DEPARTMENT OF THE INTERIOR

BULLETIN

OF THE

UNITED STATES

GEOLOGICAL SURVEY

No. 135

WASHINGTON
GOVERNMENT PRINTING OFFICE
1896

UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

BIBLIOGRAPHY AND INDEX

OF

NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY

FOR

THE YEAR 1894

BY

FRED BOUGHTON WEEKS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1896

CONTENTS.

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF GEOLOGY,
Washington, D. C., October 22, 1895.

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 1894, by Mr. F. B. Weeks, with the recommendation that it be published by the Survey. It is planned on the same lines with that for 1892–93, by the same author, and bears evidence of the same careful preparation.

Very respectfully,

S. F. EMMONS,
Geologist.

Hon. CHARLES D. WALCOTT,
Director United States Geological Survey.

BIBLIOGRAPHY AND INDEX OF NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY FOR THE YEAR 1894.

By FRED BOUGHTON WEEKS.

INTRODUCTION.

This work is a continuation of the Bibliography and Index for 1892 and 1893 (Bulletin No. 130), and records the papers on North American geology, paleontology, petrology, and mineralogy published in the year 1894, almost all of which appeared in the serials composing the List of Publications Examined, immediately following.

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 ⅓ 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.

LIST OF PUBLICATIONS EXAMINED.

Alabama, Geological Survey: Geological map of Alabama with explanatory chart; Report on the geology of the Coastal Plain of Alabama. Montgomery, Ala.

Alabama Industrial and Scientific Society: Proceedings, Vol. IV, Nos. 1-2. Tuscaloosa, Ala.

American Academy of Arts and Sciences: Proceedings, Vol. XXIX. Boston, Mass.

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

American Geologist, Vols. XIII-XIV. Minneapolis, Minn.

American Institute of Mining Engineers: Transactions, Vols. XXII-XXIII. New York.

American Journal of Science, 3d ser., Vols. XLVII-XLVIII. New Haven, Conn.

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

American Naturalist, Vol. XXVIII. Philadelphia, Pa.

American Philosophical Society: Proceedings, Vol. XXXII, No. 143, and Vol. XXXIII, Nos. 144-146. Philadelphia, Pa.

Annals and Magazine of Natural History, Vols. XIII-XIV. London.

Appalachia, Vol. VII, No. 3. Boston, Mass.

Arkansas, Geological Survey: Annual Report, 1891, Vol. II; 1892, Vol. II. Little Rock, Ark.

Boston Society of Natural History: Proceedings, Vol. XXVI, Parts I-III. Boston, Mass.

Botanical Gazette, Vol. XIX. Madison, Wis.

British Association for the Advancement of Science: Report for 1893. London, England.

Buffalo Society of Natural Sciences: Bulletin, Vol. V, No. 4. Buffalo, N. Y.

California, Academy of Science: Proceedings, 2d ser., Vol. IV, Part I. San Francisco, Cal.

California, State Mining Bureau: Twelfth Report, State Mineralogist. Sacramento, Cal.

Canadian Institute: Transactions, Vol. IV, Part I. Toronto, Canada.

Canadian Record of Science, Vol. VI, Nos. 1-2. Montreal, Canada.

Cincinnati Society of Natural History: Journal, Vol. XVI, No. 4, and Vol. XVII, Nos. 1-3. Cincinnati, Ohio.

Connecticut, Academy of Arts and Sciences: Transactions, Vol. IX, Part I. New Haven, Conn.

Dennison University, Scientific Laboratories: Bulletin. Vol. VIII, Part 2. Granville, Ohio.

Edinburgh, Royal Society: Transactions, Vol. XXXVII, Part III. Edinburgh, Scotland.

Elisha Mitchell Scientific Society: Journal, 1893, and Part I, 1894. Raleigh, N. C.

Engineering and Mining Journal, Vols. LVII-LVIII. New York.

Engineering Magazine, Vol. VI, Nos. 4-6; Vol. VII, Nos. 1-6; and Vol. VIII, Nos. 1-3. New York.

Essex Institute: Bulletin, Vol. XXVI, Nos. 1-3. Salem, Mass.

Geological Magazine, Decade IV, Vol. I. London, England.

Geological Society of America: Bulletin, Vol. V. Rochester, N. Y.

Georgia, Geological Survey: Bulletin No. 1, a preliminary report on the marbles of Georgia; Bulletin No. 2, a preliminary report on the corundum deposits of Georgia. Atlanta, Ga.

Harvard College, Museum of Comparative Zoology: Bulletin, Vol. XXV and Vol. XVI, No. 1; Memoirs, Vol. XVII, No. 3. Cambridge, Mass.

Illinois, State Laboratory of Natural History: Bulletin, Vol. III, Article XIII. Peoria, Ill.

Indiana, Academy of Science: Proceedings, 1893. Brookville, Ind.

Indiana, Department of Geology and Natural Resources: Eighteenth Report. Indianapolis, Ind.

International Congress of Geologists: Compte Rendu, 5th session, 1891. Washington, 1893.

Iowa, Academy of Sciences: Proceedings, Vol. I, Part IV. Des Moines, Iowa.

Iowa, Geological Survey: Vol. II, Coal deposits of Iowa. Des Moines, Iowa.

Johns Hopkins University: Circulars, Vol. XIII. Baltimore, Md.

Journal of Geology, Vol. II. Chicago, Ill.

Journal of Morphology, Vol. IX. New York.

Kansas University Quarterly, Vol. I, Nos. 1–2, 1892; Vol. I, Nos. 3–4, and Vol. II, Nos. 1–2, 1893; Vol. II, Nos. 3–4, and Vol. III, Nos. 1–2, 1894. Lawrence, Kans.

Liverpool, Geological Society: Proceedings, Vol. VII, Part 2. Liverpool, England.

London, Geological Association: Proceedings, Vol. XIII, Nos. 6–9. London, England.

London, Geological Society: Quarterly Journal, Vol. L. London, England.

London, Royal Society: Proceedings, Vols. LIV–LV. London, England.

Manchester, Geological Society: Transactions, Vol. XXIII, Parts I–II. Manchester, England.

Maryland, State Weather Service: First Biennial Report for 1892–93. Baltimore, Md.

Michigan, State Board of Geological Survey: Report for 1891 and 1892, published in 1893. Lansing, Mich.

Minnesota, Geological and Natural History Survey: Twenty-second Annual Report, 1893; Twenty-third Annual Report, 1894; Bulletin No. X, The Mesabi iron-bearing rocks. Minneapolis, Minn.

National Geographic Magazine, Vol. VI. Washington, D. C.

Nautilus, Vol. VII, Nos. 9–12, and Vol. VIII, Nos. 1–8. Philadelphia, Pa.

Neues Jahrbuch für Mineralogie, Geologie und Palæontologie, 1894, Bänder I and II, Hefte 1–3. Stuttgart, Germany.

New Brunswick, Natural History Society: Bulletin No. XII. St. John, New Brunswick, Canada.

New Jersey, Geological Survey: Report for 1893, and Vol. III, Final Report. Trenton, N. J.

New York, Academy of Sciences: Transactions, Vol. XIII; Annals, Vol. VII, Nos. 6–12. New York.

New York, State Museum: Forty-seventh Report. Albany, N. Y.

Nova Scotian Institute of Science: Proceedings and Transactions, Vol. I, Part 3, 1893. Halifax, Nova Scotia.

Ohio, Geological Survey, Vol. VII. Columbus, Ohio.

Ottawa Naturalist, Vol. VIII, Nos. 1–9. Ottawa, Canada.

Paleontographica, Band XL, 1–6, and Band XLI, 1–2. Stuttgart, Germany.

Philadelphia Academy of Natural Sciences: Proceedings, 1894, Parts I–III; Journal, 2d ser., Vol. IX, Part IV. Philadelphia, Pa.

Popular Science Monthly, Vols. XLIV–XLV (excepting abstracts). New York.

Rochester Academy of Science: Proceedings, Vol. II, Brochure 3. Rochester, N. Y.

Royal Irish Academy: Transactions, Vol. XXX, Parts 11–14; Proceedings, 3d ser., Vol. III, Nos. 2–3. Dublin, Ireland.

St. Louis Academy of Science: Transactions, Vol. VI, Nos. 13–17. St. Louis, Mo.

School of Mines Quarterly, Vol. XV. New York.

Science, Vol. XXIII, Nos. 570–581. New York.

Scientific American, Vols. LXX–LXXI. New York.

Scientific American Supplement, Vols. XXXVII–XXXVIII. New York.

Smithsonian Institution: Annual Report 1891–92 (published in 1893), and Annual Report 1892–93; Miscellaneous Collections, Vols. XXIV and XXXVI and Nos. 844, 854, 856, 969, and 970. Washington, D. C.

Société académique de Brest: Bulletin, 2d ser., Vol. XIX. Brest, France.

Societa geologica italiana: Bulletin, Vol. XIII. Rome, Italy.

Société géologique de Belgique: Annals, Vol. XXI. Liège, Belgium.

Société géologique de France: Bulletin, Vol. XXI, Nos. 5–8, and Vol. XXII, Nos. 1–6; Memoirs, Vol. IV, Fascicle 1, 1893. Paris, France.

South Dakota, Geological Survey: Bulletin No. 1, a preliminary report on the geology of South Dakota. Sioux Falls, S. Dak.

Technology Quarterly, Vol. VII. Boston, Mass.

Torrey Botanical Club: Bulletin, Vol. XXII, Nos. 1–12. New York.

United States Geological Survey: Fourteenth Annual Report. Monographs XXII–XXIV. Bulletins, Nos. 115–120. Geologic Atlas of the United States: Anthracite-Crested Butte folio, Colorado; Chattanooga folio, Tennessee; Estillville folio, Virginia, Kentucky, Tennessee; Harpers Ferry folio, Maryland, Virginia, West Virginia; Jackson folio, California; Kingston folio, Tennessee; Livingston folio, Montana; Pikes Peak folio, Colorado; Placerville folio, California; Ringgold folio, Tennessee, Georgia; Sacramento folio, California; Sewanee folio, Tennessee; Staunton folio, Virginia, West Virginia. Washington, D. C.

United States National Museum: Proceedings, Vol. XVI; Report for 1892, published 1893. Washington, D. C.

University of California, Department of Geology: Bulletin, Vol. I, Nos. 1–8. Berkeley, Cal.

University of Wisconsin: Science Series, Vol. I, Nos. 1–2. Madison, Wis.

Zeitschrift der deutschen geologischen Gesellschaft, Band XLVI, Hefte 1–3. Berlin, Germany.

CLASSIFIED KEY TO THE INDEX.

BIBLIOGRAPHY.

A.

1 **Adams** (F. D.). On the occurrence of a large area of nepheline syenite in the township of Dungannon, Ontario.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 10–16.

Abstracts: Am. Geol., vol. xiv, pp. 189–190 (¼ p.); Am. Nat., vol. xxviii, p. 800 (⅛ p.).

Describes the occurrence and microscopic character of the rock and the contained minerals nepheline, plagioclase, mica, hornblende, scapolite, calcite, zircon, and sodalite.

2 **Agassiz** (Alexander). Notes from the Bermudas.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 411–416, figs. 1–7.

Discusses the formation of the reefs and the agency of algæ corallines and serpulæ in building up or protecting them from the action of the surf.

3 —— A reconnoissance of the Bahamas and of the elevated reefs of Cuba in the steam yacht *Wild Duck*, January to April, 1893.

Harv. Coll. Mus. Comp. Zool., Bull., vol. xxvi, pp. 1–203, pls. i–xlvii.

Abstract: Am. Geol., vol. xiii, p. 141 (¼ p.).

Describes the topographic character of parts of the Bahamas and the distribution of corals, and discusses recent views on the formation of coral reefs.

4 **Aguilera** (José G.). The geology of Mexico.

Commission Geologico Mexicana.

Abstract: Am. Jour. Sci., 3d ser., vol. xlvii, pp. 78–79.

5 **Aldrich** (T. H.). The (Midway) Clayton Tertiary section and its fossils [Alabama].

Ala. Geol. Surv., Rept. on the geology of the Coastal Plain of Alabama, pp. 240–248, pls. xii–xv.

Describes the fossils occurring at this horizon, including six new species.

6 —— New Tertiary fossils from Red Bluff, Mississippi.

Nautilus, vol. vii, pp. 97–99.

Describes six new species from this locality.

7 **American Geologist.** The origin of spheroidal basalt.

Am. Geol., vol. xiv, pp. 321–326 (editorial comment).

Reviews a paper on the eruptive rocks of Point Bonita, by F. Leslie Ransome, and discusses certain features of the greenstones of the Lake Superior region.

8 **Ami** (H. M.). Notes on fossils from Quebec City, Canada.
Ottawa Nat., vol. viii, pp. 82-90.
Gives a list of 90 species occurring in the Silurian strata, near the city of Quebec.

B.

9 **Bäckström** (H.). Causes of magmatic differentiation.
Abstracts: Am. Geol., vol. xiii, pp. 194-195 (½ p.); Am. Nat., vol. xxviii, p. 515 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

10 **Bain** (H. Foster). Structure of the Mystic coal basin [Iowa].
Iowa Acad Sci., Proc., vol. 1, pt. iv, pp. 33-36.
Describes the lithologic character of the beds and gives several sections displayed at various localities.

11 —— Sigourney deep well [Iowa].
Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 36-38.
Gives the section of the well to the depth of 1,888 feet, and discusses the evidences as to age of the formations represented.

12 —— Peculiarities of the Mystic coal seam [Iowa].
Am. Geol., vol. xiii, pp. 407-411.
Describes the occurrence of this coal seam and the associated strata, which, in contrast with the complexity of structure and nonpersistence of the beds of the Coal Measures in other parts of Iowa, has an extent of about 50 miles north and south and 40 miles east and west.

13 **Baldwin** (S. Prentiss). Pleistocene history of the Champlain Valley.
Am. Geol., vol. xiii, pp. 170-184, with map and one figure.
Describes the deltas, moraines, and other glacial deposits of this region and the pre-Glacial and post-Glacial drainage systems.

13*a* **Ballard** (Hetty O.), **Crosby** (W. O.) and. Distribution and probable age of the fossil shells in the drumlins of the Boston basin.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 486-496.
See Crosby (W. O.) and Ballard (H. O.), No. 106.

13*b* **Barlow** (A. E.). Relations of the Laurentian and Huronian rocks north of Lake Huron.
Review: Am. Geol., vol. xiii. pp. 63-64 (⅓ p.).
Noticed in Bibliography and Index for 1892 and 1893.

14 **Barrois** (Charles). [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 172 and 175.
Remarks on the impossibility of comparing in detail the Paleozoic formations of Europe and North America.

15 **Barton** (G. H.). [Remarks on drumlins.]
Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 23-25.
Reviews the theory advanced by Warren Upham in a paper on the origin of drumlins.

15*a* **Bascom** (Florence). The structure, origin, and nomenclature of the acid volcanic rocks of South Mountain, Pennsylvania.
Abstracts: Am. Geol., vol. xiii, pp. 122-123; Am. Nat., vol. xxviii, pp. 515-516.
Noticed in Bibliography and Index for 1892 and 1893.

16 **Bashore** (Harvey B.). The Harrisburg terraces [Pennsylvania].
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 98-99.
Describes the gravel deposits in this vicinity.

17 **Bayley** (W. S.). The basic massive rocks of the Lake Superior region. IV. The peripheral phases of the great gabbro mass of northeastern Minnesota.
Jour. of Geol., vol. ii, pp. 814-825.
Describes the petrographic characters of the nonfeldspathic gabbros and the olivine-pyroxene and pyroxene aggregates, and discusses the relation of the basic rocks to the normal gabbro.

17*a* —— A summary of progress in mineralogy and petrography in 1893.
Colby University, Geol. Dept.
Abstract: Am. Geol., vol. xiv, p. 52 (8 l.).

18 **Beachler** (Charles S.). An abandoned Pleistocene river channel in eastern Indiana.
Jour. of Geol., vol. ii, pp. 62-65, with map.
Describes the evidences which indicate the former existence of a river chanel in Rush and Decatur counties in southeastern Indiana.

19 **Becker** (George F.). On certain astronomical conditions favorable to glaciation.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 95-113, figs. 1-3.
Abstract: Am. Geol., vol. xiv, pp. 191-192.
Discusses the variation of temperature as influenced by solar radiation and the effects of low eccentricity and high obliquity, and includes a calculation of sunshine per unit area. Concludes that the accumulation of glacial ice may be due to a combination of low eccentricity and high obliquity with a favorable disposition of land and water.

20 —— [The genesis of ore deposits.]
Am. Inst. Mg. Engrs., Trans., vol. xxiii, pp. 602-604.
Discusses a paper by F. Posepny on the same subject, noticed in Bibliography and Index for 1892 and 1893.

21 **Beecher** (C. E.). On the mode of occurrence and the structure and development of Triarthrus becki.
Am. Geol., vol. xiii, pp. 38-43, pl. iii.
Describes the peculiar mode of occurrence of the trilobites found in the Utica shale near Rome, N. Y., and describes and figures the structure of the legs and antennæ of Triarthrus becki.

22 —— The appendages of the pygidium of Triarthrus.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 298-300, pl. vii.
Abstract: Am. Geol., vol. xiii, p. 428 ($\frac{1}{8}$ p.).
Describes the appendages attached to the pygidium or caudal shield of Triarthrus.

22*a* **Beecher** (C. E.) and **Schuchert** (Charles). Development of the brachial supports in Dielasma and Zygospira.

Abstract: Am. Nat., vol. xxviii, p. 267 (⅛ p.).

Noticed in Bibliography and Index for 1892 and 1893.

23 **Bell** (Robert). Pre-Paleozoic decay of crystalline rocks north of Lake Huron.

Geol. Soc. Am., Bull., vol. 5, pp. 357-366, pls. 15-16.

Abstract: Am. Geol., vol. xiii, p. 214 (⅛ p.).

Discusses the evidence of pre-Paleozoic erosion, the conditions affecting this ancient erosion and the contacts of Archean and Paleozoic rocks. Discusses the significance of the absence of Paleozoic deposition and the effect of glacial denudation.

24 **Bergeat** (Alfred). Zur Kenntniss der jungen Eruptivgesteine der Republik Guatemala.

Zeit. der deut. geol. Gesell., Band xlvi, Heft 1, pp. 131-157.

Describes the physiography of the region and the geologic distribution, occurrence, and petrographic characters of the recent eruptive rocks of Guatemala.

25 **Berkey** (Charles P.). Preliminary report of leveling party.

Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., pp. 134-140.

Describes the topographic charcter of portions of Cook County, Minn., and includes two profile sections showing the principal elevated regions, and tables showing the elevations of a number of localities above sea level.

26 **Blake** (William P.). The mineral deposits of southwest Wisconsin.

Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 558-568.

Describes the geology of the region and the character and structure of the ore deposits.

27 —— [The lead and zinc deposits of the Mississippi Valley.]

Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 621-634.

In discussion of paper by W. P. Jenney on the same subject.

28 —— [The genesis of ore deposits.]

Am. Inst. Mg. Engrs., Trans., vol. xxiii, p. 587 (½ p.).

In discussion of paper on the same subject by F. Posepny.

29 —— [Terrestrial submergence southeast of the American Continent.]

Geol. Soc. Am., Bull., vol. v, p. 21 (⅛ p.).

In discussion of paper by J. W. Spencer on the same subject.

30 —— Wisconsin lead and zinc deposits.

Geol. Soc. Am., Bull., vol. v, pp. 25-32.

Reviews the literature on these deposits, discusses the relation of deformation to ore deposition, the evidences of deformation and the general distribution of zinc in the Silurian seas, and gives the author's conclusions.

31 —— Trilobites in the "Oil Rock" horizon of the Trenton limestone.

Am. Geol., vol. xiv, pp. 133-134 (correspondence).

Mentions the occurrence of species of Ceraurus, Dalmania, Encrinurus, Orthis, Murchisonia, Orthoceras, Cypricardites, Raphistoma, Hyolithes, Streplelasma, and encrinal stems in the Trenton limestone of Wisconsin.

32 **Blake** (William P.). On the origin of ancient quartz rocks.
Science, vol. xxiii, pp. 141–142.
Discusses the origin of quartzites of pre-Cambrian strata.

32*a* **Boyle** (C. B.). A catalogue and bibliography of North American Mesozoic Invertebrata.
Abstract: Am. Geol., vol. xiv, p. 330 (⅓ p.).
Noticed in Bibliography and Index for 1892 and 1893.

33 **Branner** (John C.). Elevations in the State of Arkansas.
Ark. Geol. Surv., Ann. Rept. 1891, vol. ii, pp. 77–152.
Gives the elevations, determined by different methods, of certain points in the State.

33*a* —— Observations upon the erosion in the hydrographic basin of the Arkansas River above Little Rock [Ark.].
Ark. Geol. Surv., Ann. Rept. 1891, vol. ii, pp. 153–166.
Abstract: Jour. of Geol., vol. ii, p. 866 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

34 —— Magmatic observations and meridian monuments established in Arkansas.
Ark. Geol. Surv., Ann. Rept. 1891, vol. ii, pp. 168–176.
Describes the location and character of monuments and the magmatic observations of certain points in Arkansas.

35 —— Bibliography of the geology of Arkansas.
Ark. Geol. Surv., Ann. Rept. 1891, vol. ii, pp. 319–340.
Gives a list of papers on the geology of Arkansas, arranged alphabetically by authors' names.

36 —— The geological surveys of Arkansas.
Jour. of Geol., vol. ii, pp. 826–836.
Reviews the work of the several geological surveys of Arkansas.

37 **Brewer** (W. M.). Notes on the Alabama gold ores.
Eng. and Mg. Jour., vol. lvii, pp. 57–58.
Describes the gold ore deposits of Tallapoosa County, Ala.

38 **Broadhead** (G. C.). Geological history of the Missouri Paleozoic.
Am. Geol., vol. xiv., pp. 380–388.
Describes the topography of the Ozark plateau, the mode of deposition of the strata and their deformation during Paleozoic time, and the dislocations and erosion that have since taken place.

39 **Brögger** (W. C.). On the formation of pegmatite veins.
Can. Rec. Sci., vol. vi, pp. 33-46 and 61–71.
Reviews the previous theories as to the formation of pegmatite veins and gives a résumé of the author's conclusions, indicating that these veins are magmatic eruptive veins formed under peculiar conditions.

40 **Brooks** (W. K.). The origin of the oldest fossils and the discovery of the bottom of the ocean.
Jour. of Geol., vol. ii, pp. 455–479.
Discusses the evidences which indicate that the fauna of the Lower Cambrian is an approximation to the primitive fauna, and that prior to the Lower Cambrian animal life was represented by minute animals not likely to be preserved as fossils.

