, 1897.
Describes the characteristics of the Devonian strata and discusses the author's hypothesis to explain the differences in the Devonian stratigraphy of eastern United States.

698 —— [Review of "An introduction to geology," by W. B. Scott.]

Am. Jour. Sci., 4th ser., vol. iii, pp. 422–423, 1897; Science, new ser., vol. v, pp. 659–660, 1897.

699 **Willis** (Bailey). Some coal fields of Puget Sound [Washington].

U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 399–436, pls. lii–lxviii, figs. 26–31, 1898.
Describes the physiography, stratigraphic succession, and structure of the region. Discusses the age of the beds and gives an account of the occurrence of coal.

700 —— Glaciation in the Puget Sound region [Washington].

Am. Geol., vol. xix, pp. 144–145, 1897; Abstract, Science, new ser., vol. v, pp. 238–239, 1897.
Gives brief notes on the glacial phenomena of the region.

701 **Willis** (Bailey). [Review of "Elementary geology," by Ralph S. Tarr.]
Science, new ser., vol. vi, pp. 599–600, 1897.

702 —— Drift phenomena of Puget Sound and their interpretation.
Brit. Assoc. Adv. Sci., Rept. 1897, p. 653 (¾ p.), 1898.

703 **Williston** (S. W.). The Kansas Niobrara Cretaceous.
Kan. Univ. Geol. Surv., vol. ii, pp. 237–246, pl. xxxv, 1897.
Describes the general lithologic and faunal characters of the formation.

704 —— The Pleistocene of Kansas.
Kan. Univ. Geol. Surv., vol. ii, pp. 299–308, figs. 12–13, 1897.
Gives notes on the occurrence of vertebrates in the Pleistocene of Kansas, and discusses evidences as to the age of the Equus beds and the occurrence of the Goodnight and Blanco beds.

705 —— Restoration of Ornithostoma (Pteranodon).
Kan. Univ. Quart., vol. vi, pp. 35–51, pl. ii, 1897.
Gives the author's classification and describes the characters of Ornithostoma.

706 —— Notice of some vertebrate remains from the Kansas Permian.
Kan. Univ. Quart., vol. vi, pp. 53–56, figs. 1–4, 1897.
Describes fragments of Cricotus.

707 —— A new plesiosaur from the Kansas Comanche Cretaceous.
Kan. Univ. Quart., vol. vi, p. 579, 1897.
Describes Plesiosaurus gouldii, n. sp.

708 —— Brachysaurus, a new genus of Mosasaurs.
Kan. Univ. Quart., vol. vi, pp. 95–99, pl. viii, 1897.
Describes the characters of a new genus from the Cretaceous of South Dakota.

709 —— On the extremities of Tylosaurus.
Kan. Univ. Quart., vol. vi, pp. 99–102, pls. ix–xii, fig. 1, 1897.

710 —— Restoration of Kansas Mosasaurs.
Kan. Univ. Quart., vol. vi, pp. 107–110, pl. xiii, 1897; Sci. Am. Suppl., vol. xliv, p. 18162, 3 figs., 1897.
Describes restorations of Clidastes, Platecarpus, and Tylosaurus.

711 —— Range and distribution of the Mosasaurs, with remarks on synonymy.
Kan. Univ. Quart., vol. vi, pp. 177–185, pl. xx, 1897.
Describes the geologic and geographic distribution of mosasaurs and discusses their synonymy.

712 —— A new labyrithodont from the Kansas Carboniferous.
Kan. Univ. Quart., vol. vi, pp. 209–210, pl. xxi, 1897.
Describes a tooth of particular interest, as it is from a lower horizon than hitherto recorded and the only one yet found in America.

713 **Williston** (S. W.). Vertebrates from the Kansas Permian.
Science, new ser., vol. v, p. 395 (¼ p.), 1897.
Notes on discovery of vertebrate remains from near the base of the Permian.

714 —— [Review of "The University Geological Survey of Kansas, Vol. II," by Erasmus Haworth and assistants.]
Jour. of Geol., vol. v, pp. 400–401, 1897.

715 **Winchell** (Alexander N.). The age of the Great Lakes of North America.
Am. Geol., vol. xix, pp. 336–339, 1897.
Gives a partial bibliography of the subject, with brief notes on the contents of each paper.

716 —— The Koochiching granite.
Am. Geol., vol. xx, pp. 293–299, figs. 1–3, 1897.
Describes the megascopic and microscopic and chemical characters of the granite.

717 **Winchell** (Horace V.). The gold fields of the Rainy River district [Ontario].
Eng. and Mg. Jour., vol. lxiv, pp. 485–486, with geological map, 1897.
Describes the geologic features and occurrence of the ore veins.

718 **Winchell** (N. H.). [Review of "The ancient volcanic rocks of South Mountain, Pennsylvania," by Florence Bascom.]
Am. Geol., vol. xix, pp. 139–140, 1897.

719 —— [Review of "Elementary Geology," by Ralph S. Tarr.]
Am. Geol., vol. xix, pp. 277–278, 1897.

720 —— [Review of "Glaciers of North America," by I. C. Russell.]
Am. Geol., vol. xix, p. 278 (¼ p.), 1897.

721 —— Some new features in the geology of northeastern Minnesota.
Am. Geol., vol. xx, pp. 41–51, 1897.
Describes recent observations on the transition from crystalline schists to the Laurentian, the relations of the Stuntz conglomerate, and the nature and position of the coarse conglomerate in Puckwunge valley.

722 —— [Review of "Papers and notes on the genesis and matrix of the diamond," by H. C. Lewis.]
Am. Geol., vol. xx, pp. 57–59, 1897.

723 —— Light in the East.
Am. Geol., vol. xx, Editorial comment, pp. 128–129, 1897.
Discusses use of the term Taconic.

724 —— [Review of "The Newark system, Report of progress," by H. B. Kümmell.]
Am. Geol., vol. xx, pp. 134–135, 1897.

725 **Winchell** (N. H.). [Review of "Twenty-First Annual Report of the Department of Geology and Natural Resources, Indiana."]
Am. Geol., vol. xx, pp. 135–136 (¼ p.), 1897.

726 —— [Review of development and mode of growth of Diplograptus McCoy," by R. Ruedemann.]
Am. Geol., vol. xx, p. 136 (¼ p.), 1897.

727 —— The Fisher meteorite, chemical and mineral composition.
Am. Geol., vol. xx, pp. 316–317, 1897.
Describes its microscopic characters.

728 —— The Taconic according to Renevier.
Am. Geol., vol. xx, Editorial Comment, pp. 405–407, 1897.
Discusses the Taconic question.

729 —— Minnesota quartzite.
Stone, vol. xiv, pp. 122–125, 1897.
Extracted from Minnesota Geological and Natural History Survey.

730 —— and **Ulrich** (E. O.). The Lower Silurian deposits of the Upper Mississippi: A correlation of the strata with those in the Cincinnati, Tennessee, New York, and Canadian Provinces, and the stratigraphic and geographic distribution of the fossils.
Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, pt. ii, pp. lxxxiii–cxxix, 1897.
Discusses the evidence for the correlation of the various subdivisions of the Lower Silurian group in the areas named. Gives a list of fossils from different horizons in the several areas.

731 **Winslow** (Arthur). [Review of geology and mining industry of the Cripple Creek district, Colorado, by Whitman Cross and R. A. F. Penrose, jr.]
Jour. of Geol., vol. v, pp. 197–203, 1897.

732 **Wolff** (J. E.). Report on Archean geology [New Jersey].
N. J. Geol. Surv., Rept. 1896, pp. 91–94, pl. ix, 1897.
Describes occurrence of elæolite-syenite.

733 —— and **Brooks** (Alfred Hulse). The age of the Franklin White limestone of Sussex County, New Jersey.
U. S. Geol. Surv., 18th Ann. Rept., pp. 431–457, pl. lxxxiii, fig. 77–81, 1898; Abstract, Geol. Soc. Am., Bull., vol. viii, p. 397, 1897.
Gives a review of previous literature, a description of the lithologic character and structure of the formation, and a summary and conclusions.

734 **Woodman** (J. Edmund). [Review of "The elevated reefs of Florida," by Alexander Agassiz. With notes on the geology of southern Florida, by Leon S. Griswold.]
Jour. of Geol., vol. v, pp. 312–313, 1897.