41 **Brown** (R. G.). The Georgetown mining district, Montana.
Eng. and Mg. Jour., vol. lviii, pp. 345-346.
Notes on the ore deposits of this region.

42 **Bryson** (John). Lake Ronkonkoma and other glacial features of Long Island [New York].
Am. Geol., vol. xiii, pp. 390-392.
Describes the depression in which this lake occurs and discusses the evidences bearing on the amount of elevation and subsidence the island has undergone during and since the Glacial period.

43 **Bush** (E. Renshaw). The Sudbury nickel region [Ontario].
Eng. and Mg. Jour., vol. lvii, pp. 245-246.
Describes the topography of the region, names the rock varieties in which the nickel and copper occurs, and describes the general occurrence of the nickeliferous pyrrhotite and chalcopyrite. Discusses the origin of the deposits.

C.

44 **Cadell** (H. M.). [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, p. 198 (¼ p.).
Describes glacial phenomena of Scotland.

44*a* **California, State Mining Bureau.** Eleventh Report of the State Mineralogist.
Abstract: Am. Nat., vol. xxviii, pp. 335-336 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

45 **Call** (R. Ellsworth). On the induration of certain Tertiary rocks in northeastern Arkansas.
Ind. Acad. Sci., Proc., 1893, pp. 219-224, with map.
Describes the outcrops of sandstone in this region, hitherto referred to the Potsdam, but which the author considers to be Tertiary. Discusses the causes of the induration of these sandstones.

46 **Calvin** (Samuel). On the geological position of Bennettites dacotensis Macbride, with remarks on the stratigraphy of the region in which the species was discovered.
Am. Geol., vol. xiii, pp. 79-84; Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 18-22.
Describes the stratigraphic relations of the formations in the portion of the Black Hills in which Bennettites dacotensis were found and concludes that they represent the Dakota Cretaceous.

47 —— On a new horizon and some new localities for friable sandstone in which the grains are enlarged by secondary deposition of silica in optical continuity with the original nucleus.
Am. Geol., vol. xiii, pp. 225-227.
Describes sandstone beds associated with the Lower Magnesian limestone in Iowa, which are thought to be an equivalent of the New Richmond sandstone of Minnesota and Wisconsin.

48 **Calvin** (Samuel). The Niobrara chalk.

Am. Geol., vol. xiv, pp. 140–161.

Abstract: Jour. of Geol., vol. ii, pp. 755–756.

Describes the distribution and physical characters of the formation. Refers to the literature describing these beds and compares them with the chalk formation of England.

49 **Campbell** (Marius R.). Estillville folio. Virginia, Kentucky, Tennessee.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 12.

Describes the physiography and drainage of the region, the character and occurrence of the Cambrian, Cambro-Silurian, Silurian, Devonian, and Carboniferous strata, and the geologic structure and the coal deposits included in the area of the sheet. Gives the section of several coal outcrops and a table of coal analyses. Includes topographic, colored areal geologic, economic geologic, and structure section maps and a sheet of columnar sections.

50 —— Paleozoic overlaps in Montgomery and Pulaski counties, Virginia.

Geol. Soc. Am., Bull., vol. v, pp. 171–190, pl. 4.

Abstract: Am. Geol., vol. xiii, pp. 147–148 (⅔ p.).

Describes the physical features and the stratigraphy of the Cambrian, Silurian, Devonian, and Carboniferous formations, and discusses the geologic structure of the region.

51 —— Tertiary changes in the drainage of southwestern Virginia.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 21–29, with map.

Describes the changes that have occurred in the drainage of this region and discusses the evidences indicating that they were caused by local orogenic rather than by epeirogenic movements.

51*a* —— Geology of the Big Stone Gap coal field of Virginia and Kentucky.

Abstract: Am. Geol., vol. xiv, pp. 392–393.

Noticed in Bibliography and Index for 1892 and 1893.

51*b* —— **Hayes** (C. W.) and. Geomorphology of the Southern Appalachians.

Nat. Geog. Mag., vol. vi, pp. 63–126, pls. 4–6.

See Hayes (C. W.) and Campbell (M. R.), No. 264.

51*c* **Canada, Geological Survey.** Annual Report for 1890–91, vol. v.

Abstracts: Am. Geol., vol. xiii, pp. 429–431; Am. Nat., vol. xxviii, p. 336 (7 l).

Noticed in Bibliography and Index for 1892 and 1893.

52 **Case** (E. C.). A geological reconnoissance in southwest Kansas and No Man's Land.

Kans. Univ. Quart., vol. ii, pp. 143–147.

Gives a brief description of the Triassic deposits of this region.

53 —— Traces of a glacier at Kansas City, Mo.

Kans. Univ. Quart., vol. ii, pp. 149–150.

Brief description of the evidences which indicate the former existence of a glacier in this vicinity.

53*a* **Case** (E. C.), **Williston** (S. W.) and. Kansas mosasaurs.
Kans. Univ. Quart., vol. i, pp. 15–32, pls. ii-vi.
See Williston (S. W.) and Case (E. C.), No. 649.

54 **Case** (William H.). The Bertha zinc mines at Bertha, Va.
Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 511–536.
Describes the geology of the region, presents a geologic map and cross section, and describes the character and occurrence of the ore and the methods of mining employed.

55 **Cazin** (F. M. F.). [The genesis of ore deposits.]
Am. Inst. Mg. Engrs., Trans., vol. xxiii, pp. 604–608.
In discussion of paper by F. Posepny on the same subject describes the character and structure of the ore bodies of the Vermont copper mines.

56 **Chamberlin** (Thomas C.). Pseudo-cols.
Jour. of Geol., vol. ii, pp. 205–206.
Abstract: Am. Geol., vol. xiii, p. 217 (⅔ p.)
Discusses the use of the term col and describes the mode of formation of pseudo-cols.

57 —— Proposed genetic classification of Pleistocene glacial formations.
Jour. of Geol., vol. ii, pp. 517–538.
Describes the author's method of classifying the Pleistocene glacial formations, based on the origin of the formations.

58 —— Glacial studies in Greenland.
Jour. of Geol., vol. ii, pp. 649–666 and 768–788, figs. 1–14.
Gives an itinerary of the journey to Greenland and describes the characteristics of the glaciers examined.

59 —— [Drift fringe on Long Island, New York.]
Geol. Soc. Am., Bull., vol. v, p. 16 (⅔ p.).
In discussion of papers by A. A. Wright and E. H. Williams, jr., on glacial phenomena of New Jersey and Pennsylvania.

60 —— [Relation of deformation to ore deposition.]
Geol. Soc. Am., Bull., vol. v, p. 32 (⅓ p.).
In discussion of paper by W. P. Blake on the Wisconsin lead and zinc deposits.

61 —— [Formation of kames, eskers, and moraines.]
Geol. Soc. Am., Bull., vol. v, p. 85 (⅓ p.).
Discusses the character of the material of which kames, eskers, and moraines are formed.

62 —— [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 176–192 and 207 (⅓ p.).
Discusses the classification of Pleistocene glacial deposits, based upon the origin of the formations.

63 **Chamberlin** (Thomas C.) and **Leverett** (Frank). Further studies of the drainage features of the Upper Ohio Basin.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 247-283 and p. 483, four maps and five figures.

Abstract: Am. Geol., vol. xiii, pp. 217-219.

Describes the drainage features and erosion of the Upper Ohio tributaries, the old fluvial floors, drift, and terraces. Gives a summary statement of four hypotheses and describes and illustrates by diagrams the ratios of work done.

64 **Charleton** (A. G.). Nickel, its history, uses, and distribution.

Sci. Am. Suppl., vol. xxxvii, pp. 15418-15419.

Discusses the genesis of nickel.

65 **Chester** (Albert H.). Acanthite from Colorado.

School of Mines Quart., vol. xv, pp. 103-104.

Describes crystals of silver sulphide which are considered to belong to this species.

66 —— On caswellite, an altered biotite from Franklin Furnace, N. J. Quartz crystals from Ellenville, N. J.

N. Y. Acad. Sci., Trans., vol. xiii, pp. 181-184.

Describes the chemical and optical characters of a new mineral species, caswellite, and the crystallographic characters of quartz crystals.

67 **Church** (John A.). [Geological distribution of the useful metals in the United States.]

Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 732-735.

In discussion of paper by S. F. Emmons on the same subject.

68 —— [The genesis of ore deposits.]

Am. Inst. Mg. Engrs., Trans., vol. xxiii, pp. 593-597.

In discussion of paper on the same subject by F. Posepny.

69 **Clark** (William B.). Cretaceous and Tertiary geology.

N. J. Geol. Surv., Rept. for 1893, pp. 329-355.

Contains a general discussion, classification, and description of the formations and describes certain typical section lines across the Cretaceous and Tertiary beds.

70 —— Origin and classification of the greensands of New Jersey.

Jour. of Geol., vol. ii, pp. 161-177.

Abstract: Am. Geol., vol. xiii, p. 210 (⅓ p.).

Gives a sketch of the stratigraphic features, describes the several formations, and discusses the origin, genesis, and source of the materials of the greensands.

71 —— Climatology and physical features of Maryland.

Maryland State Weather Service, 1st Biennial Rept. for 1892-93, pp. 1-146.

Describes the topography, geologic formations, soils, and climate of Maryland.

71*a* **Clark** (William B.). The Mesozoic Echinodermata of the United States.

Abstract: Am. Geol., vol. xiv, pp. 329–330.
Noticed in Bibliography and Index for 1892 and 1893.

71*b* —— A preliminary report on the Cretaceous and Tertiary formations of New Jersey.

Abstract: Jour. of Geol., vol. ii, pp. 239–240.
Noticed in Bibliography and Index for 1892 and 1893.

71*c* —— **Williams** (George H.) and. Outline of the geology and physical features of Maryland.

Abstract: Am. Jour. Sci., 3d ser., vol. xlvii, p. 320 (½ p.).
See Williams (G. H.) and Clark (W. B.), No. 638.

72 **Clarke** (Frank W.). An occurrence of anorthite and epidote.

Am. Jour. Sci., 3d ser., vol. xlviii, p. 429 (communicated).
Describes the occurrence and chemical composition of these minerals, from Maine.

73 **Clarke** (John M.). Composite generic fundamenta.

Am. Geol., vol. xiii, pp. 286–289 (correspondence).
Describes the variations of the generic type of the genus Leptodesma occurring in Hamilton beds.

74 —— American species of Autodetus and some paramorphic shells from the Devonian.

Am. Geol., vol. xiii, pp. 327–335, figs. 1–13.
Reviews the nomenclature of the genus Autodetus and describes the new species Autodetus beecheri and lindstrœmi and Protocalyptræa styliophila and marshalli, found in the Devonian of New York.

75 —— The early stages of Bactrites.

Am. Geol., vol. xiv., pp. 37–43, pl. ii.
Describes some protoconch-bearing specimens of Bactrites from the Devonian of western New York.

76 —— Nanno, a new cephalopoden type.

Am. Geol., vol. xiv, pp. 205–208, pl. vi.
The material described was obtained from the Trenton shales of Minneapolis and the Galena shales at Chatfield, Minn.

77 —— The succession of the fossil faunas in the section of the Livonia salt shaft [New York].

N. Y. State Mus., 47th Ann. Rept., pp. 327–352.
Gives a list of fossils found in the Livonia salt shaft.

78 —— New or rare species of fossils from the horizons of the Livonia salt shaft [New York].

N. Y. State Mus., 47th Ann. Rept., pp. 355–383, pls. 1–4.
Describes a number of new and rare species from the Devonian found in the Livonia salt shaft.

79 —— Report on field work in Chenango County [N. Y.].

N. Y. State Mus., 47th Ann. Rept., pp. 725–751.
Describes the lithologic character and succession of the Devonian strata in this county and gives a résumé of the results obtained.

80 **Clarke** (John M.). A list of publications relating to the geology and paleontology of the State of New York, 1876–1893.
N. Y. State Mus., 47th Ann. Rept., pp. 755–791.

80*a* —— See **Hall** (J.) and **Clarke** (J. M.), Nos. 235–236*a*.

81 **Claypole** (E. W.). A new species of Carcinosoma.
Am. Geol., vol. xiii, pp. 77–79, pl. iv.
Describes Carcinosoma ingens n. sp. which was described as belonging to the genus Eurysoma in the December number, 1893, of the American Geologist.

82 —— Cladodus ? magnificus, a new selachian.
Am. Geol., vol. xiv, pp. 137–140, pl. v.
Describes a portion of a jaw found in the Cleveland shale, with remarks on the character of the Devonian fish fauna of Ohio.

83 —— On a new placoderm, Brontichthys clarki, from the Cleveland shale.
Am. Geol., vol. xiv, pp. 379–380, pl. xii.
Describes a new genus from the Cleveland shale of Ohio.

84 —— The fossil fishes of Ohio.
Ohio Geol. Surv., vol. vii, pp. 602–619.
Describes the characters of some fossil fishes and sharks from Ohio.

85 —— [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 166–167 (7 l.).
Remarks on the value of the different methods of geologic correlation.

86 **Cobb** (Collier). Note on the deflective effect of the earth's rotation as shown in streams.
Elisha Mitchell Sci. Soc., Jour., 1893, pp. 26–32.
Gives a map of a portion of North Carolina, describes its drainage systems, and considers that the effect of the earth's rotation is perceptible in this region.

87 —— On the geological history of certain topographical features east of the Blue Ridge.
Elisha Mitchell Sci. Soc., Jour., 1893, pp. 94–97.
Describes certain topographic forms of North Carolina which are considered to have been formed by wave action in post-Cretaceous time.

88 **Coleman** (A. P.). Antholite from Elzivir, Ontario.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 281–283.
Describes the chemical and physical characteristics of the mineral.

89 —— Inter-Glacial fossils from the Don Valley, Toronto.
Am. Geol., vol. xiii, pp. 85–93.
Describes the lithologic character of the glacial beds in this region, mentions some of the fossils found in them, and discusses the evidences as to the character of the glacial phenomena.

90 —— Notes on the geology of the Rocky Mountains between the Saskatchewan and the Athabasca.
Am. Geol., vol. xiv, pp. 83–92.
Abstract: Am. Nat., vol. xxviii, pp. 880–881.
Describes the topography and geology of a portion of the Rocky Mountains lying between the Saskatchewan and Athabasca rivers, and gives lists of fossils collected at different localities in this region.

91 **Comstock** (Theodore B.). Notes on Arizona mines. I. Silver.
Eng. and Mg. Jour., vol. lvii, p. 103.
Describes briefly the general character of the silver ores in Arizona.

92 **Cooper** (J. G.). On some Pliocene fresh-water fossils of California.
Cal. Acad. Sci., Proc., 2d ser., vol. iv, pp. 166–172, pl. 14.
Describes and figures Margaritana subangulata n. sp. and gives a list of Pliocene fossils found in the Kettelman, Asphalto, Contra Costa, Tassajara, and Santa Clara lake beds.

93 **Cope** (Edward D.). On the structure of the skull in the plesiosaurian Reptilia, and on two new species from the Upper Cretaceous.
Am. Phil. Soc., Proc., vol. xxxiii, pp. 109–113, pl. x.
Describes and figures the skull of Cimoliasaurus snovii Williston from the Niobrara Cretaceous of Kansas and Embaphias circulosus n. gen. et sp. and Elasmosaurus intermedias n. sp. from the Cretaceous of South Dakota.

94 —— Observations on the geology of adjacent parts of Oklahoma and northwest Texas.
Phil. Acad. Nat. Sci., Proc., 1894, pp. 63–68.
Includes brief notes on the Cretaceous of portions of North and South Dakota, on the Permian and Cretaceous of Oklahoma and adjacent portions of Texas, and on the Pleistocene in southeastern Kansas.

95 —— New and little-known Paleozoic and Mesozoic fishes.
Phil. Acad. Nat. Sci., Jour., 2d ser., vol. ix, pp. 427–448, pls. xviii–xx.
Describes two new genera and nine new species of fishes.

96 —— On Cyphornis, an extinct genus of birds.
Phil. Acad. Nat. Sci., Jour., 2d ser., vol. ix, pp. 449–452.
Describes the characters of a new genus found on Vancouver Island, which indicates that the clay bed in which it was found is of Eocene or Oligocene age.

97 —— Extinct Bovidæ, Canidæ, and Felidæ from the Pleistocene of the Plains.
Phil. Acad. Nat. Sci., Jour., 2d ser., vol. ix, pp. 453–459, pls. xxi–xxii.
Describes and figures a new species of Bovidæ and of Felidæ.

98 —— [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, p. 175 (⅓ p.).
Remarks on the value of vertebrates for purposes of correlation.

99 —— Scott on the Mammalia of the Deep River beds.
Am. Nat., vol. xxviii, pp. 790–791.
Reviews a paper by W. B. Scott on the Mammalia of the Deep River beds.

100 —— Marsh on Tertiary Artiodactyla.
Am. Nat., vol. xxviii, pp. 867–869.
Review of paper by O. C. Marsh.

101 **Cox** (Charles F.). Additional notes on recently discovered deposits of diatomaceous earth in the Adirondacks.
N. Y. Acad. Sci., Trans., vol. xiii, pp. 98–101.
Describes some recently discovered deposits in Herkimer County, N. Y.

102 **Cragin** (F. W.). New and little known Invertebrata from the Neocomian of Kansas.
Am. Geol., vol. xiv, pp. 1–12, pl. i.
Describes 17 new species from the Cretaceous of southern Kansas.

102*a* —— A contribution to the invertebrate paleontology of the Texas Cretaceous.
Review: Am. Geol., vol. xiii, p. 124 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

102*b* **Crane** (Agnes). The evolution of Brachiopoda.
Abstract: Am. Geol., vol. xiii, p. 194 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

103 **Crawford** (J. J.). Twelfth Report of the State Mineralogist.
Cal. State Mg. Bureau, 12th Rept., pp. 1–411.
Describes the occurrence of antimony, silver, lead, asphalt, bitumen, borax, chromic iron, coal, copper, gold, gypsum, iron, magnesite, manganese, natural gas, petroleum, quicksilver, building stones, asbestus, platinum, salt, soda, and zinc, in the various counties of California.

104 **Credner** (H.). [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 195 and 197.
Layers of sand between moraines are not to be considered as important criteria in chronologic classification, on account of their local character.

105 **Crosby** (W. O.). A classification of economic geological deposits based on origin and original structure.
Am. Geol., vol. xiii, pp. 249–268; Tech. Quart., vol. vii, pp. 27–48.
Discusses the general principles of classification and describes the author's system, based on the following primary divisions: (*a*) Deposits of igneous origin (igneous rocks). Heat is the chief agent. (*b*) Deposits of aqueo-igneous origin (pegmatite). Heat and water cooperate. (*c*) Deposits of aqueous origin (sedimentary and vein rocks). Water is the chief agent.

105*a* —— Geology of Boston Basin.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 79 (7 l.); Am. Geol., vol. xiii, pp. 192–193 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

105*b* —— Origin of the coarsely crystalline vein granites or pegmatites.
Abstract: Am. Geol., vol. xiii, pp. 215–216 (⅔ p.).

106 —— and **Ballard** (H. O.). Distribution and probable age of the fossil shells in the drumlins of the Boston Basin.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 486–496.
Gives a list of 55 species collected in the Boston Basin, describes the distribution, and concludes that they are of Glacial and post-Glacial origin and indicate a recession of the ice sheet in this region.

107 **Cross** (Whitman). The laccolitic mountain groups of Colorado, Utah, and Arizona.

U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 165-241, pls. vii-xvi, figs. 25-43.

Reviews the literature of the laccolitic theory. Describes the laccolites of the Henry, West Elk, San Miguel, La Plata, Carriso, El Late, Abajo, and La Sal mountains, Mosquito range, and the intrusive rocks of the Ten Mile district, Colorado. Discusses the chemical and mineralogic characters of laccolitic rocks, the conditions under which they were formed, and the forms and origin of laccolites.

108 —— Pikes Peak folio. Colorado.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 7.

Describes the topographic features, the granite and metamorphic rocks, the occurrence and distribution of the Algonkian, Cambrian, Silurian, Carboniferous, Juratrias, Cretaceous, and Eocene strata. Describes the occurrence and petrographic characters of diabase, syenite, andesite, rhyolite, trachyte, phonolite, and the geographic distribution of the sedimentary and igneous formations and the structural development of the region. Includes a topographic, colored areal geologic, economic geologic, and structure section maps.

109 —— Description of the igneous formations [Anthracite-Crested Butte folio, Colorado].

U. S. Geol. Surv., Geologic Atlas of the United States, folio 9.

Describes the character and occurrence of diorite, porphyrite, porphyritic diorite, granite, rhyolite, and basalt, in the portion of Colorado included within the district named.

110 —— Intrusive sandstone dikes in granite.

Geol. Soc. Am., Bull., vol. v, pp. 225-230, pl. 8.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 142 (7 l.); Am. Geol., vol. xiii, p. 215 (8 l.); Am. Nat., vol. xxviii, pp. 412-413.

Describes the portion of Colorado in which the dikes occur, their characteristics and mode of occurrence. Describes the dike rock and discusses the origin of dikes.

111 —— Itinerary, Nathrop to Salida, Colo.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 423-424.

Describes the geology along the railroad between these points.

112 —— Manitou. Itinerary, Colorado Springs to Denver. Excursion to Morrison. Excursion to Golden [Colo.].

Int. Cong. Geol., Compte Rendu, 5th session, pp. 430-442.

Describes the geology of the Pikes Peak region, the geology of the Denver Basin, and the character of the Juratrias and Cretaceous beds at Morrison and Golden, Colo.

113 **Cubberly** (E. P.). Indiana's structural features as revealed by the drill.

Ind. Dept. Geol. and Nat. Res., 18th Rept., pp. 219-255, with map and 16 colored geologic sections.

Each geologic section is accompanied by a table showing the depth of the well, the formations penetrated, and other data on which the sections are based.

114 **Culver** (G. E.). Some New Jersey eskers.
Science, vol. xxiii, pp. 15–16.
Describes the character of certain eskers in northeastern New Jersey.

115 —— Note on the geology of Itasca County, Minn.
Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., pp. 97–114.
Describes the topography of the region and the megascopic characters of the granite, diorite, and greenstones, and the glacial phenomena.

116 **Cunningham** (K. M.). Diatomaceæ.
Ala. Geol. Surv., Rept., on the geology of the Coastal Plain of Alabama, pp. 61–65.
Notes on the fossil Diatomaceæ of Alabama and a list of diatoms occurring at Montgomery.

117 —— Notes on the Microzoa of the Tertiary of south Alabama.
Ala. Geol. Surv., Rept., on the geology of the Coastal Plain of Alabama, pp. 250–254.
Notes on the occurrence of Microzoa in Alabama.