735 **Woodward** (A. Smith). Edward Drinker Cope.
Nat. Science, vol. x, pp. 377–381, pl. iv, 1897.
Gives a sketch of the life of Professor Cope.

736 **Woodworth** (Jay Backus). Unconformities of Marthas Vineyard and of Block Island.

Geol. Soc. Am., Bull., vol. viii, pp. 197–212, pl. 16, 1897.

Describes the character and occurrence of the Tertiary strata and the unconformities of these islands.

737 —— Charles Thomas Jackson.

Am. Geol., vol. xx, pp. 69–110, pl. iv, 1897.

Gives an account of the life and work of Jackson and a list of his published papers.

738 —— [Review of "A treatise on rocks, rock weathering, and soils," by George P. Merrill.]

Science, new ser., vol. v, pp. 995–997, 1897.

739 **Woolman** (Lewis). Artesian and other bored wells, and also dug wells, in southern New Jersey.

N. J. Geol. Surv., Rept. 1896, pp. 97–180, 1897.

Gives well records of the strata penetrated, from various parts of the region.

740 —— Bored wells, mostly in northern New Jersey.

N. J. Geol. Surv., Rept. 1896, pp. 181–200, 1897.

Presents reports on well records of the region.

741 —— Stratigraphy of the Fish House black clay and associated gravels. Fossil horse, Unionidæ, and plant remains.

N. J. Geol. Surv., Rept. 1896, pp. 201–254, pls. x–xviii, 1897.

Reviews the fossil and stratigraphic evidences as to the age of the bed. Includes records of well borings.

742 **Wortman** (J. L.). The Ganodonta and their relationship to the Edentates.

Am. Mus. Nat. Hist., Bull., vol. ix, pp. 59–110, 36 figs., 1897.

Discusses the relationships of the two groups.

## ADDENDA TO BIBLIOGRAPHY FOR 1896.

The papers in the foregoing bibliography which have the following numbers were printed in 1896, or bear that date:

| | | | | | |
|---|---|---|---|---|---|
| 21 | 175 | 193 | 380 | 442 | 445 |
| 468 | 564 | 671 | | | |

# CLASSIFIED KEY TO THE INDEX.

# INDEX.

[The numbers refer to the entries in the Bibliography.]

Paleontology—Continued.
*Genera and species described*—Continued.
Gyronema—Continued.
semicarinatum Salter, Ulrich and Scofield, No. 628.
Halichondrites confusus Dawson, Dawson, No. 175.
Halliella Ulrich, Ulrich, No. 627.
labiosa n. sp., Ulrich, No. 627.
Halysites catenularia L., var. gracilis, Whiteaves, No. 687.
Harpes cassinensis n. sp., Whitfield, No. 691.
Harpina
minnesotensis n. sp., Clarke, No. 133.
cf. ottawensis Billings (sp.), Clarke, No. 133.
rutrellum n. sp., Clarke, No. 133.
Helcionopsis n. gen., Ulrich and Scofield, No. 628.
subcarinata n. sp., Ulrich and Scofield, No. 628.
striata n. sp., Ulrich and Scofield, No. 628.
Helicotoma Salter, Ulrich and Scofield, No. 628.
declivis Safford, Ulrich and Scofield, No. 628.
granosa n. sp., Ulrich and Scofield, No. 628.
marginata n. sp., Ulrich and Scofield, No. 628.
planulata Salter, Ulrich and Scofield, No. 628.
var. robusta n. var., Ulrich and Scofield, No. 628.
planulatoides n. sp., Ulrich and Scofield, No. 628.
subquadrata n. sp., Ulrich and Scofield, No. 628.
tennesseensis Safford, Ulrich and Scofield, No. 628.
umbilicata n. sp., Ulrich and Scofield, No. 628.
verticalis n. sp., Ulrich and Scofield, No. 628.
Hemiganus otariidens Cope, Wortman, No. 742.
Hesperornis, Marsh, No. 408.
Heteracanthus uddeni n. sp., Lindahl, No. 381.
Hipponyx tortilis n. sp., Guppy and Dall, No. 255.
Holopea Hall, Ulrich and Scofield, No. 628.
ampla n. sp., Ulrich and Scofield, No. 628.
appressa n. sp., Ulrich and Scofield, No. 628.
concinnula n. sp., Ulrich and Scofield, No. 628.
excelsa n. sp., Ulrich and Scofield, No. 628.
insignis n. sp., Ulrich and Scofield, No. 628.
paludiniformis, Ulrich and Scofield, No. 628.
parvula n. sp., Ulrich and Scofield No. 628.
pyrene Billings, Ulrich and Scofield, No. 628.
rotunda n. sp., Ulrich and Scofield, No. 628.
similis n. sp., Ulrich and Scofield, No. 628.
supraplana n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued
*Genera and species described*—Continued.
Holoptychius serrulatus n. sp., Cope, No. 149.
latus n. sp., Cope, No. 149.
flabellatus n. sp., Cope, No. 149.
Hormotoma Salter, Ulrich and Scofield, No. 628.
bellicincta Hall, Ulrich and Scofield, No. 628.
gracilis Hall, Ulrich and Scofield, No. 628.
var., angustata Hall, Ulrich and Scofield, No. 628.
(?) var. goodhuensis n. var., Ulrich and Scofield, No. 628.
var. multivolvia n. var., Ulrich and Scofield, No. 628.
var. sublaxa n. var., Ulrich and Scofield, No. 628.
(?) major Hall, Ulrich and Scofield, No. 628.
salteri n. sp., Ulrich and Scofield, No. 628.
subangulata n. sp., Ulrich and Scofield, No. 628.
trentonensis n. sp., Ulrich and Scofield, No. 628.
winnipegensis n. sp., Whiteaves, No. 687.
Hyalostelia metissica Dawson, Dawson, No. 175.
Hypnum recurvans, Penhallow, No. 468.
Illænus
americanus Billings 1859, Clarke, No. 133.
cf. indeterminatus Walcott, Clarke, No. 133.
Inocaulis canadensis n. sp., Whiteaves, No. 687.
Iphidea Billings, Walcott, No. 657.
alabamaensis n. sp., Walcott, No. 657.
crenistria n. sp., Walcott, No. 657.
logani n. sp., Walcott, No. 657.
pealei n. sp., Walcott, No. 657.
superba n. sp., Walcott, No. 657.
Isodectes punctulatus Cope, Cope, No. 149.
Isotelus
canalis Whitfield sp., Clarke, No. 133.
maximus Locke, 1838, Clarke, No. 133.
gigas De Kay, 1824, Clarke, No. 133.
susæ Whitfield, 1882, Clarke, No. 133.
Jonesella Ulrich, Ulrich, No. 627.
obscura n. sp., Ulrich, No. 627.
Juglans hesperia n. sp., Knowlton, No. 345.
Kellia prima n. sp., Aldrich, No. 18.
Kokenia n. gen., Ulrich and Scofield, No. 628.
costalis n. sp., Ulrich and Scofield, No. 628.
Krausella n. gen., Ulrich, No. 627.
arcuata n. sp., Ulrich, No. 627.
inæqualis n. sp., Ulrich, No. 627.
Lambdotherium Cope, Osborn, No. 461.
popoagicum Cope, Osborn, Nos. 458, 461.
Larix americana, Penhallow, No. 471.
Lasiothrix Hinde, Dawson, No. 175.
curvicostata Hinde, Dawson, No. 175.
flabellata n. sp., Dawson, No. 175.
Leaia leidyi, Dawson, No. 174.
Leda marieana n. sp., Aldrich, No. 18.
Leperditella n. gen., Ulrich, No. 627.
canalis n. sp., Ulrich, No. 627.
(?) dorsicornis Ulrich, Ulrich, No. 627.