118 —— Notes on the micro-geology of Alabama Cretaceous.
Ala. Geol. Surv., Rept., on the geology of the Coastal Plain of Alabama, pp. 286–289.
Notes on the Cretaceous chalk formation.

119 **Cushing** (H. P.). Preliminary report on the geology of Clinton County, N. Y.
N. Y. State Mus., 47th Ann. Rept., pp. 669–683, with map.
Describes the character and distribution of the pre-Cambrian, Cambrian, and Silurian rocks of this county.

D.

120 **Dale** (T. Nelson). On the structure of the ridge between the Taconic and Green Mountain ranges in Vermont.
U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 525–549, pls. lxvi–lxx, figs. 54–64.
Describes the petrographic, paleontologic, and structural features of the Clarendon, Wallingford, Danby, and Pine Hill sections and gives a general résumé of the evidence showing the structure of the range and age of the formation.

121——The structure of Monument Mountain, in Great Barrington, Mass.
U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 551–565, pls. lxxi–lxxii, figs. 65–72.
Describes the petrographic character of the Berkshire schist and reviews the evidence indicating the geologic structure of the mountain.

122——Mount Greylock: its areal and structural geology.
U. S. Geol. Surv., Mon. xxiii, pp. 119–203, pls. xii–xxiii, figs. 30–79.
Gives a list of publications on the geology of the region. Describes the geologic structure of the region, and the lithologic and petrographic characters of the Cambrian and pre-Cambrian rocks.

122*a* **Dale** (T. Nelson). The Rensselaer grit plateau in New York.
Abstract: Am. Geol., vol. xiv, pp. 54–55.
Noticed in Bibliography and Index for 1892 and 1893.

123 **Dall** (William Healey). Notes on the Miocene and Pliocene of Gay Head, Marthas Vineyard, Mass., and on the "Land Phosphate" of the Ashley River district, South Carolina.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 296–301.
Gives a list of Miocene and Pliocene fossils identified from Gay Head and Chilmark, and describes two new species. Reviews the evidences of the age of the phosphate rock of the Ashley River district and concludes that the fauna are of Miocene facies.

123*a* —— Notes on the Atlantic Miocene.
Abstract: Am. Geol., vol. xiv, p. 202 (¼ p.).

124 —— On the species of Mactra from California.
Nautilus, vol. vii, pp. 136–138.
Describes three species, including one new species, from the coast of California.

125 —— and **Stanley-Brown** (J.). Cenozoic geology along the Apalachicola River.
Geol. Soc. Am., Bull., vol. v, pp. 147–170, pl. 3.
Abstract: Am. Geol., vol. xiii, pp. 137–138 (¼ p.).
Describes in detail the geology of the localities studied and the geologic structure and succession of the Eocene, Miocene, Pliocene, and Pleistocene beds of this region.

126 **Dana** (James D.). Observations on the derivation and homologies of some articulates.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 325–329; Annals and Mag. Nat. Hist., vol. xiii, pp. 502–506.
Discusses the derivation of limaloids, crustaceans, arachnids, myrapods, and insects, and in a table shows the relations in body-segments and limbs between these classes.

127 **Darton** (Nelson Horatio). Shawangunk Mountain.
Nat. Geog. Mag., vol. vi, pp. 23–34, pls. 1–3, figs. 1–3.
Abstracts: Sci. Am. Suppl., vol. xxxvii, pp. 15284–15285; Am. Jour. Sci., 3d ser., vol. xlvii, p. 482 (7 l.).
Describes the relations of the Shawangunk grit and the underlying Hudson shales and the character and distribution of the lakes, which are considered to have been formed by glacial action.

128 —— Report on the relations of the Helderberg limestones and associated formations in eastern New York.
N. Y. State Mus., 47th Ann. Rept., pp. 393–422, pls. 1–4, figs. 1–5.
Describes the physiography of the region studied, presents several stratigraphic sections of Upper Silurian strata of central and eastern New York, and describes the lithologic character and succession of the deposits.

129 —— Preliminary report on the geology of Albany County [N. Y.].
N. Y. State Mus., 47th Ann. Rept., pp. 425–455, pls. 1–6, figs. 1–9.
Describes the physiographic features of the county and the lithologic character and stratigraphic relations of the Devonian and Silurian deposits, and includes notes on the Pleistocene geology.

130 **Darton** (Nelson Horatio). Preliminary report on the geology of Ulster County [N. Y.].

N. Y. State Mus., 47th Ann. Rept., pp. 485–566, pls. 1–23, figs. 1–18.

Describes the physiography of the region, the structural relations and the lithologic character and succession of the several members of the Devonian and Silurian formations represented in this county.

131 —— Geology of the Mohawk Valley in Herkimer, Fulton, Montgomery, and Saratoga counties [N. Y.].

N. Y. State Mus., 47th Ann. Rept., pp. 604–623, pls. 1–14.

Describes the exposures of Potsdam sandstone, Calciferous, Birdseye, Black River, and Trenton limestones and Utica shales in the Mohawk Valley of the counties named.

132 —— Geologic relations from Green Pond, New Jersey, to Skunnemunk Mountain, New York.

Geol. Soc. Am., Bull., vol. v, pp. 367–394, pl. xvii.

Abstract: Am. Geol., vol. xiii, pp. 211–212.

Reviews the literature on the geology and describes the Devonian, Silurian, and Cambrian beds of this region. Discusses the structure and gives a sketch of its geologic history.

133 —— Outline of Cenozoic history of a portion of the middle Atlantic slope.

Jour. of Geol., vol. ii, pp. 568–587.

Describes the physiographic features of the Piedmont and Coastal Plain areas in this region, the trenching of the Tertiary baselevel of the Piedmont Plateau, and the character of the Tertiary and Pleistocene deposits, and includes a résumé of the geologic history of the region in Cenozoic time.

134 —— Staunton folio. Virginia, West Virginia.

U. S. Geol, Surv., Geologic Atlas of the United States, folio 14.

Describes the physiographic subdivisions of the Appalachian province, the character and relations of the Cambrian, Silurian, Devonian, and Carboniferous formations, and the geologic structure and mineral resources of the region, including iron, marble, and clays. Includes a topographic, colored areal geologic, economic, and structure section maps and a columnar section.

134*a* —— **McGee**, (W J), **Williams**, (G. H.), **Willis**, (B.), and. Geology of Washington and vicinity.

Int. Cong. Geol., Compte Rendu, 5th sesion, pp. 219–251.

See McGee (W J), Williams (G. H.), Willis (B.), and Darton (N. H.), No. 385.

135 **Davis** (William Morris). Physical geography in the university.

Jour. of Geol., vol.ii, pp. 66–100.

Presents the plan of the author's course in physical geography.

136 —— [Remarks on drumlins.]

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 17–23.

Reviews the paper by W. Upham on the "Origin of drumlins."

137 **Davis** (William Morris). Facetted pebbles on Cape Cod, Massachusetts.

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 166–175, pls. i–ii.

Abstract: Am. Geol., vol. xiii, pp. 146–147.

Describes the occurrence of these pebbles on Cape Cod and discusses the evidences indicating that the beds in which they are found are subaerial deposits. Discusses the relation of facetting to rock structure and the post-Glacial changes of level in this region.

138 —— [Correlation of clastic rocks.]

Int. Cong. Geol., Compte Rendu, 5th session, p. 166 (⅛ p.).

Remarks on the correlation of rocks as indicated by degradation processes.

139 —— and **Griswold** (L. S.). Eastern boundary of the Connecticut Triassic.

Geol. Soc. Am., Bull., vol. v, pp. 515–530.

Abstracts: Jour. of Geol. vol. ii, pp. 644–645; Am. Geol., vol. xiii, pp. 145–146; Am. Jour. Sci., 3d ser., vol. xlvii, pp. 136–137.

Describes the geologic history of the region and discusses the general characteristics of faults. Discusses the evidences of faulting along the boundary of the Connecticut Triassic and gives the authors' conclusions.

140 **Dawson** (George M.). Geological notes on some of the coasts and islands of Bering Sea and vicinity.

Geol. Soc. Am., Bull., vol. v, pp. 117–146.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 136 (⅛ p.); Am. Geol. vol. xiii, p. 137 (½ p.).

Contains notes on the topography and geology of the islands of Bering Sea.

141 —— Notes on the occurrence of mammoth remains in the Yukon district of Canada and Alaska.

Geol. Soc. London, Quart. Jour., vol. l, pp. 1–8.

Abstract: Can. Rec. Sci., vol. vi, p. 59 (⅜ p.).

Gives a historical sketch of the discoveries of mammoth remains in this region. Describes the unglaciated area in Alaska in which these remains occur and the Cordilleran glacier. Discusses the evidences of elevation and subsidence.

142 —— Volcanic rocks of the Huronian.

Science, vol. xxiii, p. 50.

Brief note on the occurrence of volcanic rocks in the vicinity of the Lake of the Woods.

142*a* —— Notes on the geology of Middleton Island, Alaska.

Abstract: Can. Rec. Sci., vol. vi, p. 58 (½ p.).

Noticed in Bibliography and Index for 1892 and 1893.

143 **Dawson** (J. William). Preliminary note on recent discoveries of batrachians and other air-breathers in the coal formation of Nova Scotia.

Can. Rec. Sci., vol. vi, pp. 1–7.

Abstract: Am. Geol., vol. xiii, p. 137 (⅛ p.).

Refers to the previous discoveries of animal remains in the coal beds of South Joggins. Gives the vertical section of an embedded tree recently found in these deposits, and mentions the fossils found in it.

144 **Dawson** (J. William). Our record of Canadian earthquakes.
Can. Rec. Sci., vol. vi, pp. 8-16.
Gives a list of publications of the records of Canadian earthquakes prior to 1877, and includes a list and description of earthquakes occurring since that time.

145 —— Note on the genus Naiadites, as occurring in the coal formation of Nova Scotia.
Geol. Soc. London, Quart. Jour., vol. l, pp. 435-437, pl. xx.
Describes the occurrence of this genus and its associates in the coal deposits of Nova Scotia.

146 —— The study of fossil plants.
Geol. Soc. Am., Bull., vol. v, pp. 2-5.
Discusses the importance of fossil plants as an aid in determining the geologic age of rocks and climatic conditions.

147 —— Some recent discussions in geology.
Geol. Soc. Am., Bull., vol. v, pp. 101-116.
Abstracts: Am. Geol., vol. xiii, pp. 135-137; Am. Jour. Sci., 3d ser., vol. xlvii, pp. 135-136.
Discusses the correlation of the Cambrian rocks of North America and Great Britain, the forces that have produced mountain ranges, uniformitarianism, the formation of coal, the relation of vegetation to continental movements, the phenomena of the Glacial period, and post-Pleistocene continental movements.

147*a* —— The Canadian Ice age.
William V. Dawson, Montreal, 1893.
Review: Jour. of Geol., vol. ii, pp. 232-235, by T. C. Chamberlin.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, pp. 146-147 (½ p.); Am. Geol., vol. xiii, pp. 116-121; Can. Rec. Sci., vol. vi, pp. 113-115.

148 **Dean** (Bashford). Contributions to the anatomy of Dinichthys.
N. Y. Acad. Sci., Trans., vol. xii, p. 187.
Abstract: Am. Geol., vol. xiii, pp. 357-358 (8 l.).

149 —— A new cladodont from the Ohio Waverly, Cladoselache newberryi n. sp.
N. Y. Acad. Sci., Trans., vol. xiii, pp. 115-118, pl. 1.
Describes and figures specimens from the sub-Carboniferous of Ohio.

150 —— Contributions to the morphology of Cladoselache (Cladodus).
Jour. of Morph., vol. ix, pp. 87-114, pl. vii.
Suggests the name Cladoselache for that of Cladodus for the American form. Discusses the relationships under the different structural characters.

151 **DeKalb** (Courtenay). The new gold fields of the Mosquito coast of Nicaragua.
Eng. and Mg. Jour., vol. lvii, pp. 294-295.
The gold occurs in placers in the Matagalpa Mountains, of small extent but very rich, and in "pockets." The mountains are said to be flanked by Carboniferous limestones overlain by Permian red sandstones and shales which have been covered by diorite flows, and the gold occurs along the contact of the shales and diorite mass.

152 **Diener** (C.). [Classification of Pleistocene deposits.]

Int. Cong. Geol., Compte Rendu, 5th session, p. 197 (⅕ p.).

Considers that fossil remains are not proof of the nonexistence of glaciers in the vicinity in which the fossils occur.

153 **Diller** (Joseph Silas). Tertiary revolution in the topography of the Pacific Coast.

U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 397-434, pls. xl-xlvii, figs. 45-48; Jour. of Geol., vol. ii, pp. 32-54.

Abstract: Am. Geol., vol. xiii, p. 354 (⅓ p.).

Describes the topography of the Pacific Coast, the ancient baselevel of erosion in northern California, and the character of the deposits upon its borders. Discusses the evidence as to the age of the baseleveling, the conditions during Cretaceous, Eocene, and Miocene times, and the deformation of the baselevel.

154 —— and **Schuchert** (Charles). Discovery of Devonian rocks in California.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 416-422.

Abstract: Am. Nat., vol. xxviii, p. 796 (⅓ p.).

Describes the different outcrops of Devonian rocks that have been found in California, with notes on the fossils collected from them, and discusses their correlation with Devonian strata of other regions.

155 —— and **Stanton** (T. W.). The Shasta-Chico series.

Geol. Soc. Am., Bull., vol. v, pp. 435-464.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 141 (⅕ p.); Am. Geol., vol. xiii, p. 208 (6 l.); Am. Nat., vol. xxviii, p. 1024 (⅔ p.).

Reviews the literature of the Cretaceous deposits of the Pacific Coast. Describes three sections of the Cretaceous deposits and gives lists of fossils found at different horizons. Discusses the faunal relations of the beds, the deformation during and subsequent to their deposition, and the correlation of the series with the Cretaceous of other parts of North America.

156 **Dodge** (R. E.). The geographical development of alluvial river terraces.

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 257-273.

Abstract: Am. Geol., vol. xiv, p. 397 (½ p.).

Describes the formation of alluvial terraces and plains, the cycle and development of a normal river, and normal, subnormal, and accidental alluvial terraces. Discusses the conditions of terrace formation and gives the author's conclusions.

157 —— Additional species of Pleistocene fossils from Winthrop, Mass.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 100-104.

Mentions the species heretofore found in a drumlin in Boston Harbor, and also others recently found by the author. Considers that ocean waters were warmer both prior and subsequent to the advance of the ice sheet, and discusses the causes of this phenomenon.

158 —— Continental phenomena illustrated by ripple marks.

Science, vol. xxiii, pp. 38-39.

Describes ripple marks occurring on the coast of Massachusetts, which are compared to the formation of a continental shelf similar to that along the eastern coast of North America.

159 **Dryer** (Charles R.). The geology of Noble County [Ind.].
Ind. Dept. Geol. and Nat. Res., 18th Rept., pp. 17–32.
Describes the glacial deposits of the county and gives the sections displayed by several artesian wells, showing the presence of Devonian and Silurian strata.

160 —— Report upon the geology of Lagrange County [Ind.].
Ind. Dept. Geol. and Nat. Res., 18th Rept., pp. 72–82.
Describes the character and distribution of the glacial beds of the county.

161 —— The drift of the Wabash-Erie region. A summary of results.
Ind. Dept. Geol. and Nat. Res., 18th Rept., pp. 83–90.
Describes the distribution of the moraines and the movements of the ice sheet in this region.

162 **Dumble** (E. T.). The Cenozoic deposits of Texas.
Jour. of Geol., vol. ii, pp. 549–567.
Describes the lithologic character of the Cenozoic deposits of Texas and gives lists of fossils found at different horizons and localities.

163 **Dunn** (R. L.). Auriferous conglomerate in California.
Cal. State Mg. Bureau, 12th Rept., pp. 459–471, with map.
Describes an auriferous conglomerate of peculiar character occurring in Siskiyou County. Discusses the evidences bearing on its fluviatile origin and on the source of the gold. Compares this deposit with the auriferous conglomerate of South Africa.

E.

164 **Eakle** (A. S.). On allanite crystals from Franklin Furnace, N. J.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 436–439; N. Y. Acad. Sci., Trans., vol. xiii, pp. 102–107.
Abstract: Am. Nat., vol. xxviii, p. 877 (6 l.).
Describes the crystallographic characters of crystals from the Trotter mine.

165 **Eastman** (Charles R.). Beiträge zur Kenntniss der Gattung Oxyrhina, mit besonderer Berücksichtigung von Oxyrhina mantelli Agassiz.
Paleontographica, Band xli, pp. 149–192, pls. xvi–xviii.
Describes Oxyrhina mantelli from the Cretaceous of Kansas and gives a summary of the species of Oxyrhina.

166 **Eldridge** (George H.). Description of the sedimentary formations [Anthracite-Crested Butte folio, Colorado.]
U. S. Geol. Surv., Geologic Atlas of the United States, folio 9.
Describes the Archean, Cambrian, Silurian, Carboniferous, Juratrias, and Cretaceous formations of the region, the geologic structure and the occurrence of coal in the Laramie, and gives four tables of analyses of the coals.

167 —— A geological reconnoissance in northwest Wyoming.
U. S. Geol. Surv., Bull., No. 119, 72 pp., pls. i–iv, fig. 1.
Describes the topography of the Big Horn Mountain region, the general character of the Archean, Cambrian, Silurian, Carboniferous, Trias, Jura, Cretaceous, and Tertiary formations, the structure of the mountain ranges, and the occurrence of coal, petroleum, building materials, and gold.

168 **Eldridge** (George H.). Artesian wells of eastern Dakota.

Int. Cong. Geol., Compte Rendu, 5th session, p. 318.

Describes the character of the strata from which artesian water is obtained and gives the depths of the wells.

169 **Elftman** (Arthur Hugo). Preliminary report of field work during 1893 in northeastern Minnesota.

Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., pp. 141–180.

Describes the topography of portions of Lake County and the distribution and petrographic characters of the granite, actinolite-magnetite schist, gabbro, red rock, diabase, and anorthosyte of northeastern Minnesota.

170 **Ells** (R. W.). Mica deposits in the Laurentian of the Ottawa district.

Geol. Soc. Am., Bull., vol. v, pp. 481–488.

Abstract: Am. Geol., vol. xiii, p. 215 (6 l.).

Describes the metamorphosed sedimentaries and intrusive rocks of this district, the occurrence of apatite and mica, and the differences in the mica-apatite deposits.

171 **Emmons** (Samuel Franklin). Description of the Elk Mountains [Anthracite-Crested Butte folio, Colorado].

U. S. Geol. Surv., Geologic Atlas of the United States, folio 9.

Gives a historical sketch of the geology of the region and describes the clays, iron ore, and precious metal deposits. Includes a topographic, colored geologic, economic, and structure section maps of each of the districts and a sheet of columnar sections.

172 —— Geological distribution of the useful metals in the United States.

Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 53–95 and 737–738.

Describes the geologic occurrence in different parts of the United States of iron, manganese, nickel, tin, copper, lead, zinc, quicksilver, gold, and silver, and gives a summary of conclusions concerning the genesis of their minerals.

173 —— [The genesis of ore deposits.]

Am. Inst. Mg. Engrs., Trans., vol. xxiii, pp. 597–602.

Discussion of paper by F. Posepny on the same subject.

174 —— Congrès Géologique International, Compte Rendu de la 5me session, Washington, 1891, ix + 529 pp., pls. i–xxi, figs. 1–39. Edited by S. F. Emmons, secretary.

Contains a historical sketch of the Congress, report of the sessions, a description of the geology of Washington and vicinity, the geology of the region traversed by the excursion to the Rocky Mountains and the Grand Canyon of the Colorado, and of the excursion to Lake Superior.

174*a* —— Guidebook of an excursion to the Rocky Mountains.

John Wiley & Sons, 1894, New York.

Describes the geology along the route traversed by the western excursion of the International Congress of Geologists from Washington, D. C., to Chicago, St. Paul, Yellowstone National Park, Snake Plains, Great Salt Lake, Leadville, Denver, Canyon of the Colorado, Kansas City, Chicago, Niagara Falls, and to New York City.

Extract from Compte Rendu, Int. Cong. Geol., 5th session.

175 **Emmons** (Samuel Franklin). From Chicago to the Mississippi River. Itinerary.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 298–301.

Describes the glacial phenomena of the region and the outcrops of the Cambrian beds.

176 —— Livingston to the Snake Plains. Itinerary. Butte City to Pocatello. The Snake Plains.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 367–374.

Describes the geology along the route of travel of the excursion of the International Congress of Geologists in this region and the geologic history of the Snake Plains.

177 —— The Wasatch Mountains and the geological panorama of the Wasatch range.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 381–391.

Describes the geologic history of this range, the outcrops of the strata, and the structure of the mountain range.

178 —— Itinerary. Spanish Fork Canyon, Utah, to Grand Junction, Colo.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 397–402.

Describes the geology along the railroad between the points named.

179 —— The Rocky Mountains of Colorado. Itinerary, Grand Junction to Glenwood Springs and Aspen, Glenwood Springs to Leadville and Nathrop, and Salida to Canyon City, Colo.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 403–426.

Describes the geologic history and general structure of the Rocky Mountains and the local geology along the railroad between the points mentioned.

180 —— Itinerary, Canyon City to Colorado Springs [Colo.].

Int. Cong. Geol., Compte Rendu, 5th session, pp. 428–429.

Describes the geology along the railroad between these points.

181 —— The Great Plains of Colorado and Kansas. Itinerary, Denver to Kansas City.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 443–448.

Describes the geologic features of the Great Plains and the local geology along the route traversed by the excursion.

182 —— Excursion to the Canyon of the Colorado. Itinerary, Denver, Colo., to Albuquerque, N. Mex.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 464–468.

Describes the local geology along the route traversed.

183 —— Bibliography of the geology of the excursion to the Rocky Mountains.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 482–487.

Gives a list of 123 publications relating to the geology along the route traversed by the western excursion of the International Congress of Geologists.

184 **Emmons** (Samuel Franklin) and **Merrill** (G. P.). Geological sketch of Lower California.

Geol. Soc. Am., Bull., vol. v, pp. 489-514, pl. 19.

Abstract: Am. Geol., vol. xiii, pp. 209-210.

Describes the physical features and reviews previous descriptions of the geology of Lower California. Describes the general structure and the occurrence of Eocene and Cretaceous beds, and gives a list of fossils found at different horizons.

185 **Eyerman** (John). Vertebrate paleontology at the Columbian Exposition; a brief notice.

Am. Geol., vol. xiii, pp. 47-48.