Paleontology—Continued.
*Genera and species described*—Continued.
Maclurea—Continued.
bigsbyi Hall, Ulrich and Scofield, No. 628.
var. dixonensis n. var., Ulrich and Scofield, No. 628.
crassa n. sp., Ulrich and Scofield, No. 628.
var. macra n. var., Ulrich and Scofield, No. 628.
depressa n. sp., Ulrich and Scofield, No. 628.
knoxvillensis n. sp., Ulrich and Scofield, No. 628.
nitida n. sp., Ulrich and Scofield, No. 628.
Macluria (Maclurina) manitobensis Whiteaves, Whiteaves, No. 687.
Maclurina n. gen., Ulrich and Scofield, No. 628.
cuneata Whitfield, Ulrich and Scofield, No. 628.
manitobensis Whiteaves, Ulrich and Scofield, No. 628.
subrotunda Whitfield, Ulrich and Scofield, No. 628.
Macronotella n. gen., Ulrich, No. 627.
scofieldi n. sp., Ulrich, No. 627.
Macropetalichthys, Eastman, No. 190.
Major Ulrich, Ulrich, No. 626.
Mangilia consentanea n. sp., Guppy and Dall, No. 255.
Marginella
amina n. sp., Guppy and Dall, No. 255.
domingoensis n. sp., Guppy and Dall, No. 255.
latissima n. sp., Guppy and Dall, No. 255.
limonensis n. sp., Guppy and Dall, No. 255.
(Persicula) arcuata n. sp., Guppy and Dall, No. 255.
solitaria n. sp., Guppy and Dall, No. 255.
Mariacrinus Hall. James, No. 312.
harrisi S. A. Miller, James, No. 312.
Matheria Billings, Ulrich, No. 626.
rugosa Ulrich, Ulrich, No. 626.
Mathilda
plexita n. sp., Guppy and Dall, No. 255.
regularis Meyer, Aldrich, No. 18.
Meekospira n. gen., Ulrich and Scofield, No. 628.
subconica n. sp., Ulrich and Scofield, No. 628.
Megalomphala n. gen., Ulrich and Scofield, 628.
Mesotrypa selkirkensis n. sp., Whiteaves, No. 687.
Minoceras Hall, Ulrich and Scofield, No. 628.
Mioclænus Cope, Matthew, No. 418.
acolytus (Cope), Matthew, No. 418.
inæquidens (Cope), Matthew, No. 418.
lemuroides n. sp., Matthew, No. 418.
turgidunculus Cope, Matthew, No. 418.
turgidus Cope, Matthew, No. 418.
Mixodectes Cope, Matthew, No. 418.
Modiolodon n. gen., Ulrich, No. 626.
(?) gibbus n. sp., Ulrich, No. 626.
patulus n. sp., Ulrich, No. 626.
Modiolopsidæ n. fam., Ulrich, No. 626.
Modiolopsis Hall, Ulrich, No. 626.
angustifrons n. sp., Whiteaves, No. 687.
arguta n. sp., Ulrich, No. 626.

Paleontology—Continued.
*Genera and species described*—Continued.
Modiolopsis—Continued.
chatfieldensis n. sp., Ulrich, No. 626.
concava Ulrich, Ulrich, No. 626.
concentrica Hall and Whitfield, Ulrich, No. 626.
(?) consimilis n. sp., Ulrich, No. 626.
excellens n. sp., Ulrich, No. 626.
mytiloides Hall, Ulrich, No. 626.
nan. n. sp., Ulrich, No. 626.
obsoleta n. sp., Ulrich, No. 626.
oweni n. sp., Ulrich, No. 626.
parviuscula Billings, Whiteaves, No. 687.
similis Ulrich, Ulrich, No. 626.
Mogulia Waagen, Ulrich and Scofield, No. 628.
Moorea Jones and Kirkby, Ulrich, No. 627.
angularis n. sp., Ulrich, No. 627.
(?) perplexa n. sp., Ulrich, No. 627.
punctata n. sp., Ulrich, No. 627.
Murchisonia cassina n. sp., Whitfield, No. 691.
Myelopteris topekensis n. sp., Penhallow, No. 469.
Myrica
(?) idahoensis n. sp., Knowlton, No. 345.
lanceolata n. sp., Knowlton, No. 345.
Nanno aulema n. sp., Clarke, No. 134.
Nassa newcombei n. sp., Merriam, No. 425.
Nautilus perkinsi n. sp., Whitfield, No. 691.
Nileus striatus n. sp., Whitfield, No. 691.
vigilans, Meek and Worthen (sp.), 1875, Clarke, No. 133.
Nimravus Cope, Smith, No. 9.
Obolella (Linnarssonia) pretiosa Billings, Dawson, No. 175.
Odontopleura parvula Wolcott (sp.), 1877, Clarke, No. 133.
Odontostomia insignifica n. sp., Aldrich, No. 18.
Oliva plicata n. sp., Guppy and Dall, No. 255.
Olivella indivisa n. sp., Guppy and Dall, No. 255.
Omospira n. gen., Ulrich and Scofield, No. 628.
alexandra Billinga, Ulrich and Scofield, No. 628.
laticinnota n. sp., Ulrich and Scofield, No. 628.
Oncocera
carveri n. sp., Clarke, No. 134.
douglassi n. sp., Clarke, No. 134.
exiguum Billings, 1860, Clarke, No. 134.
lycus Hall, 1861, Clarke, No. 134.
magnum Whiteaves, Whiteaves, No. 687.
(magnum? var.) intermedium, Whiteaves, No. 687.
minnesotense n. sp., Clarke, No. 134.
pandion Hall, 1861, Clarke, No. 134.
whiteavesii Miller, Whiteaves, No. 687.
Onychodectes Cope, Wortman, No. 742.
Ophiletina n. gen., Ulrich and Scofield, No. 628.
angularis n. sp., Ulrich and Scofield, No. 628.
sublaxa n. sp., Ulrich and Scofield, No. 628.
Opis triangulata Cooper (Stanton), Cooper, No. 148.
Oreodon culbertsonii Leidy, Stewart, No. 582.
Ornithostoma ingens, Williston, No. 705.

Paleontology—Continued.
*Genera and species described*—Continued.
Pleurotoma
pulcherrima, Aldrich, No. 18.
venusta, Aldrich, No. 18.
Pleurotomaria
(?) margaritoides n. sp., Whiteaves, No. 687.
muralis D. D. Owen, Whiteaves, No. 687.
stokesiana n. sp., Whiteaves, No. 687.
Populus
eotremuloides n. sp., Knowlton, No. 345.
lindgreni n. sp., Knowlton, No. 345.
occidentalis n. sp., Knowlton, No. 345.
Potamogeton
pectinatus, Penhallow, No. 471.
pusillus, Penhallow, No. 471.
Poterioceras
apertum Whiteaves 1889, Clarke, No. 134.
gracile Whiteaves, Whiteaves, No. 687.
nobile Whiteaves, Whiteaves, No. 687.
Primitia Jones and Holl, Ulrich, No. 627.
celesta n. sp., Ulrich, No. 627.
duplicata n. sp., Ulrich, No. 627.
gibbera n. sp., Ulrich, No. 627.
mammata n. sp., Ulrich, No. 627.
micula n. sp., Ulrich, No. 627.
minutissima n. sp., Ulrich, No. 627.
sancti pauli n. sp., Ulrich, No. 627.
tumidula n. sp., Ulrich, No. 627.
uphami n. sp., Ulrich, No. 627.
Primitiella n. gen., Ulrich, No. 627.
constricta n. sp., Ulrich, No. 627.
fillmorensis n. sp., Ulrich, No. 627.
limbata n. sp., Ulrich, No. 627.
simulans n. sp., Ulrich, No. 627.
unicornis Ulrich, Ulrich, No. 627.
Prœtus
parvisculus Hall 1866, Clarke, No. 133.
?placidus n. sp., Vogdes, No. 653.
Prolobella n. gen., Ulrich, No. 626.
striatula n. sp., Ulrich, No. 626.
Protaræa (vetusta? var.) magna, Whiteaves, No. 687.
Protocaris Walcott, Schuchert, No. 540.
Protoceras
celer Marsh, Marsh, Nos. 407, 410.
comptus Marsh, Marsh, No. 410.
Protochriacus Scott, Matthew, No. 418.
attenuatus Osborn and Earle, Matthew, No. 418.
hyattianus (Cope), Matthew, No. 418.
priscus (Cope), Matthew, No. 418.
Protogonodon Scott, Matthew, No. 418.
stenognathus n. sp., Matthew, No. 418.
Protorthis
cassinensis n. sp., Whitfield, No. 691.
minima n. sp., Whitfield, No. 691.
Protoselene n. gen., Matthew, No. 418.
Protospongia
coronata Dawson, Dawson, No. 175.
cyathiformis Dawson, Dawson, No. 175.
delicatula Dawson, Dawson, No. 175.
mononema Dawson, Dawson, No. 175.
polynema Dawson, Dawson, No. 175.
tetrenema Dawson, Dawson, No. 175.
Protostega, Case, No. 109.