Mentions the genera and species of vertebrates from various countries exhibited at the World's Columbian Exposition.

186 —— Preliminary notice of a new species of Temnocyon and a new genus from the John Day Miocene of Oregon.

Am. Geol., vol. xiv, pp. 320-321.

Gives a brief description of the new species and of a new genus, Hypotemnodon.

F.

186*a* **Faber** (C. L.), **Miller** (S. A.) and. New species of fossils from the Hudson River group, and remarks upon others.

Cin. Soc. Nat. Hist., Jour., vol. xvii, pp. 22-33.

See Miller (S. A.) and Faber (C. L.), No. 414.

186*b* —— Description of some Cincinnati fossils.

Cin. Soc. Nat. Hist., Jour., vol. xvii, pp. 137-158.

See Miller (S. A.) and Faber (C. L.), No. 415.

187 **Fairbanks** (H. W.). Red Rock, Goler, and Summit mining districts, in Kern County [Cal.].

Cal. State Mg. Bureau, 12th Rept., pp. 456-458.

Describes the occurrence of gold in the wash from the conglomerate and sedimentary strata of this region.

188 —— Preliminary report on the mineral deposits of Inyo, Mono, and Alpine counties [Cal.].

Cal. State Mg. Bureau, 12th Rept., pp. 472-478.

Describes the topography and mineral resources of these counties in southeastern California.

189 —— Geology of a section of Eldorado County [Cal.].

Cal. State Mg. Bureau, 12th Rept., pp. 479-481.

Describes the gold-quartz veins of a portion of this county separated from the "mother lode" by a diabase ridge.

190 —— Geology of northern Ventura, Santa Barbara, San Luis Obispo, Monterey, and San Benito counties [Cal.].

Cal. State Mg. Bureau, 12th Rept., pp. 493-526.

Describes the pre-Cretaceous, Cretaceous, and Miocene beds of these counties and gives the author's summary of conclusions.

191 **Fairbanks** (H. W.). Notes on some localities of Mesozoic and Paleozoic in Shasta county, Cal.

Am. Geol., vol. xiv, pp. 25–31.

Describes the geologic structure, lithologic character, and fauna of the Jurassic, Triassic, Carboniferous, and Devonian strata found in this region.

192 —— A remarkable folded vein in the Ready Relief Mine [Cal.].

Eng. and Mg. Jour., vol. lvii, pp. 321–322.

Describes the apparent folding of mica-schist and gneiss in the Peninsula range of San Diego County, Cal., and discusses the cause of the phenomenon.

193 —— Some remarkable hot springs and associated mineral deposits in Colusa County, Cal.

Science, vol. xxiii, pp. 120–121.

Describes the occurrence of hot springs and the associated gold and quicksilver deposits in this county.

194 **Fairchild** (Herman Le Roy). The evolution of the ungulate mammals.

Abstract: Roch. Acad. Sci., Proc., vol. ii, pp. 206–209.

Describes the evolution of the Artiodactyla and Perissodactyla.

195 —— The geological history of Rochester, N. Y.

Roch. Acad. Sci., Proc., vol. ii, pp. 215–223.

Gives a condensed section of the strata at Rochester and describes the process of deposition in Silurian and Devonian times and the character of the Glacial deposits.

196 —— The length of geologic time.

Roch. Acad. Sci., Proc., vol. ii, pp. 263–266.

Reviews the recent literature on the subject and gives the estimates of different writers.

197 **Foerste** (Aug. F.). Fossils of the Clinton group in Ohio and Indiana.

Ohio Geol. Surv., vol. vii, pp. 516–601.

Describes fossils found in Clinton rocks of these States, including several new species.

198 —— The Upper Vicksburg Eocene and the Chattahoochee Miocene of southwest Georgia and adjacent Florida.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 41–54, with sketch map.

Describes certain exposures of the Eocene and Miocene in this region and correlates them with other deposits of Georgia.

199 **Fogh** (Carl S.). Some geological features of the mine of Velardena, Mexico.

Eng. and Mg. Jour., vol. lvii, pp. 29–30.

Describes the ore bodies and the dikes which cut them.

200 **Fontaine** (William Morris). Notes on some fossil plants from the Trinity division of the Comanche series of Texas.

U. S. Nat. Mus., Proc., vol. xvi, pp. 261-282, pls. xxxvi-xliii.

Discusses the lithologic character of the bed in which the fossils were found and the characteristics of the plants collected, including eight new species.

201 **Frazer** (Persifor). The sixth session of the International Congress of Geologists.
Am. Geol., vol. xiv, pp. 259–271.
Gives an account of the excursions and proceedings of this session held at Zurich, Switzerland, in August, 1894.

202 —— [On the red horizons.]
Am. Phil. Soc., Proc., vol. xxxiii, pp. 216–217.
Discusses a paper by B. S. Lyman on the same subject.

203 **Frech** (F.). [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 171–172 (½ p.).
Remarks on the comparison of the middle Paleozoic faunas of Europe and North America.

204 —— Section in Congress Canyon opposite Point Sublime [Ariz.].
Int. Cong. Geol., Compte Rendu, 5th session, pp. 476–481.
Describes exposures of Archean, Algonkian, Cambrian, and Carboniferous rocks in this canyon, and gives the author's conclusions.

205 **Fultz** (Francis M.). Interruption during the deposition of the Burlington limestone.
Am. Geol., vol. xiv, pp. 246–249.
Discusses the evidences of disturbances during the Burlington epoch in the Mississippi Valley.

206 —— Evidences of disturbance during the deposition of the Burlington limestones.
Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 56–58.
Discusses the disturbances occurring in the Burlington limestone as indicated by changes in fossil forms, lithologic characters, erosion, and unconformability.

G.

207 **Gaudry** (A.). [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 192–193.
Remarks on the desirability of a chronological classification of Pleistocene deposits.

208 **Geer** (Gerard de). [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 155–156 (½ p.).
Remarks on statistical analyses of fossil faunas, with special reference to the number of individuals found.

209 —— [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 193–194, 196 and 198.
Remarks on the importance of a genetic classification of Pleistocene deposits and the possibility of a local chronologic classification.

209*a* **Geikie** (Archibald). Text Book of Geology, third edition.
Macmillan & Co., London and New York, 1893.
Review: Am. Geol., vol. xiii, pp. 66–70.

209*b* **Geikie** (James). The great Ice age.
Third edition, London, Edward Stanford.
Review: Jour. of Geol., vol. ii, pp. 730–747, by R. D. Salisbury.

209*c* **Gibson** (A. M.). Report on the coal measures of Blount Mountain.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 319 (8 l.); Am. Geol., vol. xiii, p. 284 ($\frac{1}{2}$ p.).
Noticed in Bibliography and Index for 1892 and 1893.

210 **Gilbert** (Grove Karl). [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 151–155.
Discusses the physical and biotic methods of correlation of rocks.

211 —— Physical geography of the region.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 261–267.
Describes the physical and climatic features of the parts of the United States traversed by the Rocky Mountain excursion of the International Congress of Geologists.

212 —— From the Ohio to the Mississippi River. General sketch.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 289–290.
Mentions the different exposures of Silurian, Devonian, and Carboniferous rocks and describes the glacial phenomena of the region traversed by the geological excursion.

213 —— Great Salt Lake and Lake Bonneville. Fault Scarps. Itinerary, Pocatello, Idaho, to Salt Lake City, Utah.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 374–380.
Describes the geologic history of Lake Bonneville, the fault scarps of the mountains of the Great Basin, and the geology along the railroad from Pocatello to Salt Lake City.

214 —— Great Salt Lake Valley, and Itinerary, Salt Lake City to Spanish Fork Canyon [Utah].
Int. Cong. Geol., Compte Rendu, 5th session, pp. 391–397.
Describes the geologic history of Great Salt Lake Valley and the local geology along the railroad to Spanish Fork Canyon.

215 —— Itinerary, Chicago to Niagara Falls.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 453–458.
Describes the local geology between Chicago and Niagara Falls, through Michigan and the Province of Ontario, and the geologic history of Niagara Falls.

216 —— Itinerary, Albuquerque, N. Mex., to Flagstaff, Ariz., and to the Grand Canyon.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 468–474.
Describes the geology along the route traversed by the western excursion of the International Congress of Geologists.

217 —— The name "Newark" in American stratigraphy.
Jour. of Geol., vol. ii, pp. 55–59.
Discusses the principles of stratigraphic nomenclature in reference to the use of the term "Newark" in geologic literature.

218 —— Continental problems of geology.
Smith. Inst., Ann. Rept., 1891–92, pp. 163–173.
Noticed in Bibliography and Index for 1892 and 1893.

218*a* —— The chemical equivalence of crystalline and sedimentary rocks.
Abstract: Am. Geol., vol. xiii, pp. 213–214.

219 **Gorby** (S. S.). [Natural resources of Indiana.]

Ind. Dept. Geol. and Nat. Res., 18th Rept., pp. 9–16.

Reviews the developments in the coal, building stone, clays, gas, and petroleum industries of Indiana in 1893.

220 **Grabau** (Amadeus W.). The pre-Glacial channel of the Genesee River.

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 359–369.

Abstract: Am. Geol., vol. xiv, pp. 397–398 (½ p.).

Describes the modern channel of the river, the topography of the adjacent region, the relations of the Genesee and Wyoming valleys and the Dansville-Rochester Valley, and gives a summary of conclusions.

221 **Grant** (Uly S.). The State of Minnesota.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 302–311.

Describes the topography, the outcrops of Archean and Algonkian, Cambrian, and Silurian formations, and the glacial deposits of the portion of the State crossed by the excursion.

222 —— La Crosse to Minneapolis and Minneapolis to Moorhead. Itinerary.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 312–317.

Describes the local geology along the route traversed by the excursion of the International Congress of Geologists.

223 —— The geology of Kekequabic Lake, in northeastern Minnesota, with special reference to an augite soda-granite.

Minn. Geol. and Nat. Hist. Surv., 21st Ann. Rept., pp. 9–58, pls. i–ii, figs. 1–4.

Describes the topography and reviews the previous literature on the region. Describes the ancient clastic and igneous rocks and the field relations and petrographic characters of the granite.

224 —— Preliminary report of field work during 1893 in northeastern Minnesota.

Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., pp. 67–78.

Describes the topography and the lithologic character and structure of the Animike and Keweenawan beds of the region.

225 —— Volcanic rocks in the Keewatin of Minnesota.

Science, vol. xxiii, p. 17.

Describes the petrographic characteristics of some volcanic rocks occurring in Keewatin strata.

226 —— Note on the Keweenawan rocks of Grand Portage Island, north coast of Lake Superior.

Am. Geol., vol. xiii, pp. 437–439.

Describes the sedimentary and igneous rocks of this island and considers that the former belong to the lower part of the Keweenawan.

227 **Gresley** (W. S.). Cone-in-cone: how it occurs in the Devonian series in Pennsylvania, United States of America, with further details of its structure.

Geol. Soc. London, Quart. Jour., vol. l, pp. 731–739, pls. xxxv–xxxvi.

Abstract: Am. Geol., vol, xiv, pp. 399–400 (⅓ p.).

Describes the occurrence of cone-in-cone structure in Devonian beds of Pennsylvania.

228 **Gresley** (W. S.). The "slate binders" of the "Pittsburg" coal bed.

Am. Geol., vol. xiv, pp. 356–365, figs. 1–2.

Describes the character of the slate partings and discusses the different theories which may account for the formation of similar beds.

229 **Grimsley** (G. Perry). The granites of Cecil County, in northeastern Maryland.

Cin. Soc. Nat. Hist., Jour., vol. xvii, pp. 59–67, pls. 4–5, and pp. 78–114.

Abstracts: Jour. of Geol., vol. ii, pp. 865–866; Am. Geol., vol. xiv, p. 398 (½ p).

Describes the rock exposures and the microscopic characters of the granite, diorite, staurolitic mica-schist, and granite-gneiss found in this region. Gives a summary of conclusions.

229*a* **Griswold** (L. S.), **Davis** (W. M.) and. Eastern boundary of the Connecticut Triassic.

Geol Soc. Am., Bull., vol. v, pp. 515–530.

See Davis (W. M.) and Griswold (L. S.), No. 139.

229*b* **Gulliver** (F. P.). Ice sheet on Newtonville sand plain.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 178 (⅛ p.)

Noticed in Bibliography and Index for 1892 and 1893.

230 **Gurlt** (Adolf). On a remarkable deposit of wolfram ore in the United States.

Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 236–242.

Describes an occurrence of wolfram ore in Fairfield County, Conn., in crystalline limestone and gneiss.

H.

231 **Hague** (Arnold). The great plains of the North. General sketch. Itinerary from Jamestown, N. Dak., to Livingston, Mont.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 319–325.

Describes the general geologic features of the great plains and the local geology of the route traversed by the Rocky Mountain excursion of the International Congress of Geologists.

232 —— The Yellowstone Park.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 336–359.

Describes the geologic history of the park and the physical and geologic features of the route through the park traversed by the excursion.

232*a* —— Geologic history of the Yellowstone National Park.

Smith. Inst., Ann. Rept., 1891–92, pp. 133–151.

Noticed in Record of North American Geology for 1887–1889.

233 **Hall** (James). The Livonia salt shaft; its history and geological relations, etc.

N. Y. State Mus., 47th Ann. Rept., pp. 205–214.

Gives an account of the geologic work done during the sinking of the Livonia shaft and describes the relations of the formations.

234 **Hall** (James). [Correlation of clastic rocks.]

Int. Cong. Geol., Compte Rendu, 5th session, p. 170 (¼ p.).

Remarks on the importance of considering both physical and faunal characters and the unequal value of fossils in the correlating of rocks.

235 —— and **Clarke** (J. M.). Paleontology of New York, vol. viii, pt. 2.

N. Y. State Mus., 47th Ann. Rept., pp. 797–851.

Includes a synopsis of contents of vol. viii, pt. ii, and a summary of "The evolution of the genera of the Paleozoic Brachiopoda" and description of new species figured in the same volume.

236 —— —— An introduction to the study of the Brachiopoda, intended as a handbook for the use of students. Part II.

N. Y. State Mus., 47th Ann. Rept., pp. 945–1137.

Continues the description of genera began in part i, discusses the evolution and classification of the genera of the Brachiopoda, and gives a table of classification and an alphabetical index to genera and subgenera of the Brachiopoda.

236*a* —— —— An introduction to the study of the genera of Paleozoic Brachiopoda, vol. viii, part ii, fascicle i.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 319 (¼ p.); Am. Jour. Sci., 3d ser., vol. xlviii, pp. 71–72.

Noticed in Bibliography and Index for 1892 and 1893.

237 **Hallock** (William). Note on further observations of temperature in the deep well at Wheeling, W. Va.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, pp. 173–175.

In tabular form shows the temperature of the water which had leaked into the well to a depth of 3,196 feet.

238 **Halse** (Edward). Notes on some gold-bearing veins of Zacatecas, Mexico.

Eng. and Mg. Jour., vol. lviii, p. 78 and pp. 105–107.

Notes on the vein structure and character of the ore.

239 —— Gold in Zacatecas, Mexico.

Eng. and Mg. Jour., vol. lviii, pp. 605–606.

Brief description of the ore deposits.

240 **Harrington** (B. J.). The composition of limestones and dolomites from a number of geological horizons in Canada.

Can. Rec. Sci., vol. vi, pp. 27–32.

Gives the chemical composition of Cambrian, Silurian, Carboniferous, and Triassic limestones from different localities of Canada.

241 —— On nepheline, sodalite, and orthoclase from the nepheline syenite of Dungannon, Hastings County, Ontario.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 16–18.

Abstract: Am. Geol., vol. xiv, p. 68 (5 l.).

Describes the chemical composition of the minerals mentioned.

242 **Harris** (Gilbert D.). The Tertiary geology of southern Arkansas.

Ark. Geol. Surv., Ann. Rept., 1892, vol. ii, pp. 1-207, with geologic map, pls. i-vii, and figs. 1-34.

Abstracts: Jour. of Geol., vol. ii, p. 867 (⅛ p.); Am. Geol., vol. xiv, pp. 394-395 (⅛ p.).

Reviews the literature on the Tertiary of this region. Describes the character of the rocks on which the Tertiary beds were deposited, the different stages of the Tertiary epoch and the fossil fauna, and includes the author's summary.

243 —— On the geological position of the Eocene deposits of Maryland and Virginia.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 391-304, figs. 1-3.

Reviews previous determinations of fossils collected in this region and gives a general section of the Eocene series of the Southern States.

244 **Harris** (Hunter L.). A new instance of stream capture.

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 27-29.

Describes briefly the drainage of Hominy Creek and Pigeon River, in North Carolina.

245 **Harris** (T. W.). The kames of the Oriskany Valley [New York].

Am. Geol., vol. xiii, pp. 384-390.

Describes the drainage systems of central and western New York and the glacial deposits of the Oriskany Valley.

246 **Hastings** (J. B.). Some notes on Idaho mines.

Eng. and Mg. Jour., vol. lvii, pp. 267-268 (correspondence).

Describes placer deposits of Snake River Valley.

247 —— The Boise Basin, in Idaho.

Sci. Am. Suppl., vol. xxxviii, pp. 15540-15541; Eng. and Mg. Jour., vol. lviii, p. 56.

Describes the placer deposits and the character and structure of the quartz veins from which the placer gold was derived.

248 **Hatcher** (J. B.) A median horned rhinoceros from the Loup Fork beds of Nebraska.

Am. Geol., vol. xiii, pp. 149-150.

Names and describes Teleoceras major, a new genus from the Loup Fork beds of Nebraska.

249 —— Discovery of Diceratherium, the two-horned rhinoceros, in the White River beds of South Dakota.

Am. Geol., vol. xiii, pp. 360-361 (correspondence).

Describes the type specimen found in the Oreodon beds (Protoceras beds of Wortman).

250 —— On a small collection of vertebrate fossils from the Loup Fork beds of northwestern Nebraska; with note on the geology of the region.

Am. Nat., vol. xxviii, pp. 236-248, pls. i-ii.

Describes two new species from the Miocene of Nebraska and the lithologic character and structure of the Loup Fork beds in which they are found.

251 **Haworth** (Erasmus). Relative value of limestone, sandstone, and shale for stratigraphic work in Kansas.

Kans. Univ. Quart., vol. ii, pp. 102–104.

States that in Kansas the limestones are more important for stratigraphic purposes than either sandstone or shale, on account of their regularity and persistency in lateral extent.

252 —— A geologic section along the Atchison, Topeka and Santa Fe Railroad, from Cherryvale to Lawrence and from Ottawa to Holliday [Kansas].

Kans. Univ. Quart., vol. ii, pp. 118–126.

Describes the strata along the line of this section and correlates certain beds with those of other sections previously described.

253 —— Résumé of stratigraphy of eastern Kansas.

Kans. Univ. Quart., vol. ii, pp. 126–129.

Gives a general sketch of the succession of the formations in eastern Kansas as shown by the several sections previously described.

254 —— The topography of eastern Kansas.

Kans. Univ. Quart., vol. ii, pp. 129–136.

Describes the general topographic features of eastern Kansas.

255 —— The surface gravels of eastern Kansas.

Kans. Univ. Quart., vol. ii, pp. 136–142.

Describes the distribution of the gravels, and considers that they are residual products derived from the weathering of the underlying formations.

256 —— and **Kirk** (M. Z.). A geologic section along the Neosho River from the Mississippian formation of the Indian Territory to White City, Kans., and along the Cottonwood River from Wyckoff to Peabody.

Kans. Univ. Quart., vol. ii, pp. 104–115.

Describes the limestones, sandstones, and shales outcropping along the Neosho and Cottonwood rivers.

257 —— and **Piatt** (W. H. H.). A geologic section along the Verdigris River from the State line to Madison [Kans.]

Kans. Univ. Quart., vol. ii, pp. 115–118.

Describes the stratigraphy along the Verdigris River.

258 **Hayes** (C. Willard). Geology of a portion of the Coosa Valley, in Georgia and Alabama.

Geol. Soc. Am., Bull., vol. v, pp. 465–480, pl. 18.

Abstract: Am. Geol., vol. xiii, p. 142 (8 l.).

Describes the physical features of the region and the succession of the Cambrian, Silurian, and Devonian rocks. Discusses the structure and gives a sketch of its Paleozoic and post-Paleozoic history.

259 —— On the Devonian (Oriskany) in the southern Appalachians.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 237–238 (communicated).

Mentions fossils of Devonian facies found in a ferruginous sandstone in Alabama which rests on Trenton or Hudson River strata. Considers the unconformity between the beds to be due to overlap of deposition and not to faulting.

260 **Hayes** (C. Willard). Ringgold folio. Georgia, Tennessee.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 2.

Describes the geography and the occurrence and character of the Cambrian, Silurian, Devonian, and Carboniferous strata and the mineral resources, including coal, iron, and the soils, of the region. Includes topographic, colored areal geologic, economic geologic, and structure section maps and a sheet of columnar sections.

261 —— Kingston folio. Tennessee.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 4.

Describes the geography and drainage, the occurrence and lithologic character of the Cambrian, Silurian, Devonian, and Carboniferous strata, the geologic structure and the occurrence of coal, iron ores, and soils of the region. Includes topographic, colored areal geologic, economic geologic, and structure section maps and a sheet of columnar sections.

262 —— Chattanooga folio. Tennessee.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 6.

Describes the physiography, the occurrence and distribution of the Cambrian, Silurian, Devonian, and Carboniferous strata, the geologic structure, and the coal and iron deposits and soils of the region. Includes topographic, colored areal geologic, economic geologic, and structure section maps and a sheet of columnar sections.

263 —— Sewanee folio. Tennessee.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 8.

Describes the physiography and drainage of the region, the occurrence and distribution of the Silurian, Devonian, and Carboniferous strata, the geologic structure and the mineral resources, including coal and iron. Contains topographic, colored areal geologic, economic geologic, and structure section maps and a sheet of columnar sections.

264 —— and **Campbell** (M. R.). Geomorphology of the southern Appalachians.

Nat. Geog. Mag., vol. vi, pp. 63–126, pls. 4–6.

Reviews the previous work in the region. Describes the several types of the deformed Cretaceous peneplain, the deformation of the Cretaceous and Tertiary peneplains, and the drainage development as affected by dynamic movements. Includes a discussion of the sedimentary record.

265 **Herrick** (C. L.). Observations upon the so-called Waverly group of Ohio.

Ohio Geol. Surv., vol. vii, pp. 495–515.

Describes the character and distribution of the Waverly strata and gives list of fossils from different localities.

266 **Hershey** (Oscar H.). The Elk Horn Creek area of St. Peter sandstone, in northwestern Illinois.

Am. Geol., vol. xiv, pp. 169–179, with map.

Describes the lithologic character of the Lower Magnesian limestone, the St. Peter sandstone, and the Trenton limestone in the area and the deformation they have undergone. Gives a general summary of the geologic features of the region.

266*a* **Hershey** (Oscar H.). The Pleistocene rock gorges of northwestern Illinois.

Abstract: Jour. of Geol., vol. ii, pp. 240–241.

Noticed in Bibliography and Index for 1892 and 1893.

267 **Hilgard** (E. W.). [Correlation of clastic rocks.]

Int. Cong. Geol., Compte Rendu, 5th session, p. 167 (7 l).

Remarks on the consideration of the abundance and scarcity of species in the correlation of strata.

268 **Hill** (B. H.). Notes on Uintacrinus socialis Grinnell.

Kans. Univ. Quart., vol. ii, pp. 20–21.

Gives a diagram and brief description of the crinoid.

269 **Hill** (E. J.). An early observation on the history of the Great Lakes.

Am. Geol., vol. xiv, p. 405 (½ p.) (correspondence).

Gives an extract from a report of Alexander Henry in 1761, published in 1809.

270 **Hill** (Robert T.). Notes on the Tertiary and later history of the Island of Cuba.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 196–212.

Describes the metamorphic and igneous rocks, the pre-Tertiary sedimentaries, the Tertiary limestones, the post-Tertiary folding, the terraces and elevated coral reefs, and the cienagas. Discusses the different phases of the geologic history of the island as indicated by its topography.

271 —— Geology of parts of Texas, Indian Territory, and Arkansas adjacent to Red River.

Geol. Soc. Am., Bull., vol. v, pp. 297–338, pls. 12–13.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 141 (⅔ p.); Am. Geol., vol. xiii, pp. 208–209 (½ p.).

Describes the physiography of the region. Gives a list of the Cretaceous, Tertiary, and Pleistocene formations and their subdivisions, whose outcrops at different localities are described. Gives lists of fossils found at certain horizons, discusses the oscillations of land and sea, and includes the author's conclusions as to the Cretaceous section of the region. Plate 12 contains a geologic map and cross sections.

272 **Hillebrand** (W. F.). [Beaver Creek meteorite.]

Am. Jour. Sci., 3d. ser., vol. xlvii, pp. 431–435.

Discusses the chemical composition of this meteorite.

273 **Hind** (Wheelton). [On the occurrence of the genus Naiadites in the coal formation of Nova Scotia.]

Geol. Soc. London, Quart. Jour., vol. l, pp. 437–442.

Gives a list of synonyms of Naiadites and describes the character of the genus.

274 **Hinde** (George Jennings). Note on the radiolarian chert from Angel Island and from Buri-Buri Ridge, San Mateo County, Cal.

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 235–240.

Describes the occurrence of Radiolaria in cherts and the details of those forms which can be partially identified.

275 **Hinde** (George Jennings). [Origin of the novaculites of Arkansas.]
Geol. Soc. London, Quart. Jour., vol. l, pp. 391-392.
In discussion of paper by F. Rutley on the "Origin of certain novaculites and quartzites."

276 **Hitchcock** (C. H.). Glaciation of the White Mountains, New Hampshire.
Geol. Soc. Am., Bull., vol. v, pp. 35-37.
Discusses the evidences which indicate that glaciation has extended over the highest of the White Mountains.

276*a* —— Ancient eruptive rocks in the White Mountains.
Abstract: Am. Geol., vol. xiii, p. 213 (¼ p.).

277 **Hobbs** (William H.). Volcanite, an anorthoclase-augite rock chemically like the dacite.
Abstracts: Geol. Soc. Am., Bull., vol. v, pp. 598-602; Am. Geol., vol. xiii, p. 214 (7 l.).
Describes the petrographic character and chemical composition of a volcanic rock from the Lipari Islands.

278 —— On a recent diamond find in Wisconsin and of the probable origin of this and other Wisconsin diamonds.
Am. Geol., vol. xiv, pp. 31-35, with map.
Describes the location and occurrence of the diamonds that have been found in Wisconsin.

279 —— Differential faults.
Am. Geol., vol. xiv, pp. 35-37.
Describes a strike fault occurring in the Green Mountains of Massachusetts and Connecticut.

279*a* —— Geological structure of the Hoosatonic Valley, lying east of Mount Washington, Massachusetts.
Abstract: Am. Geol., vol. xiii, p. 142 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

279*b* —— The geologic structure of the Mount Washington mass of the Taconic range.
Abstract: Am. Nat., vol. xxviii, pp. 158-160.
Noticed in Bibliography and Index for 1892 and 1893.

280 **Hollick** (Arthur). Additions to the paleobotany of the Cretaceous formation of Long Island [New York].
Torrey Bot. Club, Bull., vol. xxi, pp. 49-65, pls. 174-180.
Abstract: Am. Jour. Sci., 3d ser., vol. xlvii, p. 402.
Describes eight new species from this horizon.

281 —— Fossil salvinias, including description of a new species.
Torrey Bot. Club, Bull., vol. xxi, pp. 253-257, pl. 205.
Refers to the literature of this genus and describes Salvinia elliptica Newb. from the Upper Cretaceous of Washington.

282 —— A new fossil nelumbo from the Laramie group at Florence, Colo.
Torrey Bot. Club, Bull., vol. xxi, pp. 307-310.
Describes and figures a leaf of Nelumbo laramiensis n. sp.

283 **Hollick** (Arthur). Observations on the geology and botany of Marthas Vineyard [Mass.].
N. Y. Acad. Sci., vol. xiii, pp. 8–22.
Abstract: Am. Nat., vol. xxviii, pp. 265–266 (⅓ p.).
Reviews the previous descriptions of the geology of Marthas Vineyard.

284 —— [On previous descriptions of Spiraxis major and Spiraxis randalli from the Chemung sandstones.]
N. Y. Acad. Sci., Trans., vol. xiii, pp. 118–119.
Refers to descriptions of these species by Dr. Newberry and compares them with Cladoselache newberryi.

285 —— Some further notes on the geology of the north shore of Long Island [New York].
N. Y. Acad. Sci., Trans., vol. xiii, pp. 122–130.
Abstract: Am. Jour. Sci., 3d ser., vol. xlvii, p. 402.
Discusses the evidences which indicate the presence of Cretaceous strata and the distribution of the glacial deposits in this region.

285*a* —— Recent investigations in the Cretaceous formation on Long Island, New York.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 175 (½ p.).

286 —— Notes on the northward extension of the Yellow Gravel in New Jersey, Staten Island, Long Island, and eastward.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, pp. 175–176.
Brief note on the distribution of the Yellow Gravel.

287 **Holmes** (J. A.) Geology of the sand-hill country of the Carolinas.
Abstract: Geol. Soc. Am., Bull., vol. v, pp. 33–34.
Describes the section between the Neuse and Savannah rivers and the general features of the Cretaceous and Tertiary deposits.

288 **Holst** (Nils Olaf). [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 197–198.
Remarks on the unity of the Glacial period.

289 **Hopkins** (T. C.). Springs: the influence of stratigraphy on their emergence, as illustrated in the Ozark uplift.
Am. Geol., vol. xiv, pp. 365–368, with map.
Gives a general section of Paleozoic strata of northern Arkansas and describes the characters of the beds and the distribution of the springs.

289*a* —— Marbles and other limestones.
Reviews: Jour. of Geol., vol. ii, pp. 339–341, by R. A. F. Penrose, jr.; Am. Nat., vol. xxviii, p. 337 (⅓ p.).
Noticed in Bibliography and Index for 1892 and 1893.

289*b* —— **Simonds** (F. W.) and. The geology of Benton County, Ark.
Ark. Geol. Surv., Ann. Rept., 1891, vol. ii, pp. 1–75.
See Simonds (F. W.) and Hopkins (T. C.), No. 511.

290 **Hovey** (E. O.). Microscopic structure of siliceous oolite.
Geol. Soc. Am., Bull., vol. v, pp. 627–629, pl. 21.
Abstract: Am. Geol., vol. xiii, pp. 223–224 (½ p.).
Describes the microscopic structure of siliceous oolite from Pennsylvania and New Jersey.

291 **Hovey** (E. O.). A study of the cherts of Missouri.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 401–409.
Abstracts: Jour. of Geol., vol. ii, p. 756 (½ p.); Am. Geol., vol. xiv, p. 196 (½ p.).
Describes the petrographic and chemical characteristics of the cherts and discusses their origin.

292 —— Note on the petrography of certain basaltic bowlders from Thetford, Vt.
N. Y. Acad. Sci., Trans., vol. xiii, pp. 161–164.
Gives a chemical analysis of the material and describes the petrographic characters.

292*a* **Howe** (W. T. H.), **Penfield** (S. L.) and. On the chemical composition of chondrodite, humite, and clinohumite.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 188–206.
See Penfield (S. L.) and Howe (W. T. H.), No. 417.

293 **Howell** (Edwin E.). Beaver Creek meteorite.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 430–435.
Describes the locality and finding of this meteorite and includes a discussion of its chemical composition by W. F. Hillebrand and of its microscopic characters by G. P. Merrill.

294 **Howorth** (Henry). [Mammoth remains of Canada and Alaska.]
Geol. Soc. London, Quart. Jour., vol. l, pp. 8–9.
In discussion of paper by G. M. Dawson on "Notes on the occurrence of mammoth remains in the Yukon district of Canada and Alaska."

295 **Hubbard** (Lucius L.). Macroscopic minerals of Michigan.
Michigan, Rept. of the State Board of Geol. Surv. for 1891 and 1892, pp. 174–176.
Gives a list of macroscopic minerals found in Michigan.

296 **Hughes** (T. McKenny). [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, p. 59 (¼ p.).
Remarks on the complexity of the data to be considered in the correlation of rocks.

297 —— [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 194–195.
Remarks on the possibility of chronologic and genetic classifications.

298 —— Note on Walnut Canyon and its cliff dwellings.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 475–476.
Describes the Carboniferous section exposed in this canyon.

299 **Hull** (Edward). [Mammoth remains of Canada and Alaska.]
Geol. Soc. London, Quart. Jour., vol. l, p. 9 (¼ p.).
In discussion of paper by G. M. Dawson, "Notes on the occurrence of mammoth remains in the Yukon district of Canada and Alaska."

300 —— [Origin of the novaculites of Arkansas.]
Geol. Soc. London, Quart. Jour., vol. l, p. 392 (½ p.).
In discussion of paper by F. Rutley on the "Origin of certain novaculites and quartzites."

301 **Huntington** (Oliver Whipple). Further observations upon the occurrence of diamonds in meteorites.

Am. Acad. Arts Sci., Proc., vol. xxix, pp. 204–211.

Abstract: Am. Geol., vol. xiii, pp. 284–285 (½ p.).

Gives an account of the experiments employed in determining the presence of diamonds in the Canyon Diablo meteorite.

302 —— The Smithville meteoric iron.

Am. Acad. Arts Sci., Proc., vol. xxix, pp. 251–260, figs. 1–2.

Gives a chemical analysis of the material and an account of the finding of other meteoric iron masses in this portion of Tennessee, and the evidences indicating that they possess common characteristics and may have formed originally a part of the same mass.

302*a* —— **Kunz** (George F.) and. The diamond in the Canyon Diablo meteoric iron.

Abstract: Eng. and Mg. Jour., vol. lvii, p. 394.

Noticed in Bibliography and Index for 1892 and 1893.

303 **Hurlburt** (E. B.). On alunite from Red Mountain, Ouray County, Colo.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 130–131.

Describes the chemical and crystallographic characters of alunite from Colorado.

304 **Hyatt** (Alpheus). Trias and Jura in the Western States.

Geol. Soc. Am., Bull., vol. v, pp. 395–434.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, pp. 142–143; Am. Geol., vol. xiii, p. 148 (⅔ p.).

Discusses the age and faunal relations of the American and Sailors canyons deposits, California, and describes the fauna of the Upper Jura of California. Discusses the relative age of the rocks and describes the characters of fossils from different localities.

305 —— Phylogeny of an acquired characteristic.

Am. Phil. Soc., Proc., vol. xxxii, pp. 349–640, pls. 1–14.

Describes the evidences which show that the tendency of shells toward becoming arcuate and coiled is general in the descendants of straight shells and not confined to any special series or time. Describes genera and species of Nautiloidea.

I.

305*a* **Iddings** (Joseph P.). The eruptive rocks of Electric Peak and Sepulchre Mountain, Yellowstone National Park.

Abstract: Am. Geol., vol. xiv, pp. 117–118.

Noticed in Bibliography and Index for 1892 and 1893.

305*b* —— Genetic relationships among igneous rocks.

Abstracts: Am. Nat., vol. xxviii, p. 515 (½ p.); Am. Geol., vol. xiii, p. 195 (10 l).

Noticed in Bibliography and Index for 1892 and 1893.

305*c* —— A dissected volcano.

Abstract: Am. Nat., vol. xxviii, p. 603 (⅓ p.).

Noticed in Bibliography and Index for 1892 and 1893.

306 **Iddings** (Joseph P.). Petrographical character of the lavas.
U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 520–524.
Describes the petrographic character of the basaltic rocks collected by C. D. Walcott in the Grand Canyon of the Colorado.

307 —— and **Weed** (Walter H.). Livingston Folio. Montana.
U. S. Geol. Surv., Geologic Atlas of the United States, folio 1.
Abstract: Am. Jour. Sci., 3d ser., vol. xlviii, pp. 170-172.
Describes the geography and topography, the geologic relations of the mountain ranges, the character and occurrence of the Algonkian, Cambrian, Devonian, Carboniferous, Juratrias, Cretaceous, Tertiary, and Pleistocene strata and of the igneous rocks, and the occurrence of gold and coal. Includes topographic, colored areal geologic, economic geologic, and structure section maps, and a sheet of columnar sections.

307*a* —— Yellowstone Valley from Livingston to Cinnabar.
Int. Cong. Geol., Compte Rendu, 5th Session, pp. 326–335.
See Weed (W. H.) and Iddings (J. P.), No. 615.

307*b* **Indiana, Department of Geology and Natural Resources.** Eighteenth Annual Report, 1893.
Abstract: Am. Geol., vol. xiv, pp. 125–126.

308 **Ingall** (Elfric Drew). Preliminary note on the limestones of the Laurentian system.
Can. Rec. Sci., vol. vi, pp. 88–91.
Describes the inclusions of gneisses and similar rocks in these limestones, and considers that they represent areas of gneiss altered into limestone in place and that their location has been determined by the bends and contortions of these rocks.

309 **Ingersoll** (Charles A.). On hemimorphic wulfenite crystals from New Mexico.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 193–195.
Describes the crystallographic characters of the crystals.

310 **Ingram** (Henry B.). The great bluestone industry.
Pop. Sci. Monthly, vol. xlv, pp. 352–359.
Abstract: Jour. of Geol., vol. ii, p. 647 (½ p.).
Describes the occurrence and character of flagstones in New York of Devonian age.

J.

311 **James** (Joseph F.). On the value of supposed algæ as geological guides.
Am. Geol., vol. xiii, pp. 95–101.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, pp. 172–173 (⅓ p.).
Quotes from different authors as to the geologic occurrence and range of algæ and their value as evidence in determining geologic horizons.

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

Cin. Soc. Nat. Hist., Jour., vol. xvi, pp. 178–208.

Continues the description of fossils found in the Cincinnati group, from vol. xv, p. 159.

313 —— The St. Peters sandstone.

Cin. Soc. Nat. Hist., Jour., vol. xvii, pp. 115–135.

Gives a historical sketch of the earlier description of the St. Peters sandstone. Describes its distribution and lithologic character and mentions some of the fossils found in it.

313*a* —— Remarks on the genus Arthrophycus Hall.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 172 (⅓ p.).

313*b* —— Studies in problematic organisms: the genus Fucoides.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 173 (9 l.).

314 **Jardin** (Ed.). Formation du tuf calcaire ou travertin et des dépots siliceux par la végetation des sources d'eau chaude.

Soc. Acad. de Brest, 2d ser., vol. xix, pp. 33–75.

Reviews the paper by W. H. Weed on the travertine deposits of the Yellowstone National Park and mentions the occurrence of deposits by hot spring waters in Virginia, Arkansas, and California.

315 **Jenney** (Walter P.). The lead and zinc deposits of the Mississippi Valley.

Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 171–225 and 642–646.

Describes the topography of the lead and zinc mining regions of the Mississippi Valley, the secular upheavals and depressions, their influence on the formation of the ore deposits and the geologic occurrence of the ore bodies in Missouri and Wisconsin, and discusses the theories as to their manner of formation and deposition.

316 **Jennings** (E. P.). The Mesabi iron range.

Science, vol. xxiii, p. 73.

Describes the character and structure of the ore bodies in this region.

317 **Joggar** (T. A., jr.). Some conditions of ripple marks.

Am. Geol., vol. xiii, pp. 199–201 (correspondence).

Reviews paper by J. E. Spurr on "False bedding in stratified drift deposits."

318 **Jones** (Arthur J.). Coal Measures of Powsheik County [Iowa].

Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 59–60.

Brief note on the occurrence of Coal Measures in this county.

319 —— Cardiocarpus in Iowa.

Iowa Acad. Sci., Proc., vol. i, pt. iv, p. 61.

Note on the occurrence of seeds of this genus found in a seam of bituminous coal.

320 **Jordan** (E. T. J.). Natural gas.

Ind. Dept. Geol. and Nat. Res., 18th Rept., pp. 198–218.

Discusses the evidences as to the loss of pressure in the gas wells of Indiana and the origin of natural gas.

K.

321 **Keith** (Arthur). Harpers Ferry folio. Maryland, Virginia, and West Virginia.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 10.

Describes the geography and drainage of the region, the occurrence of quartz-porphyry, andesite, Catoctin schist, and diabase, the occurrence and distribution of the Cambrian, Juratrias, and Tertiary strata, the geologic structure and the deposits of iron, copper, and building stones. Includes topographic, colored areal geologic, economic geologic, and structure section maps.

322 —— Geology of the Catoctin belt.

U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 285–395, pls. xix–xxxix, fig. 43.

Describes the physical features and reviews the literature of this region—the eastern mountain belt of Maryland and Virginia. Describes the occurrence and composition of the granite, quartz-porphyry, andesite, and Catoctin schist, and discusses the relations of these igneous and volcanic rocks. Describes the occurrence and lithologic composition of the sedimentary beds of Cambrian, Silurian, and Juratrias age. Discusses the geologic structure and the geomorphology of the region.

323 **Kemp** (James Furman). Preliminary report on the geology of Essex County [N. Y.].

N. Y. State Mus., 47th Ann. Rept., pp. 627–666.

Gives a list of 38 papers on the geology and mineralogy of the Adirondacks. Discusses the general geologic relations and reviews the schemes of classification of rocks of this region previously published. Describes the geology of the different townships of the county, illustrated by maps showing the distribution of the crystalline and sedimentary formations.

324 —— [Relation of deformation to ore deposition.]

Geol. Soc. Am., Bull., vol. v, p. 32 (½ p.).

In discussion of paper by W. P. Blake on the "Wisconsin lead and zinc deposits."

325 —— Gabbros on the western shore of Lake Champlain [N. Y.].

Geol. Soc. Am., Bull., vol. v, pp. 213–224.

Abstracts: Am. Geol., vol. xiii, pp. 214–215 (½ p.); Am. Nat., vol. xxviii, pp. 947–948.

Reviews the previous descriptions of the geology of the Adirondacks; describes the distribution of the gabbros, the composition of the anorthosytes, the occurrence and petrographic character of the basic gabbros, the titaniferous magnetite ore bodies and the contacts of gabbro and limestone.

326 —— The ore deposits at Franklin Furnace and Ogdensburg, N. J.

N. Y. Acad. Sci., Trans., vol. xiii, pp. 76–96.

Abstract: Am. Geol., vol. xiv, p. 202 (½ p.).

Describes the minerals and ore bodies of these localities; describes the general geologic relations, the character, and the structure of the ore bodies and discusses the origin of the ore. Gives a list of all minerals and a list of 32 papers on minerals and ores found at these localities.

327 **Kemp** (James Furman). An orbicular granite from Quonochontogue Beach, Rhode Island.

N. Y. Acad. Sci., Trans., vol. xiii, pp. 140–144, pl. ii.

Abstract: Am. Geol., vol. xiv, p. 53 (⅓ p.).

Describes the occurrence of granite bowlders and their petrographic character.

328 —— Additional note on leucite, in Sussex County, N. J.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 339–340.

Abstract: Am. Nat., vol. xxviii, p. 873 (6 l.).

Describes the occurrence of leucite in a dike rock of this locality.

328*a* —— and **Hollick** (A.). The granite at Mounts Adam and Eve, Warwick, Orange County, N. Y.

Abstract: Am. Geol., vol. xiii, p. 427 (⅓ p.).

Noticed in Bibliography and Index for 1892 and 1893.

328*b* —— and **Marsters** (V. F.). The trap dikes of the Lake Champlain region.

Abstract: Am. Geol., vol. xiii, pp. 426–427 (⅔ p.).

Noticed in Bibliography and Index for 1892 and 1893.

329 **Kennedy** (W.) Geology of Jefferson County, Tex.

Am. Geol., vol. xiii, pp. 268–275.

Gives the section displayed by a well boring to a depth of 400 feet. The greater portion of the county is considered to be of very recent origin.

330 —— The age of the iron ores of east Texas.

Science, vol. xxiii, pp. 22–25.

Reviews the work previously done in this region. Describes the character of the ore bodies and discusses the evidence bearing on their geologic age.

331 **Keyes** (Charles Rollin). Crustal adjustment in the Upper Mississippi Valley.

Geol. Soc. Am., Bull., vol. v, pp. 231–242.

Abstract: Am. Geol., vol. xiii, pp. 210–211 (⅓ p.).

Describes the structure and character of the deformations of the Carboniferous basin of the Mississippi Valley and the character of the folds and faults of the region. Includes the author's summary of conclusions.

332 —— The nature of coal horizons.

Jour. of Geol., vol. ii, pp. 178–186.

Describes the character of a coal horizon at time of formation, the stratigraphy of coal beds, and a coal horizon as it now exists.

333 —— Origin of anthracite.

Am. Geol., vol. xiii, p. 411–415.

Reviews a paper by J. J. Stevenson on the origin of anthracite and describes some of the physical changes which vegetable material undergoes in the formation of coal.

333*a* **Keyes** (Charles Rollin). Coal deposits of Iowa.
Iowa Geol. Surv., vol. ii, p. 536, pls. i-xviii, figs. 1-222.
Discusses the origin of coal. Describes the geologic features of the Carboniferous basin of the Mississippi Valley, the geology of the coal area, the lithologic and stratigraphic characteristics of the Coal Measures, and the local features of the coal beds of the various counties of the State.