Paleontology—Continued.
*Genera and species described*—Continued.
Protowarthia n. gen., Ulrich and Scofield, No. 628.
cancellata Hall, Ulrich and Scofield, No. 628.
concinna n. sp., Ulrich and Scofield, No. 628.
granistriata n. sp., Ulrich and Scofield, No. 628.
obesa n. sp., Ulrich and Scofield, No. 628.
pervoluta n. sp., Ulrich and Scofield, No. 628.
planodorsata n. sp., Ulrich and Scofield, No. 628.
rectangularis n. sp., Ulrich and Scofield, No. 628.
subcompressa n. sp., Ulrich and Scofield, No. 628.
Pseudosophærexochus trentonensis n. sp., Clarke, No. 133.
Psiloconcha n. gen., Ulrich, No. 626.
minnesotensis n. sp., Ulrich, No. 626.
Psittacotherium Cope, Wortman, No. 742.
Pterygometopus
callicephalus Hall (sp.), Clarke, No. 133.
eboraceus n. sp., Clarke, No. 133.
intermedius Walcott (sp.) 1877, Clarke, No. 133.
schmidti n. sp., Clarke, No. 133.
Ptychocrinus Wachsmuth and Springer, James, No. 312.
angularis Miller and Dyer, James, No. 312.
parvus Hall, James, No. 312.
Ptychopyge ulrichi n. sp., Clarke, No. 132.
Pyramidella
(Longchæus) jamaicensis n. sp., Guppy and Dall, No. 255.
forulata n. sp., Guppy and Dall, No. 255.
Pyrazisinus? haitensis, n. sp., Guppy and Dall, No. 255.
Quercus
consimilis Newby., Knowlton, No. 345.
idahoensis n. sp., Knowlton, No. 345.
payettensis n. sp., Knowlton, No. 345.
simulata n. sp., Knowlton, No. 345.
Radiolites
adhærens n. sp., Whitfield, No. 692.
annulosus n. sp., Whitfield, No. 692.
cancellatus n. sp., Whitfield, No. 692.
macroplicatus n. sp., Whitfield, No. 692.
rudis n. sp., Whitfield, No. 692.
(Lapeirousia) nicholasi n. sp., Whitfield, No. 692.
Rafinesquina lata Whiteaves, Whiteaves, No. 687.
Raphistoma Hall, Ulrich and Scofield, No. 628.
peracutum n. sp., Ulrich and Scofield, No. 628.
richmondensis n. sp., Ulrich and Scofield, No. 628.
Raphistomidæ n. fam., Ulrich and Scofield, No. 628.
Raphistomina n. gen., Ulrich and Scofield, No. 628.
denticulata n. sp., Ulrich and Scofield, No. 628.
lapicida Salter, Ulrich and Scofield, No. 628.
modesta n. sp., Ulrich and Scofield, No. 628.
rugata n. sp., Ulrich and Scofield, No. 628.