334 —— Cretaceous formations of northwestern Iowa.
Abstract: Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 24-25.
Mentions the subdivisions of the Cretaceous found in this part of Iowa.

335 —— Derivation of the Unione fauna of the Northwest.
Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 25-29.
Describes the geographic and geologic distribution of Unionidæ in North America.

336 —— Process of formation of certain quartzites.
Abstract: Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 29-31.
Describes the formation of the Sioux quartzite of Iowa.

336*a* —— The Coal Measures of Iowa.
Abstracts: Eng. and Mg. Jour., vol. lvii, pp. 269-270, 295-297, and 317-318; Am. Geol., vol. xiii, pp. 353-354.
Noticed in Bibliography and Index for 1892 and 1893.

336*b* —— Some Maryland granites and their origin.
Review: Am. Geol., vol. xiii, p. 63 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

336*c* —— Epidote as a primary constituent of eruptive rocks.
Review: Am. Geol., vol. xiii, p. 63 (¼ p.).
Noticed in Biliography and Index for 1892 and 1893.

336*d* **Kindle** (E. M.), **Marsters** (V. F.) and. Geologic literature of Indiana (stratigraphic and economic).
Ind. Acad. Sci., Proc., 1893, pp. 156-191.
See Marsters (V. F.) and Kindle (E. M.), No. 402.

336*e* **King** (Clarence). The age of the earth.
Smith. Inst., Ann. Rept., 1892-93, pp. 335-352.
Noticed in Bibliography and Index for 1892 and 1893.

337 **King** (Francis P.). A preliminary report on the corundum deposits of Georgia.
Ga. Geol. Surv., Bull. No. 2, pp. 133, with geologic map of north Georgia.
Gives a historical sketch of corundum and a description of its physical features, alterations, and associate minerals. Describes its geographic and geologic distribution in Georgia, and gives a list of 33 American papers on corundum.

338 —— Natural and artificial abrasives.
Ga. Geol. Surv., Bull. No. 2, pp. 119-133.
Describes the character and occurrence of pumice, infusorial earth, tripoli, buhrstone, grindstones, oilstones, and whetstones.

339 **Kingsley** (J. S.). The classification of the Arthropoda.
Am. Nat., vol. xxviii, pp. 118–135 and 220–235.
Reviews the previous classifications of Arthropoda, presents the author's scheme of classification, with a description of the characters of different groups, and includes a bibliography of the literature cited, consisting of 81 papers.

339*a* **Kirk** (M. Z.), **Haworth** (E.) and. A geologic section along the Neosho River from the Mississippian formation of the Indian Territory to White City, Kans., and along the Cottonwood River from Wyckoff to Peabody.
Kans. Univ. Quart., vol. ii, pp. 104–115.
See Haworth (E.) and Kirk (M. Z.), No. 256.

340 **Knowlton** (F. H.). Fossil flora of Alaska.
Geol. Soc. Am., Bull., vol. v, pp. 573–590.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 137 (⅓ p.); Am. Geol., vol. xiii, p. 137 (4 l.).
Gives a historical review of the literature of the subject and a list of fossil plants heretofore collected in Alaska, and discusses the geologic age of the beds as shown by the fossil flora.

341 —— Fossil wood from the Black Hills, South Dakota.
Jour. of Geol., vol. ii, pp. 260–261.
Describes the structure of the wood of genus Araucarioxylon.

342 —— Fossil plants as an aid to geology.
Jour. of Geol., vol. ii, pp. 365–382.
Abstract: Am. Geol., vol. xiv, p. 335 (¼ p.).
Discusses some of the principles of paleobotany, the use of fossil plants in restricted areas, the study of fossil plants by means of internal structure, and the subsidiary use of fossil plants.

343 —— Note on a few fossil plants from the Fort Union group of Montana, with a description of one new species.
U. S. Nat. Mus., Proc., vol. xvi, pp. 33-36, pls. i–ii.
Describes and figures Populus meedsii n. sp. and Pterospermites cupanioides Newby. sp.

344 —— A new fossil hepatic from the Lower Yellowstone in Montana.
Torrey Bot. Club., Bull., vol. xxi, pp. 458–460, pl. 219.
Describes and figures Precissites wardii n. gen. et sp.

344*a* **Kreider** (D. A.), **Penfield** (S. L.) and. Mineralogical notes.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 141–144.
See Penfield (S. L.) and Kreider (D. A.), No. 448.

334*b* **Kummel** (H. B.), **Salisbury** (R. D.) and. Surface geology. Lake Passaic, an extinct glacial lake.
N. J. Geol. Surv., Rept. for 1893, pp. 225–328.
See Salisbury (R. D.) and Kummel (H. B.), No. 492.

345 **Kunz** (George F.). Topaz from Texas.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 403–404 (communicated).
Gives the crystallographic measurements of topaz, and remarks on the characters of a diamond from Wisconsin.

346 **Kunz** (George F.). A new locality of true emeralds.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 429–430.
Describes the occurrence and physical character of emeralds found in North Carolina.

347 —— Mineralogical notes.
N. Y. Acad. Sci., Trans., vol. xiii, pp. 144–145.
Notes on topaz from Texas and diamonds from Wisconsin.

347*a* —— and **Huntington** (O. W.). The diamond in the Canyon Diablo meteoric iron.
Abstract: Eng. and Mg. Jour., vol. lvii, p. 394.
Noticed in Bibliography and Index for 1892 and 1893.

L.

348 **Lakes** (Arthur). Colorado's new gold camps.
Eng. Mag., vol. vii, pp. 623–638.
Describes the occurrence of gold ores at Cripple Creek, the silver ores of Creede, and the newly discovered gold belt at Leadville.

349 **Lane** (Alfred C.). Geologic activity of the earth's originally absorbed gases.
Geol. Soc. Am., Bull., vol. v, pp. 259–280.
Abstract: Am. Geol., vol. xiii, pp. 138–139.
Describes the nature of the absorbed gases and their importance in the crystallization of plutonic rocks. Discusses the possibility of deep-seated cracking, igneous phenomena and their causes, and the characteristics of contact and magmatic zones.

350 —— Microscopic characters of rocks and minerals of Michigan.
Michigan, Rept. of State Board of Geol. Surv. for 1891–92, pp. 176–183.
Describes the occurrence of quartz-diabase, amphibolite and hornblende schists and lamprophyres.

351 —— What is Archean?
Science, vol. xxiii, p. 128.
Discusses the use of the terms Azoic and Archean.

352 **Lawson** (Andrew C.). The geology of Carmelo Bay.
Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 1–59, pls. 1–4.
Abstract: Am. Nat., vol. xxviii, pp. 57–58.
Describes the general physiography and geology of the region, the petrographic characters of the Santa Lucia granite of the Carmelo and Monterey series and of the eruptive rocks. Discusses the evidences of the ancient baselevels of the Pacific Coast. In this work Professor Lawson was assisted by Mr. Juan de la C. Posada.

353 —— The Post-Pliocene diastrophism of the coast of southern California.
Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 115–160, pls. 8–9.
Reviews: Jour. of Geol., vol. ii, pp. 235–238, by R. D. Salisbury; Am. Geol., vol. xiv, pp. 335–338; Am. Nat., vol. xxviii, pp. 340–341 (½ p.).
Discusses the evidences which indicate an uplift of 800 to 1,500 feet along the coast of southern California during post-Pliocene time, and of a differential movement of the crust in the same region.

354 **Lawson** (Andrew C.). The geomorphology of the coast of northern California.

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp, 241–272.

Discusses the evidences of a general uplift along the northern California coast line in Pliocene time and of the more recent subsidence of the Golden Gate.

355 —— A multiple diabase dike.

Am. Geol., vol. xiii, pp. 293–297, pl. vii.

Describes a diabase dike occurring on an island near the northeast coast of Lake Superior, in which the dike is split up into 28 vertically intrusive sheets in a breadth of 14 feet. These sheets represent but one invasion of the magma, and the granite which they penetrate is apparently homogeneous.

356 —— Note on the Chehalis sandstone.

Am. Geol., vol. xiii, pp. 436–437 (correspondence).

Describes the occurrence of this sandstone in Washington, mentions the fossils found in it, which indicate that it belongs to the Eocene or Miocene, and discusses its bearing in determining the age of the Puget group.

357 **Leonhard** (A. G.). Occurrence of zinc in northeastern Iowa.

Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 48–52.

Describes the character and occurrence of the ore and discusses the manner of its deposition.

358 —— Satin spar from Dubuque [Iowa].

Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 52–55.

Describes the occurrence of calcite in a cave near Dubuque, Iowa.

359 **Leverett** (Frank). [Origin of the "fringe."]

Geol. Soc. Am., Bull., vol. v, p. 17 (7 l.).

In discussion of remarks by W. Upham on the "Origin of the fringe on Long Island."

360 —— [Character of material deposited during the retreat of the ice sheet.]

Geol. Soc. Am., Bull., vol. v, p. 84 (¼ p.).

In discussion of paper by Warren Upham on "Evidences of the derivation of the kames, eskers, and moraines of the North American ice sheet, chiefly from its englacial drift."

360*a* —— Changes of drainage in the Rock River Basin, in Illinois.

Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 179 (⅛ p.); Am. Geol., vol. xii, p. 179 (⅛ p.).

360*b* —— Evidences of the diversity of the older drift in northwestern Illinois.

Abstract: Am. Geol., vol. xii, p. 229 (⅛ p.).

360*c* —— **Chamberlin** (T. C.) and. Further studies of the drainage features of the Upper Ohio Basin.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 247–283.

See Chamberlin (T. C.) and Leverett (Frank), No. 63.

360*d* **Lewis** (Henry Carvill). Papers and notes on the Glacial geology of Great Britain and Ireland. Edited by Henry W. Crosskey.
London: Longmans, Green & Co., 1894.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlviii, pp. 73–74; Jour. of Geol., vol. ii, pp. 747–750, by T. C. Chamberlin.

361 **Lincoln** (D. F.). The amount of glacial erosion in the Finger Lake region of New York.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 105–113.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, pp. 177–178.
Describes the outcrops of Silurian and Devonian strata and the topography and glaciated deposits in this region. Discusses the origin of the trough-like lake basins and includes a bibliography.

362 **Lindgren** (Waldemar). Sacramento folio. California.
U. S. Geol. Surv., Geologic Atlas of the United States, folio 5.
Describes the geology of the gold belt of California and the occurrence of the auriferous slates, igneous rocks, Tertiary and Pleistocene strata, and the gold, copper, and iron deposits of the region. Includes topographic, colored areal geologic, economic geologic, and structure section maps.

363 —— The gold-silver mines of Ophir, Cal.
U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 243–284, pls. xvii–xviii.
Describes the topographic and geologic features of the region, the petrographic characters of the granodiorite, amphibolite, and dike rocks, the different vein systems, the mineralogic characters of the ores, and the distribution of gold and silver in the veins. Discusses the movements along the veins and gives the author's conclusions.

364 —— An auriferous conglomerate of Jurassic age from the Sierra Nevada.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 275–280.
Describes the lithologic character and the structure of the Mariposa and Calaveras formations of Jurassic and Carboniferous age occurring in Placer County, Cal., and gives a summary of the author's conclusions.

365 —— and **Turner** (H. W.). Placerville folio. California.
U. S. Geol. Surv., Geologic Atlas of the United States, folio 3.
Describes the general geology of the gold belt of California and the occurrence and distribution of the auriferous slates and Neocene gold-bearing gravels of the region. Includes topographic, colored areal geologic, economic geologic, and structure section maps.

366 **Lonsdale** (E. H.). Southern extension of the Cretaceous in Iowa.
Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 39–43.
Mentions some of the exposures of the Cretaceous in Iowa and describes the topography of the region in which they occur and the removal of portions of these beds by the glacial ice sheet.

367 —— Topography of the granite and porphyry region of Missouri.
Iowa Acad. Sci., Proc., vol. i, pt. iv., pp. 43–48.
Describes the topography of the region and its relation to the Archean and Cambrian rocks of the region.

368 **Luther** (D. D.). Report on the geology of the Livonia salt shaft [New York].

N. Y. State Mus., 47th Ann. Rept., pp. 219-324.

Describes the geologic formations passed through in sinking the Livonia shaft to a depth of 1,432 feet and gives the vertical section displayed and a list of fossils found at various horizons.

369 **Lyman** (Benjamin Smith). Age of the Newark brownstone.

Am. Phil. Soc., Proc., vol. xxxiii, pp. 5-10.

Abstract: Am. Geol., vol. xiii, p. 284 (6 l.).

Quotes from several descriptions of fossils found at this horizon, which indicate that some of these beds may be of Paleozoic rather than of Mesozoic age.

370 —— Some new red horizons.

Am. Phil. Soc., Proc., vol. xxxiii, pp. 192-215, three plates.

Abstracts: Jour. of Geol., vol. ii, pp. 644-645; Am. Nat., vol. xxviii, pp. 878-879.

Reviews the evidences on which the red horizons east of the Blue Ridge have been assigned to the Mesozoic. Describes the outcrops in Connecticut, New Jersey, Pennsylvania, Virginia, and North Carolina, and gives lists of all the fossils found at different localities in these States. Considers that certain of these beds may be of Permian age.

371 —— Some Coal Measure sections near Peytona, W. Va.

Am. Phil. Soc., Proc., vol. xxxiii, pp. 282-309, two maps and cross sections.

Describes a large number of exposures of the Coal Measures in this region.

372 —— The name "Newark" in American stratigraphy.

Jour. of Geol., vol. ii, pp. 59-61.

Differs with G. K. Gilbert as to the use of the term "Newark." See No. 217.

M.

373 **McCalley** (Henry). Bauxite mining.

Science, vol. xxiii, pp. 29-30.

Describes the character and chemical composition of some of the Georgia and Alabama bauxite deposits.

374 **McCallie** (S. W.). A preliminary report on the marbles of Georgia.

Ga. Geol. Surv., Bull. No. 1, p. 87.

Gives a historical sketch of the marble industry, discusses the origin of limestones, and describes the marbles of Fannin, Gilmer, Pickens, and Cherokee counties, Ga.

375 **McCarn** (H. L.). Notes on the geology of the gold field of Cripple Creek, Colorado.

Science, vol. xxiii, pp. 31-35.

Describes the structure of the ore bodies and discusses the evidence as to their origin.

376 **McGee** (W J). The potable waters of eastern United States.

U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 1-47, figs. 1-5.

Describes the occurrence and source of potable waters and the methods of obtaining and utilizing cistern water, stream water, ground water, and phreatic water supplies.

377 **McGee** (W J). [Extra-morainic drift of New Jersey.]
Geol. Soc. Am., Bull., vol. v, pp. 17–18.
Discusses the evidences which have been found of the existence of glacial deposits south of the terminal moraine in New Jersey.

378 —— [Terrestrial submergence southeast of the American Continent.]
Geol. Soc. Am., Bull., vol. v, pp. 21–22.
In discussion of paper by J. W. Spencer on the same subject.

379 —— [Cenozoic history of eastern Virginia and Maryland.]
Geol. Soc. Am., Bull., vol. v, p. 24 (⅛ p.).
In discussion of paper by N. H. Darton on the same subject.

380 —— [On the Columbia and Lafayette formations.]
Geol. Soc. Am., Bull., vol. v, p. 100 (⅛ p.).
Describes the relations of the Columbia and Lafayette formations, in the discussion of a paper by Warren Upham on "The succession of Pleistocene formations in the Mississippi and Nelson River basins."

381 —— Graphic comparison of post-Columbia and post-Lafayette erosion.
Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 179 (⅛ p.); Am. Geol., vol. xii, p. 180 (⅛ p.).

382 —— Glacial canyons.
Jour. of Geol., vol. ii, pp. 350–364.
Discusses the effects of the several agencies involved in the development of glacial canyons.

383 —— [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 160–166.
Explains the principles of correlation developed in the study of the Coastal Plain and Atlantic and Gulf slopes of the United States.

384 —— [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 198–207.
Remarks on the importance of land forms as products of geologic agencies in Pleistocene time, discusses the claims of genetic classification, and presents the author's scheme of a classification of the Pleistocene deposits.

385 —— The Prairies. Itinerary from Kansas City, Mo., to Chicago, Ill.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 449–452.
Describes the surface features of the prairies and the local geology between the points named along the route traversed by the western excursion of the International Congress of Geologists.

386 —— The Lafayette formation.
Review: Jour. of Geol., vol. ii, pp. 435–439, by J. W. Spencer.
Abstract: Am. Geol., vol. xiv, pp. 115–116.
Noticed in Bibliography and Index for 1892 and 1893.

387 —— **Williams** (G. H.), **Willis** (B.) and **Darton** (N. H.). Geology of Washington and vicinity.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 219–251.
Describes the general and local physiography, the rocks of the Piedmont Plateau and the Coastal Plain, and the crystalline and clastic rocks of the immediate vicinity of Washington.

388 **Manson** (Marsden). A reply to "Causes and conditions of glaciation."

Am. Geol., vol. xiv, pp. 192–194 (correspondence).

Reviews statements of a recent paper on the same subject.

389 **Marcou** (Jules). Growth of knowledge concerning the Texas Cretaceous.

Am. Geol., vol. xiv, pp. 98–105.

Reviews the previous work on the Cretaceous deposits of Texas and gives a table of "Evolution of knowledge of the Texas Cretaceous."

390 —— Note on the geological map of the State of New York.

Am. Geol., vol. xiv, pp. 257–259 (correspondence).

Quotes from the 12th Ann. Report of the State Geologist for the year 1892, with comments.

391 **Marsh** (Othniel C.). Restoration of Camptosaurus.

Am. Jour. Sci., 3d ser., vol. xlvii, Appendix, pp. 245–246, pl. vi; Geol. Mag., dec. iv., vol. i, pp. 193–195, pl. vi; Sci. Am. Suppl., vol. xxxvii, pp. 15209–15210.

This restoration is based on a type specimen of Camptosaurus dispar from the Atlantosaurus beds of Wyoming.

392 —— Restoration of Elotherium.

Am. Jour. Sci., 3d ser., vol. xlvii, Appendix, pp. 407–408, pl. ix; Geol. Mag., dec. iv, vol. i, pp. 294–295, pl. x.

The restoration is based on type specimen of Elotherium crassum from the Miocene beds of Colorado and others from the same horizon of South Dakota.

393 —— A new Miocene mammal.

Am. Jour. Sci., 3d ser., vol. xlvii, Appendix, p. 409.

Describes and figures the last upper molar of an animal called Heptacodon curtus from the Miocene of South Dakota.

394 —— Footprints of vertebrates in the Coal Measures of Kansas.

Am. Jour. Sci., 3d ser., vol. xlviii, Appendix, pp. 81–84, pls. ii–iii; Geol. Mag., dec. iv, vol. i, pp. 337–339, pl. xi; Sci. Am. Suppl., vol. xxxviii, pp. 15491–15492.

Describes five new genera and species from the Carboniferous of Kansas.

395 —— The typical Ornithopoda of the American Jurassic.

Am. Jour. Sci., 3d ser., vol. xlviii, Appendix, pp. 85–90, pls. iv–vii.

Describes Camptosaurus, Dryosaurus, Laosaurus, and Nanosaurus.

396 —— Eastern division of the Miohippus beds, with notes on some of the characteristic fossils.

Am. Jour. Sci., 3d ser., vol. xlviii, Appendix, pp. 91–94.

Describes two new genera and five new species from the Miocene beds of Oregon.

397 —— Miocene Artiodactyla from the eastern Miohippus beds.

Am. Jour. Sci., 3d ser., vol. xlviii, Appendix, pp. 175–178, figs. 1–7.

Describes one new genus and a new species from the Miocene of South Dakota.

398 **Marsh** (Othniel C.). Description of Tertiary Artiodactyla.
Am. Jour. Sci., 3d ser., vol. xlviii, Appendix, pp. 259–274, figs. 1–34.
Review: Am. Nat., vol. xxviii, pp. 867–869.
Describes 13 new species and 3 new genera of ungulate mammals from the Miocene.

399 —— A gigantic bird from the Eocene of New Jersey.
Am. Jour. Sci., 3d ser., vol. xlviii, p. 344.
Describes Barornis regens from the upper marl beds.

400 —— A new Miocene tapir.
Am. Jour. Sci., 3d ser., vol. xlviii, p. 348 (⅓ p.).
Describes Tanyops undans from the Miocene of South Dakota.

401 —— [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 156–159.
Remarks on the study of the succession of vertebrate life and presents a columnar section to illustrate the vertebrate life in America.

402 **Marsters** (Vernon F.) and **Kindle** (E. M.). Geologic literature of Indiana (stratigraphic and economic).
Ind. Acad. Sci., Proc., 1893, pp. 156–191.
Comprises a bibliography and index of stratigraphic and economic geologic literature of Indiana.

403 **Matthew** (G. F.). Post-Glacial faults at St. John, New Brunswick.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 501–503, pl. xi.
Describes briefly faults of small displacement occurring in post-Glacial deposits.

404 —— Movements of the earth's crust at St. John, New Brunswick, in post-Glacial times.
New Brunswick Nat. Hist. Soc., Bull., No. xii, pp. 34–42.
Describes the character of certain recent faults in this vicinity, and gives a table showing the amount of each displacement.

405 —— The outlets of the St. John River [New Brunswick].
New Brunswick Nat. Hist. Soc., Bull., No. xii, pp. 43–62.
Describes the earlier outlets of this river and discusses the genesis of the valleys which form the drainage system of the region.

406 —— Ancient myriapods.
Can. Rec. Sci., vol. vi, pp. 93–99.
Reviews the previous description of fossil myriapods and gives a brief description of some of the characteristics of the several families.

406*a* —— Illustrations of the fauna of the St. John group, No. VIII.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlviii, pp. 72–73 (⅔ p.); Am. Geol., vol. xiv, pp. 187–188.
Noticed in Bibliography and Index for 1892 and 1893.

407 **Matthew** (W. D.). The intrusive rocks near St. John, New Brunswick.
N. Y. Acad. Sci., Trans., vol. xiii, pp. 185–203, pl. v.
Describes the general character of the Laurentian rocks of the region and the petrographic characters of the granite-diorite and gabbro, and gives a summary of results.

408 **Matthew** (W. D.). The crystalline rocks near St. John, New Brunswick, Canada.

New Brunswick Nat. Hist. Soc., Bull., No. xii, pp. 16–33.

Describes the general character of the formations in this vicinity and discusses the origin and composition of igneous rocks. Describes the granite, gabbro, and volcanic rocks of the region.

408*a* —— Antennæ in trilobites.

Abstract: Am. Nat., vol. xxviii, pp. 266–267 (⅛ p.).

Noticed in Bibliography and Index for 1892 and 1893.

409 **Mawby** (W.). Notes on the Triassic rocks of New Jersey, United States of America.

Liverpool Geol. Soc., Proc., vol. vii, pp. 206–212.

Describes the general distribution of Triassic rocks of eastern North America and compares them with the Trias of Europe. Describes the general character and distribution of the glacial deposits of New Jersey.

410 **Meissner** (C. A.). Analysis of limestones and dolomites of the Birmingham (Ala.) district.

Ala. Ind. and Sci. Soc., Proc., vol. iv, pp. 12–23.

Describes the occurrence of limestone and dolomite in this region and gives chemical analyses of some of these rocks.

411 **Memminger** (C. J.). Florida kaolin deposits.

Eng. and Mg. Jour., vol. lvii, p. 436.

Brief description of kaolin deposits of Lake County, Fla., with a chemical analysis.

412 **Merrill** (George Perkins). [Beaver Creek meteorite.]

Am. Jour. Sci., 3d ser., vol. xlvii, p. 435.

Discusses the microscopic characteristics of this meteorite.

412*a* —— **Emmons** (S. F.) and. Geological sketch of Lower California.

Geol. Soc. Am., Bull., vol. v, pp. 489-514, pl. 19.

See Emmons (S. F.) and Merrill (G. P.), No. 184.

413 **Miller** (S. A.). Paleontology.

Ind. Dept. Geol. and Nat. Res., 18th Rept., pp. 257–333, pls. i–xii.

Describes a large number of new species, mainly from the Carboniferous and Silurian deposits of the Mississippi Valley.

414 —— and **Faber** (C. L). New species of fossils from the Hudson River group, and remarks upon others.

Cin. Soc. Nat. Hist., Jour., vol. xvii, pp. 22–33, pl. i.

Describes seven new species of fossils from the Silurian of Ohio.

415 —— Description of some Cincinnati fossils.

Cin. Soc. Nat. Hist., Jour., vol. xvii, pp. 137–158.

Describes ten new species from the Hudson River group of Ohio and Indiana.

415*a* **Minnesota, Geological and Natural History Survey.** Twenty-first Annual Report.

Abstracts: Am. Geol., vol. xiii, pp. 425–426; Am. Nat., vol. xxviii, p. 593 (⅛ p.).

415*b* **Minor** (J. C., jr.), **Penfield** (S. L.) and. On the chemical composition and related physical properties of topaz.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 387-396.
See Penfield (S. L.) and Minor (J. C., jr.), No. 449.

416 **Moeller** (W. H.). The Mercur gold deposits in the Camp Floyd district, Utah.
Eng. and Mg. Jour., vol. lvii, p. 51 (correspondence).
Describes the character and structure of the gold deposits.

417 **Mudge** (E. H.). Drainage systems of the Carboniferous area of Michigan.
Am. Geol., vol. xiv, pp. 301-308.
Describes the topography and drainage systems of the Carboniferous area in Michigan and discusses the genesis of the river systems.

N.

418 **Nason** (Frank L.). The economic geology of Albany County [N. Y.].
N. Y. State Mus., 47th Ann. Rept., pp. 459-481, pls. 1-7.
Describes the occurrence of building stones, flagstones, clays, and sand banks in this county.

419 —— Economic geology of Ulster County [N. Y.].
N. Y. State Mus., 47th Ann. Rept., pp. 569-600, pls. 1-5.
Describes the occurrence of Rosendale or natural cement and the building stone and clays of this county.

420 —— Origin of the iron pyrites deposits in Louisa County, Va.
Eng. and Mg. Jour., vol. lvii, pp. 414-416.
Describes the vein formation of these ore bodies, compares them with the New Jersey iron ore deposits, and discusses the evidence as to the origin of the ores, and suggests that they were leached out from the shore rocks at the time of deposition of the inclosing sedimentaries, and were precipitated contemporaneously with the formation of the latter.

421 —— [The lead and zinc deposits of the Mississippi Valley.]
Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 636-642.
In discussion of paper by W. P. Jenney on the same subject.

422 —— The chemical composition of some of the white limestones of Sussex County, N. J.
Am. Geol., vol. xiii, pp. 154-164.
Gives several chemical analyses of the limestones in this county, and discusses the evidence indicating that the white crystalline limestone and the blue "magnesian" limestone are of contemporaneous origin.

423 —— Summary of facts proving the Cambrian age of the white limestones of Sussex County, N. J.
Am. Geol., vol. xiv, pp. 161-169.
Gives a summary and discussion of the evidences which indicate that the white limestones, heretofore considered to form a part of the Azoic crystalline rocks, belong to the Cambrian formation.

424 **Newell** (Frederick H.) Results of stream measurements.
U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 95–155, figs. 6–24.
Describes the character and methods of obtaining the data and gives the results obtained in different streams in the Western States.

424*a* **New Jersey, Geological Survey.** Annual Report, 1892.
Abstract: Am. Nat., vol. xxviii, pp. 336–337 (½ p.).

424*b* **Niles** (William H.). A geological study of Lake Mohonk and Lake Minnewaska, New York.
Abstract: Am. Geol., vol. xiii, p. 211 (7 l.).

425 **Norton** (William Harmon). Notes on the lower strata of the Devonian series in Iowa.
Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 22–24.
Divides the series mentioned into four stages, and describes the lithologic character of the beds and mentions some of the contained fossils.

O.

426 **Orton** (Edward). Geological scale and geological structure of Ohio.
Ohio Geol. Surv., vol. vii, pp. 3–44.
Gives a vertical section of the geologic formations of Ohio and describes their character and distribution.

427 —— The clays of Ohio, their origin, composition, and varieties.
Ohio Geol. Surv., vol. vii, pp. 45–68.
Describes the origin of clay beds and their geologic distribution.

428 —— The coal fields of Ohio.
Ohio Geol. Surv., vol. vii, pp. 253–290.
Discusses the origin of coal and describes the various coal seams of the Carboniferous strata in Ohio.

429 —— Geological surveys of Ohio.
Jour. of Geol., vol. ii, pp. 502–516.
Gives a historical sketch of the geological surveys of Ohio.

430 —— From the Ohio River to Chicago. Itinerary.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 291–298.
Describes the region traversed by the Western excursion, with special reference to the gas wells.

431 **Orton** (Edward, jr.). The clay-working industries of Ohio.
Ohio Geol. Surv., vol. vii, pp. 69–254.
Describes the origin, chemical composition, and physical properties of clay, and gives an account of the clay-working industries.

431*a* **Osann** (A.). Eleolite rocks of Trans-Pecos, Texas.
Abstract: Am. Nat., vol. xxviii, pp. 514–515.
Noticed in Bibliography and Index for 1892 and 1893.

431*b* —— Nepheline-mellilite rocks of Texas.
Abstract: Am. Nat., vol. xxviii, pp. 799–800 (⅓ p.).
Noticed in Bibliography and Index for 1892 and 1893.

432 **Osborn** (H. F.). The evolution of teeth in Mammalia in its bearing upon the problem of phylogeny.
N. Y. Acad. Sci., Trans., vol. xii, p. 187.
Abstract: Am. Geol., vol. xiii, p. 357 (½ p.).

433 —— A division of the eutherian mammals into the Mesoplacentalia and Cenoplacentalia.
N. Y. Acad. Sci., Trans., vol. xiii, pp. 234-237.
Separates these mammals into two groups, one distinctive of the Mesozoic and the other of the Tertiary.

433*a* —— A new suborder of the Ancylopoda.
Abstract: Am. Geol., vol. xiii, p. 357 (9 l.).
Noticed in Bibliography and Index for 1892 and 1893.

433*b* —— and **Wortman** (J. L.). Fossil mammals of the Lower Miocene White River beds; collection of 1892.
Am. Mus. Nat. Hist., Bull., vol. vi, pp. 199-228, pls. ii-iii.
Gives a table showing the succession of species in the White River Miocene. Describes new characters of Rhinoceroses, the osteology of Metamynodon, and the characters of Oreodon and Anthracotherium.

P.

434 **Packard** (R. L.). Variscite from Utah.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 297-298.
Abstract: Am. Nat., vol. xxviii, p. 873 (5 l.).
Describes the characteristics of this material and gives its chemical analysis.

435 **Palache** (Charles). The soda-rhyolite north of Berkeley, Cal.
Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 61-72, pl. 5.
Abstract: Am. Nat., vol. xxviii, p. 602 (¼ p.).
Describes the occurrence, geologic relations, and petrographic and chemical characteristics of a soda-rhyolite occurring in this vicinity.

436 —— The lherzolite-serpentine and associated rocks of the Potrero, San Francisco, Cal.
Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 161-180.
Describes the outcrops and petrographic character of the serpentine and of an intrusive rock, and discusses their relations to the San Francisco sandstone.

437 —— On a rock from the vicinity of Berkeley [Cal.] containing a new soda amphibole.
Univ. of Cal., Dept., of Geol., Bull., vol. i, pp. 181-192, pls. 10-11.
Describes the minerals and secondary veins of the rock and the microscopic and chemical characters of the amphibole.

438 **Patton** (Horace B.). Microscopic study of some Michigan rocks.
Michigan, Report of State Board of Geol. Surv. for 1891-92, pp. 184-186.
Describes the general characters of the igneous rocks of Michigan, with special mention of diabase altered to kaolin and quartz, and of hornblende picrite.

439 **Pavlow** (A.). [Classification of Pleistocene deposits.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 195–196.
Discusses the principles of chronologic and genetic classification.

440 **Peale** (Albert C.). Natural mineral waters of the United States.
U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 51–88.
Gives a definition of mineral water, discusses its origin, the source of mineralization, and its geologic and geographic distribution and gives a list of American mineral spring resorts.

441 —— Livingston to the Snake Plains. Itinerary, Bozeman to Butte, Mont.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 365–367.
Describes the geology of the route traversed by the Rocky Mountain excursion between these points.

441*a* —— The Paleozoic section in the vicinity of Three Forks, Montana. With petrographic notes by G. P. Merrill.
Abstract: Am. Geol., vol. xiv, p. 394 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

441*b* **Pearce** (Richard). The occurrence of gold in ores of the Cripple Creek district [Colorado].
Abstract: Eng. and Mg. Jour., vol. lvii, p. 271.
Noticed in Bibliography and Index for 1892 and 1893.

442 **Peckham** (S. F.). On the origin of bitumens; a retrospect.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 389–395.
Gives an account of observations in different parts of the United States on the occurrence of petroleum and bitumen, and concludes that they have not had a uniform derivation, and discusses the probability of their distillation by metamorphic action.

443 —— Petroleum in southern California.
Science, vol. xxiii, pp. 74–75.
Gives a historical sketch of the development of the petroleum industry in California, and presents a section showing the succession of strata in certain wells.

443*a* **Peet** (C. E), **Salisbury** (R. D.) and. Surface geology. Drift phenomena of the Palisade ridge.
N. J. Geol. Surv., Rept. for 1893, pp. 157–224.
See Salisbury (R. D.) and Peet (C. E.), No. 493.

444 **Penfield** (S. L.). Contributions to the crystallization of willemite.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 305–309.
Abstract: Am. Nat., vol. xxviii, pp. 873–874 (½ p.).
Describes the crystallographic characters and cleavage of willemite from New Mexico.

445 —— On the crystallization of herderite.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 329–339.
Abstracts: Am. Geol., vol. xiii, p. 427 (8 l.); Am. Nat., vol. xxviii, p. 871 (½ p.).
Describes the characteristics of herderite from five localities in Maine.

446 **Penfield** (S. L.). Mineralogical notes.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 114–118.
Describes the crystallographic characters of octahedrite from Arkansas, penfieldite, and the cleavage and parting planes of orthoclase and albite.

446*a* —— Pentlandite.
Abstract: Am. Nat., vol. xxviii, p. 519 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

447 —— and **Howe** (W. T. H.). On the chemical composition of chondrodite, humite, and clinohumite.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 188–206.
Abstracts: Am. Nat., vol. xxviii, pp. 872–873 (⅔ p.); Am. Geol., vol. xiii, pp. 358–359 (¼ p.).
Describes the crystallographic characters of chondrodite from Warsaw and Brewster, N. Y.

448 —— and **Kreider** (D. A.). Mineralogical notes.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 141–144.
Discusses the identity of hydrofranklinite and chalcophanite.

449 —— and **Minor** (J. C., jr.). On the chemical composition and related physical properties of topaz.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 387–396.
Abstract: Am. Geol., vol. xiii, p. 427 (10 l.).
Gives a list of the localities from which the specimens examined were obtained and the chemical analyses of some of the specimens, discusses the related physical properties, and compares the characteristics of topaz and herderite.

450 **Penhallow** (D. P.). Note on inter-Glacial plants from the Don Valley [Ontario].
Am. Geol., vol. xiii, pp. 93–95.
Describes Fraxinus quadrangulata Michx., Taxus baccata L. var. canadensis Gray, and Quercus obtusiloba Michx.

451 —— Notes on Erian (Devonian) plants from New York and Pennsylvania.
U. S. Nat. Mus., Proc., vol. xvi, pp. 105–114, pls. ix–xiv.
Describes and figures a number of new species found in Devonian strata at different localities of the States named.

452 **Penrose** (R. A. F., jr.). The superficial alteration of ore deposits.
Jour. of Geol., vol. ii, pp. 288–317.
Discusses the relation of alteration in ore deposits and in country rocks, the agents, method, chemical and physical effects, and depth of alteration, and the characteristics of alteration in iron, manganese, copper, lead, zinc, gold, silver, and other metallic deposits. Describes the formation of haloid compounds in ore deposits in arid regions.

453 **Phillips** (William B.). The phosphate rocks of Tennessee.
Eng. and Mg. Jour., vol. lvii, p. 417.
Describes the character of the phosphate rock of Hickman County, Tenn., and the lithologic character of the associated strata. Gives a typical vertical section of the beds, which are of Devonian age, and chemical analyses of the phosphate.

454 **Phillips** (William B.). On the phosphate rock of Tennessee.
Ala. Ind. Sci. Soc., Proc., vol. iv, pp. 44–48.
Gives a brief description of the phosphate rock and its chemical analysis.

454*a* **Piatt** (W. H. H.), **Haworth** (E.) and. A geologic section along the Verdigris River from the State line to Madison [Kans.].
Kans. Univ. Quart., vol. ii, pp. 115–118.
See Haworth (E.) and Piatt (W. H. H.), No. 257.

455 **Pirsson** (L. V.). On the crystallization of enargite.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 212–215.
Abstracts: Am. Geol., vol. xiii, p. 359 (5 l.); Am. Nat., vol. xxviii, p. 870 (½ p.).
Describes the crystallographic characters of enargite from the Ida and National Belle mines of Colorado.

456 —— On some phonolite rocks from the Black Hills.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 341–346.
Abstract: Am. Nat., vol. xxviii, pp. 702–703.
Describes the chemical and petrographic characters of phonolite, from the Black Hills.

456*a* —— The geology of Conanicut Island, Rhode Island.
Abstract: Am. Nat., vol. xxviii, pp. 420–421 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

457 —— and **Wells** (H. L.). On the occurrence of leadhillite from Missouri, and its chemical composition.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 219–226.
Describes the occurrence, crystallographic characters, and chemical composition of leadhillite.

458 **Pollard** (C. L.). [Note on fossil leaves from Great Neck, Long Island, N. Y.]
N. Y. Acad. Sci., Trans., vol. xiii, pp. 180–181.
Note on the occurrence of fossil leaves in the Cretaceous on Long Island, N. Y.

459 **Poole** (Henry S.). The Pictou coal field; a geological revision.
Nova Scotian Inst. Sci., Proc. and Trans., 2d ser., vol. i, pp. 227–343, with geologic map and sections.
Describes several faults which occur in this district and the lithologic character of the Cambro-Silurian, Silurian, Devonian, Carboniferous, and Permian beds, and gives the sections exposed in a number of coal mines.

459*a* **Posada** (Juan de la C.). The geology of Carmelo Bay [California].
See Lawson (A. C.), No. 352.

460 **Posepny** (F.). The genesis of ore deposits.
Am. Inst. Mg. Engrs., Trans., vol. xxiii, pp. 197–369, figs. 1–100.
Reviews the general facts and theories concerning the origin of ore deposits, describes the constitution and effects of underground circulating waters, the character of ore deposits occurring in fissures and in soluble rocks, those occurring in distinctly stratified rocks and in crystalline schists and eruptive rocks, and those formed by chemical and mechanical influences of the surface region. Advocates the ascension theory of the formation of ore deposits.

461 **Powell** (John W.). Report of the Director.

U. S. Geol. Surv., 14th Ann. Rept., pt. i, p. 321.

Describes the plans for topography and geology for 1893–94, the progress of geologic work during 1892–93 in classifying and correlating sedimentary and igneous rocks, and gives a summary of the work in terrestrial physics. Includes the administrative reports of topographers and geologists in charge of the various divisions of the U. S. Geological Survey.

462 —— [Correlation of clastic rocks.]

Int. Cong. Geol., Compte Rendu, 5th session, pp. 159–160 ($\frac{1}{5}$ p.).

Considers that both physical and biotic evidence must be used in the correlation of rocks.

463 **Pratt** (J. H.). Mineralogical notes on cerrusite, calamine, and zircon.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 212–215.

Describes the crystallographic characters of cerrusite from Montana, calamine from Colorado, and zircon from Ontario.

464 **Prindle** (L. M.). Note on an apatite crystal from Alexander County, N. C.

Johns Hopkins Univ. Circ., vol. xiii, No. 112, p. 83.

Describes the crystallographic characters of the crystal.

465 **Prosser** (Charles S.). The Devonian system of eastern Pennsylvania and New York.

U. S. Geol. Surv., Bull. No. 120, pp. ix + 81, pls. i–ii, fig. 1.

Describes the lithologic character of the Devonian beds along several section lines in eastern Pennsylvania and New York and gives lists of fossils collected and the author's conclusions.

466 **Pumpelly** (Raphael). Geology of the Green Mountains in Massachusetts.

U. S. Geol. Surv., Monograph xxiii, pp. 34, pls. i–iii, figs. 1–8.

Discusses the structure and correlation of the Archean, Algonkian, Cambrian, and Silurian strata of the region.

467 —— [Correlation of clastic rocks.]

Int. Cong. Geol., Compte Rendu, 5th session, pp. 173–174.

Remarks on the correlation of the deposits of the Lake Superior region.

468 **Purington** (Chester Wells). Geological and topographical features of the region about Atlanta, Ga.

Am. Geol., vol. xiv, pp. 105–108, with map of Georgia and sections.

Describes peculiar topographic forms resulting from the long-continued action of the atmosphere on the red clay and soils, which are the products of the disintegration of the gneiss of the region.

R.

469 **Rand** (Theodore D.). The Sadsbury steatite [Pennsylvania].

Phil. Acad. Nat. Sci., Proc., 1894, pp. 455–460.

Describes the outcrops of steatite occurring in Chester County, Pa.

470 **Randall** (F. A.). Preliminary report on the geology of Cattaraugus and Chautauqua Counties [N. Y.].

N. Y. State Mus., 47th Ann. Rept., pp. 713–719.

Gives diagrammatic, vertical, and cross sections of the strata of these counties, with notes on the distribution of the several formations.

471 **Ransome** (F. Leslie). The eruptive rocks of Point Bonita.

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 71–114, pls. 6–7.

Abstracts: Am. Geol., vol. xiv, pp. 321–326; Am. Nat., vol. xxviii, p. 419.

Describes the occurrence and petrographic characters of the spheroidal basalt and diabase, the relations of the eruptive rocks, and the character and occurrence of sedimentary rocks and their relations to the eruptive rocks in this vicinity.

472 —— The geology of Angel Island [California].

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 193–233.

Abstract: Jour. of Geol., vol. ii, pp. 863–864.

Describes the sedimentary formations and the occurrence, petrographic character, and contact metamorphism of the fourchite and serpentine rocks, and gives chemical analyses of the fourchite and serpentine.

473 **Rauff** (Hermann). Palæospongiologie. Erster Theil.

Paleontographica, Band. 40, pp. 1–346.

Reviews the literature of the subject and describes species, including a number from the Paleozoic strata of different parts of North America.

474 **Raymond** (R. W.). A new classification of economic geological deposits.

Eng. and Mg. Jour., vol. lviii, pp. 412–413.

Discusses the principles of classification in general and reviews the proposed classification of W. O. Crosby.

475 **Reid** (Harry F.). [On the upward movement within a glacier.]

Geol. Soc. Am., Bull., vol. v, pp. 84–85 (½ p.).

In discussion of paper by W. Upham on "Evidences of the derivation of the kames, eskers, and moraines of the North American ice sheet, chiefly from its englacial drift."

476 **Rickard** (T. A.). [The genesis of ore deposits.]

Am. Inst. Mg. Engrs., Trans., vol. xxiii, pp. 589–591.

In discussion of paper on the same subject by F. Posepny.

477 **Ries** (Heinrich). A Pleistocene lake bed at Elizabethtown, Essex County, N. Y.

N. Y. Acad. Sci., Trans., vol. xiii, pp. 107–109.

Describes the formation of this lake bed and the process of lake filling now going on.

478 —— On some new forms of wollastonite from New York.

N. Y. Acad. Sci., Trans., vol. xiii, pp. 146–147 and 207–208.

Describes the crystallographic characters of this mineral.

479 **Ries** (Heinrich). Microscopic organisms in the clays of New York State.

N. Y. Acad. Sci., Trans., vol. xiii, pp. 165–169.

Contains notes on the occurrence of diatoms in these clays and a list of species found.

480 —— On the occurrence of Cretaceous clays at Northport, Long Island [N. Y.].

School of Mines Quart., vol. xv, pp. 354–355.

Gives a list of fossil plants found in these beds which indicate that they are of Cretaceous age.

481 **Rowley** (R. R.). New species of crinoids and brachiopods from the Missouri Hamilton.

Am. Geol., vol. xiii, pp. 151–154, figs. 1–10.

Describes four new species from the Hamilton beds of Callaway County, Mo.

481*a* **Russell** (Israel C.). Second expedition to Mount St. Elias, in 1891.

Abstract: Am. Geol., vol. xiv, pp. 190–191.

Noticed in Bibliography and Index for 1892 and 1893.

481*b* —— A geological reconnoissance in central Washington.

Abstract: Am. Geol., vol. xiv, pp. 51–52 (½ p.).

Noticed in Bibliography and Index for 1892 and 1893.

481*c* —— Malaspina glacier.

Abstract: Am. Nat., vol. xxviii, pp. 1025–1027.

Noticed in Bibliography and Index for 1892 and 1893.

482 **Rutley** (Frank). On the origin of certain novaculites and quartzites.