Petrology.
*General.*
Building materials of Pennsylvania, Hopkins, No. 307.
Building stones of New England, Beals, No. 50.
Differentiation in igneous magmas, Teall, No. 607.
Fractional crystallization of rocks, Becker, No. 55.
Genesis of claystones, Nichols, No. 440.
Nomenclature of metamorphic lavas, Turner, No. 619.
Origin of pegmatite, Crosby and Fuller, No. 157.
Review of papers on granitic intrusions, Adams, No. 3.
Review of queries on rock differentiation, Tolman, No. 616.
Rock differentiation, Becker, No. 53.
Rocks of the Laurentian, Adams, No. 1.
Summary of progress, Bailey, No. 47.
*Alaska.*
Geology of Yukon gold district, Spurr, No. 575.
Gold fields of southern Alaska, Becker, No. 51.
Notes on hypersthene-andesite, Cushing, No. 161.
*California.*
A new amphibole-pyroxene rock, Turner, No. 620.
Downieville folio, Turner, No. 618.
Granitic rocks of Pyramid Peak district, Lindgren, No. 384.
Hornblende-basalt, Diller, No. 179.
San Clemente Island, Smith, No. 567.
Santa Catalina Island, Smith, No. 568.
Sonora folio, Turner and Ransome, No. 621.
Truckee folio, Lindgren, No. 383.
*Canada.*
Geology of Admiralty group, Adams, No. 2.
Granites and associated arkoses, Barlow and Ferrier, No. 40.
Notes on intrusive rocks, Matthew, No. 420.
Sudbury nickel district, Walker, No. 659.
*Colorado.*
Analcite-basalt, Cross, No. 159.
*Connecticut.*
Acid dike in Triassic area, Hovey, No. 310.
Triassic formation, Davis, No. 167.
*Kansas.*
Kansas gypsum rocks, Bailey and Whitten, No. 27.
*Iowa.*
Sioux quartzite, Beyer, No. 65.
*Maryland.*
Maryland granites, Keyes, No. 329.
Outline of physical features, Clark, No. 129.
*Massachusetts.*
Diabase pitchstone and mud inclosures in Triassic trap, Emerson, No. 198.
Petrography of Boston basin, White, No. 686.
*Mexico.*
Descripcion de las rocas, Ordonez, No. 452.
Eruptive rocks of Mexico, Farrington, No. 215.

Petrology—Continued.
*Mexico*—Continued.
Itinerarios geologicos, Aguilera, No. 13.
Itinerarios geologicos, Ordonez, No. 450.
Geologia de la Sierra de Pachuca, Aguilera and Ordonez, No. 16.
Observations on Popocatepetl, Farrington, No. 212.
Rocas eruptivas, Ordonez, No. 451.
Sinopsis de geologia Mexicana, Aguilera, No. 14.
*Michigan.*
Marquette district, Van Hise and Bayley, No. 648.
*Minnesota.*
Geology of St. Croix Dalles, Berkey, No. 64.
Koochiching granite, Winchell, No. 716.
Sioux quartzite, Beyer, No. 65.
*Montana.*
Areal geology, Butte, Weed, No. 671a.
Corundum-bearing rocks from Yogo Gulch, Pirsson, No. 480.
Geology of Judith Mountains, Weed and Pirsson, No. 674.
*New Hampshire.*
Porphyritic gneiss, Daly, No. 164.
*New Jersey.*
Archean geology, Wolff, No. 732.
Franklin white limestone, Wolff and Brooks, No. 733.
Newark system, Kümmel, No. 349.
*New York.*
Magnetites near Port Henry, Kemp, No. 321.
*North Carolina.*
Corundum and basic magnesian rocks, Lewis, No. 380.
*Pennsylvania.*
Aporhyolite of South Mountain, Bascom, No. 43.
*South Dakota.*
Black Hills, Scott, No. 542*a*.
Sioux quartzite, Beyer, No. 65.
Tellurium in gold ores, Smith, No. 561.
*Virginia.*
Weathering of micaceous gneiss, Merrill, No. 429.
*Washington.*
Rocks of Mount Rainier, Smith, No. 563.
*Wisconsin.*
Geology of St. Croix Dalles, Berkey, No. 64.
*Wyoming.*
Igneous rocks of Leucite Hills, Croos, No. 158.
Leucite Hills, Kemp, No. 319.
*Rocks described.*
Aegirite-syenite-porphyry, Weed and Pirsson, No. 674.
Amphibole picrite, Lewis, No. 380.
Amphibolite, Lewis, No. 380.
Amphibolite, Turner, No. 618.
Amphibolite, Turner and Ransome, No. 621.
Analcite-basalt, Cross, No. 159.
Andesite, Becker, No. 51.
Andesite, Ordonez, Nos. 450, 452.
Andesite, Smith, Nos. 567, 568.
Andesite, Turner and Ransome, No. 621.