Geol. Soc. London, Quart. Jour., vol. l, pp. 377–392, pl. xix.

Abstract: Am. Geol., vol. xiv, p. 253 (⅓ p.).

Quotes from a paper by L. S. Griswold on the novaculites of Arkansas, and discusses the evidences as to the origin of these rocks.

S.

483 **Safford** (James M.). Phosphate-bearing rocks in middle Tennessee; preliminary notice.

Am. Geol., vol. xiii, pp. 107–109.

Describes the lithologic characters of the Devonian strata in which the phosphate occurs and the character of the phosphatic material.

484 **Salisbury** (Rollin D.). Superglacial drift.

Jour. of Geol., vol. ii, pp. 613–632.

Describes the character of superficial drift of alpine glaciers, piedmont glaciers, and of a continental ice sheet.

485 —— The drift: its characteristics and relationships.

Jour. of Geol., vol. ii, pp. 708–724 and 837–851.

Defines drift and describes the thickness, lithologic composition, and structure of the drift, the topography of the drift and drift-covered area, the relation of the drift to the underlying rock, and the characteristics of the rock underlying the drift.

486 **Salisbury** (Rollin D.). Surface geology: the Yellow gravel.
N. J. Geol. Surv., Rept., 1893, pp. 39–72.
Describes the deposition and distribution of the Yellow gravel. Discusses the evidences as to the age of these beds.

487 —— Surface geology: extra-morainic drift.
N. J. Geol. Surv., Rept., 1893, pp. 73–123.
Describes the character and distribution of the drift on the Triassic formation and on the area to the north of it.

488 —— Surface geology: the terminal moraine.
N. J. Geol. Surv., Rept., 1893, pp. 124–151.
Describes the course of the terminal moraine in New Jersey as shown on the map which accompanies the report.

489 —— Surface geology: drift deposits made under the influence of stagnant ice.
N. J. Geol. Surv., Rept., 1893, pp. 152–156.
Describes a peculiar type of terraces formed between a valley ice lobe and the bounding rock slope of the valley.

490 —— [On the twofold division of the Columbia formation.]
Geol. Soc. Am., Bull., vol. v, p. 24 (⅓ p.).
In discussion of paper by N. H. Darton on the "Cenozoic history of eastern Maryland and Virginia."

491 —— [Time break between the Lafayette and Columbia formations.]
Geol. Soc. Am., Bull., vol. v, p. 100 (6 l.).
In discussion of paper on the "Succession of Pleistocene formations in the Mississippi and Nelson River basins," by Warren Upham.

491*a* —— A phase of superficial drift.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 180 (7 l.).

491*b* —— An illustration of the effect of stagnant ice in Sussex County, N. J.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 180 (⅔ p.).

492 —— and **Kümmel** (Henry B.). Surface geology: Lake Passaic; an extinct glacial lake.
N. J. Geol. Surv., Rept., 1893, pp. 225–328.
Discusses the classification of shore features and lacustrine deposits and describes the shores of Lake Passaic, its lacustrine deposits, and the history and deformation of the lake basin.

493 —— and **Peet** (Charles E.). Surface geology: drift phenomena of the Palisade ridge.
N. J. Geol. Surv., Rept., 1893, pp. 157–224.
Describes the topographic relations of the ridge, the glacial striæ and erosion, the perched blocks, and other glacial phenomena.

494 **Sardeson** (F. W.) Note on "Nanno."
Am. Geol., vol. xiv, pp. 402–403 (correspondence).
Refers to a previous article and descriptions.

495 **Schuchert** (Charles.) A revised classification of the spire-bearing brachiopods.

Am. Geol., vol. xiii, pp. 102–107.

Describes the family and subfamily characters on which the new classification is based.

495*a* —— Spire-bearing genera of the Paleozoic Brachiopoda, Paleozoic of New York, vol. viii, part ii, fas. i.

Review: Am. Geol., vol. xiii, pp. 128–132.

Gives an abstract of "An Introduction to the study of the genera of the Paleozoic Brachiopoda," by James Hall, assisted by John M. Clarke; Paleontology of New York, vol. viii, part ii, fas. i.

495*b* —— **Diller** (J. S.) and. Discovery of Devonian rocks in California.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 416–422.

See Diller (J. S.) and Schuchert (C.), No. 154.

496 **Scott** (William B.) Notes on the osteology of Agriochœrus Leidy (Artionyx O. and W.).

Am. Phil. Soc., Proc., vol. xxxiii, pp. 243–251.

Abstract: Am. Nat., vol. xxviii, pp. 952–953 (⅔ p.).

Describes and figures fragmentary skeletons from the White River bad lands of South Dakota and discusses the systematic position of the genus.

497 —— The structure and relationships of Ancodus.

Phil. Acad. Nat. Sci., Jour., 2d ser., vol. ix, pp. 461–497 and 536, pls. xxiii–xxiv.

Describes the dentition, skull, vertebral column, and limbs of A. brachyrhynchus, and discusses the relationships of Ancodus.

498 —— The osteology of Hyænodon.

Phil. Acad. Nat. Sci., Jour., 2d ser., vol. ix, pp. 499–535.

Describes a new species and gives a restoration of Hyænodon and discusses its relationships.

499 —— Notes on the osteology of Ancodus (Hyopotamus).

Geol. Mag., dec. iv, vol. i, pp. 492–493.

Describes the principal characteristics of Ancodus brachyrhynchus from material found in the Tertiary beds of South Dakota.

499*a* —— Mammalia of the Deep River beds.

Abstract: Am. Nat., vol. xxviii, pp. 790–791.

Noticed in Bibliography and Index for 1892 and 1893.

500 —— The later Tertiary lacustrine formations of the West.

Abstracts: Geol. Soc. Am., Bull., vol. v, pp. 594–595; Am. Jour. Sci., 3d ser., vol. xlvii, pp. 139–140 (¼ p.); Am. Geol., vol. xiii, pp. 141–142.

Describes the distribution and faunal characteristics of the later Tertiary beds in western United States.

501 **Scudder** (Samuel H.). The effect of glaciation and of the Glacial period on the present fauna of North America.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 179–187.

In tabular form gives a list of described American Quaternary Coleoptera, showing their locality and the forms to which they are allied, their regional distribution in North America, and the species common to different regions.

502 **Scudder** (Samuel H.). Tertiary Tipulidæ, with special reference to those of Florissant, Colo.

Am. Phil. Soc., Proc., vol. xxxii, pp. 163–245, pls. i–ix.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 481 (½ p.); Am. Nat., vol. xxviii, pp. 951–952.

Gives a historical account and list of the European Tertiary Tipulidæ and description of species from Colorado.

502*a* —— American Tertiary Aphidæ.

Abstract: Am. Nat., vol. xxviii, p. 881 (⅛ p.).

Noticed in Bibliography and Index for 1892 and 1893.

502*b* —— Insect fauna of the Rhode Island coal field.

Abstract: Am. Geol., vol. xiv, p. 330 (⅛ p.).

Noticed in Bibliography and Index for 1892 and 1893.

503 **Seamon** (W. H.). The present condition of the earth's interior as viewed from the standpoint of the nebular hypothesis.

Am. Geol., vol. xiv, pp. 20–25.

Discusses the different theories as to the condition of the interior of the earth.

504 **Selwyn** (Alfred R. C.). Volcanic rocks in the Keewatin.

Science, vol. xxiii, pp. 107–108.

In a letter to Professor Dana, dated Montreal, December 9, 1879, discusses the character of volcanic rocks in pre-Cambrian strata.

505 **Shaler** (Nathaniel Southgate). Pleistocene distortions of the Atlantic seacoast.

Geol. Soc. Am., Bull., vol. v, pp. 199–202.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 138 (½ p.); Am. Geol., vol. xiii, pp. 143–144.

Discusses the evidences of orogenic action in Pleistocene time in the region of Marthas Vineyard, and the extent, character, and origin of the movements.

506 —— Relation of mountain growth to formation of continents.

Geol. Soc. Am., Bull., vol. v, pp. 203–206.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, pp. 138–139 (⅜ p.); Am. Geol., vol. xiii, p. 144 (½ p.).

Describes the limitations as to the positions of mountains, and discusses the origin and occurrence of the broad belt of crust which supports the arches of strata formed by mountain-building forces, and on which the mountains lie in short ridges. Discusses the causes of mountain uplifting above sea level.

507 —— Phonomena of beach and dune sands.

Geol. Soc. Am., Bull., vol. v, pp. 207–212.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 139 (⅜ p.); Am. Geol., vol. xiii, pp. 144–145 (⅜ p.).

Discusses the causes of the resistance of beach sands to erosion, and describes their action in protecting seacoasts from erosion and their source of supply. Describes the resistance of dune sands to the percolation of water and the manner in which the material is transported.

508 **Shaler** (Nathaniel Southgate). On the distribution of earthquakes in the United States since the close of the Glacial period.

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 246–256.

Abstract: Am. Geol., vol. xiv, pp. 396–397 (½ p.).

Discusses the evidences of earthquake shocks indicated by the action of the ocean wave in moving poised blocks and unstable topographic forms along coast lines and by the overturning of unstable bodies on land. Gives the results of observations of these phenomena on the coast lines of the United States.

508*a* —— The origin and nature of soils.

Am. Geol., vol. xiv, pp. 114–115 (½ p.).

Noticed in Bibliography and Index for 1892 and 1893.

508*b* **Sherborn** (Charles Davies). An index to the genera and species of Foraminifera.

Smith. Inst., Misc. Coll., vol. xxxvii, pt. i (a to non) ii+240 pp.

509 **Siebenthal** (C. E.). The geology of Dallas County, Ark.

Ark. Geol. Surv., Ann Rept., 1891, vol. ii, pp. 279–318.

Describes the topographic and geologic features of the county and the occurrence of potter's clay.

510 **Simonds** (Frederick W.). [Glacial geology of Lake Cayuga and vicinity, New York.]

Am. Geol., vol. xiv, pp. 58–62 (correspondence).

Reviews the paper by R. S. Tarr on Lake Cayuga, a rock basin.

511 —— and **Hopkins** (T. C.). The geology of Benton County, Ark.

Ark. Geol. Surv., Ann. Rept., 1891, vol. ii, pp. 1–75.

Describes the topographic features of the county, the drainage and springs, the lithologic character and distribution of the Silurian, Devonian, and Carboniferous formations, and the character and occurrence of economic products.

512 **Simpson** (Charles T.). On some fossil unios and other fresh-water shells from the drift at Toronto, Canada; with a review of the distribution of the Unionidæ of northeastern North America.

U. S. Nat. Mus., Proc., vol. xvi, pp. 591–595.

Gives a list of the fossils collected and discusses the geologic and geographic distribution of the Unionidæ in northeastern North America.

513 **Simpson** (George B.). A discussion of the different genera of Fenestellidæ.

N. Y. State Mus., 47th Ann. Rept., pp. 881–921.

Discusses the relations of the genera and includes remarks on the various genera of Fenestellidæ.

514 —— Glossary and explanations of specific names of Bryozoa and corals described in volume vi, Palæontology of New York, and other reports.

N. Y. State Mus., 47th Ann. Rept., pp. 925–941.

515 **Smith** (Eugene A.). Geological surveys in Alabama.
Jour. of Geol., vol. ii, pp. 275–287.
Gives an account of the operations of the various geological surveys of Alabama.

516 —— The post-Eocene formations of the Coastal Plain of Alabama.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 285–296.
Describes the Pleistocene, Pliocene, Miocene, and Eocene deposits of Alabama and reviews previous descriptions of these and other beds of the Mississippi Valley.

517 —— Geological map and explanatory chart of Alabama.
Ala. Geol. Surv., Montgomery, Alabama.
Contains a colored geologic map of the State and a sheet explaining the lithologic character and distribution of the formations.

518 —— **Langdon** (Daniel W., jr.), and **Johnson** (Lawrence C.). On the geology of the Coastal Plain of Alabama, Cretaceous, Tertiary, and post-Tertiary formations.
Ala. Geol. Surv., pp. xxiv+759, pls. i–xxix.
Contains a general sketch of the geology of Alabama and a description of the lithologic and faunal characters, and the distribution in Alabama of the Cretaceous, Tertiary, and post-Tertiary formations.

519 **Smith** (Erastus G.). Artesian wells as a source of water supply.
Sci. Am. Suppl., vol. xxxvii, pp. 15065–15066.
Discusses briefly the geologic conditions essential to the existence of artesian wells and the chemical character of artesian water supply.

520 **Smith** (George Otis). Notes on crystals of scapolite, gypsum, and fayalite recently acquired by the university cabinet.
Johns Hopkins Univ. Circ., vol. xiii, No. 112, pp. 81–83.
Describes the crystallographic characters of the crystals mentioned.

521 **Smith** (James Perrin). The Arkansas Coal Measures in their relation to the Pacific Carboniferous province.
Jour. of Geol., vol. ii, pp. 187–203.
Abstract: Am. Jour. Sci., 3d ser., vol. xlvii. p. 482 (10 l.).
Compares the Coal Measures of Arkansas with the Permo-Carboniferous beds of Kansas and Nebraska and discusses the classification and age of the Arkansas coal beds and the character of the Carboniferous strata in other parts of western United States. Presents a table showing the correlation of the Arkansas Coal Measures with those of the Pacific Carboniferous province.

522 —— The metamorphic series of Shasta County, Cal.
Jour. of Geol., vol. ii, pp. 588–612.
Describes the geologic structure in this county and the lithologic character and fauna of the Carboniferous and Juratrias formations.

523 —— Age of the Auriferous slates of the Sierra Nevada.
Geol. Soc. Am., Bull., vol. v, pp. 243–258.
Abstracts: Am. Geol., vol. xiii, p. 215 (⅓ p.); Am. Nat., vol. xxviii, pp. 414–415 (½ p.).
Reviews the opinions of other writers on this subject and the results shown by recent discoveries and determination of fossil forms from the Carboniferous, Triassic, and Jurassic strata at different localities in the Sierra Nevada. Discusses the correlation of the Mariposa and Aucella-bearing rocks with the Jura of Europe.

524 **Smyth** (C. H., jr.). On gabbros in the southwestern Adirondack region [New York].

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 54–65.

Describes the petrographic characters of the gabbro of the southwest corner of Hamilton County and the contact of the gabbro and gneiss.

525 —— A group of diabase dikes among the Thousand Islands, St. Lawrence River.

N. Y. Acad. Sci., Trans., vol. xiii, pp. 209–214.

Describes the occurrence of the dikes and the microscopic character of the dike rocks.

526 —— Report on a preliminary examination of the general and economic geology of four townships in St. Lawrence and Jefferson counties [N. Y.].

N. Y. State Mus., 47th Ann. Rept., pp. 687–709, with map.

Describes the character of the crystalline and sedimentary rocks of the region, and discusses the evidences as to their stratigraphic relations. Discusses the evidences as to the origin of the iron ores of the region, and describes the talc and marble industries.

527 —— On a basic rock derived from granite.

Jour. of Geol., vol. ii, pp. 667–679.

Abstract: Am. Geol., vol. xiv, p. 195 (10 l.).

Describes the character and origin of the rock and the microscopic and chemical characteristics of the alteration product occurring in hematite deposits of Jefferson County, N. Y.

528 **Smyth** (Henry Lloyd). Relations of the Lower Menominee and Lower Marquette series in Michigan (preliminary).

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 216–223.

Abstract: Am. Geol., vol. xiii, p. 359 (⅓ p.).

Describes the lithologic characters and succession of these two series, discusses their structure and distribution, and gives a summary of conclusions.

529 —— The quartzite tongue at Republic, Mich.

Jour. of Geol., vol. ii, pp. 680–691, figs. 1–5.

Describes the geologic structure of the region and the characteristics of the quartzite and jasper tongues that extend from the main mass of quartzite.

530 **Spencer** (Arthur C.). Occurrence in Iowa of fossiliferous concretions similar to those of Mazon Creek.

Iowa Acad. Sci., Proc., vol. i, pt. iv, p. 55.

Describes the occurrence of plant remains in the Carboniferous of Iowa.

531 **Spencer** (Joseph W.). Deformation of the Lundy Beach and birth of Lake Erie.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 207–212.

Describes the formation of Lundy Beach and its effect on the drainage of the Great Lakes and gives an estimate of the rate of uplift in the Niagara district.

532 **Spencer** (Joseph W.). The duration of Niagara Falls.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 455-472.
Abstracts: Am. Geol., vol. xiv, p. 204 (7 l.); Am. Nat., vol. xxviii, pp. 859-862.
Reviews the different opinions as to the age of the falls, describes the topography and geology of the region, and discusses the history of the Great Lakes and Niagara River, the age of the falls as shown by terrestrial movements, and the relationship of the falls to geologic time. Gives a summary of conclusions.

533 —— The rock basin of Cayuga Lake [New York].
Am. Geol., vol. xiv, pp. 134-135 (correspondence).
Reviews the evidence indicating that Lake Cayuga occupies a rock basin.

534 —— The age of Niagara Falls.
Am. Geol., vol. xiv, pp. 135-136 (correspondence).
Gives a brief statement of the results of the writer's studies in the region of the Great Lakes.

535 —— A review of the history of the Great Lakes.
Am. Geol., vol. xiv, pp. 289-301, pl. viii.
Discusses the evidence of a former high continental elevation and describes the character of the lake basin, the drainage of the region, the formation of the modern lakes, the history of the Niagara River, and the changes of the outlets of the lakes.

536 —— Terrestrial submergence southeast of the American Continent.
Abstracts: Geol. Soc. Am., Bull., vol. v, pp. 19-21; Am. Geol., vol. xii, p. 168 (⅜ p.); Am. Nat., vol. xxviii, p. 51 (⅜ p.).
Discusses the evidences of a submergence in this region.

537 —— Niagara Falls as a chronometer of geological time.
Abstract: Roy. Soc. of London, Proc., vol. l, pp. 145-148.
Communicated by Prof. T. G. Bonney.

538 —— The Yumuri Valley of Cuba.
Geol. Mag., dec. iv, vol. i, pp. 499-502.
Describes the formation of the valley in Pleistocene time.

538*a* —— The Paleozoic group: The geology of ten counties of northwestern Georgia and resources.
Abstract: Am. Jour. Sci., 3d ser., vol. xlvii, p. 78 (¼ p.).
Review: Jour. of Geol., vol. ii, pp. 335-339, by E. A. Smith.
Noticed in Bibliography and Index for 1892 and 1893.

538*b* —— The drainage of the Great Lakes in the Mississippi by way of Chicago.
Abstract: Am. Nat., vol. xxviii, p. 884 (¼ p.), by the author.

538*c* —— The restoration of the Antillean Continent.
Abstract: Am. Nat., vol. xxviii, pp. 881-884, by the author.

539 **Spurr** (J. E.). The iron ores of the Mesabi range [Minnesota].
Am. Geol., vol. xiii, pp. 335–345.
Abstract: Eng. and Mg. Jour., vol. lvii, pp. 583–584.
Describes the structure of the rock formations, the character of the iron-bearing rocks and the changes they have undergone, and discusses the origin of the ore deposits.

540 —— The iron-bearing rocks of the Mesabi range, in Minnesota.
Minn. Geol. and Nat. Hist. Surv., Bull., No. x, pp. viii+259, pls. i–xii.
Abstract: Am. Geol., vol. xiv, pp. 251–252.
Review: Jour. of Geol., vol. ii, pp. 545–546, by T. C. Hopkins.
Describes the structure and stratigraphy of the range and the microscopic character of certain groups of the iron-bearing rocks. Discusses the classification of these rocks and the nature of the agents that have affected them, and the formation, structure, and origin of the ore bodies. Includes a summary statement of the author's conclusions.

541 —— Preliminary report on field work done in 1893.
Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., pp. 115–124.
Describes the area mapped and the topographic and geologic methods employed. Discusses the origin and age of the granite of Giants range and describes the schists and Thompson slates of the Keewatin series, the Cretaceous outliers, and the glacial phenomena.

542 —— False bedding in stratified drift deposits.
Am. Geol., vol. xiii, pp. 43–47, figs. 1–2.
Describes the mode of formation of false bedding in a stratified drift deposit in northeastern Minnesota.

543 —— Oscillation and single current ripple marks.
Am. Geol., vol. xiii, pp. 201–206 (correspondence).
Continues the discussion of the evidence of ripple marks described in No. 542.

544 —— The stratigraphic position of the Thompson slates.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 159–166.
Describes the geographic distribution of this series in eastern Minnesota and their relations to the surrounding rocks. Reviews previous correlations, and discusses the evidences indicating their geologic age and their correlation with the Keewatin of the Mesabi range rather than with the Animikie.

545 **Stanton** (Timothy W.). [On some Mesozoic and Tertiary exhibits at the World's Columbian Exposition.]
Am. Geol., vol. xiii, pp. 289–290 (correspondence).
Refers to the nomenclature of certain specimens from the Cretaceous and their geographic and stratigraphic occurrence.

545*a* —— The Colorado formation and its invertebrate fauna.
Review: Jour. of Geol., vol. ii, pp. 751–752, by H. F. Bain.
Abstracts: Am. Nat., vol. xxviii, p. 510 (⅓ p.); Am. Geol., vol. xiv, p. 51 (⅓ p.).
Noticed in Bibliography and Index for 1892 and 1893.

545*b* —— **Diller** (J. S.) and. The Shasta-Chico series.
Geol. Soc. Am., Bull., vol. v, pp. 435–464.
See Diller (J. S.) and Stanton (T. W.), No. 155.

545*c* **Stanton** (Timothy W.), **Turner** (H. W.) and. Notes on the geology of the Coast range of California.
Am. Geol., vol. xiv, pp. 92–98.
See Turner (H. W.) and Stanton (T. W.), No. 566.

546 **Stevenson** (John J.). Origin of the Pennsylvania anthracite.
Geol. Soc. Am., Bull., vol. v, pp. 39–70, pl. 2.
Abstract; Am. Nat., vol. xxviii, pp. 160–161.
Describes the coal areas of Pennsylvania and discusses the extent of deformation of the coal basins and the causes of variation in the volatile combustibles of Pennsylvania coals. Discusses the evidences of metamorphism in the formation of coal, reviews the different theories, and gives the author's hypothesis as to the origin of coal beds.

546*a* —— Use of the name "Catskill."
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 171 (½ p.).

547 **Storms** (W. H.). Ancient channel system of Calaveras County [Cal.].
Cal. State Mg. Bureau, 12th Rept., pp. 482–492, with two maps and cross sections.
Describes the character and occurrence of the ancient river channels of this region.

548 **Stose** (George W.). A specimen of Ceratiocaris acuminata Hall from the Water Lime of Buffalo, N. Y.
Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 369–371.
Gives a description of the specimen.

548*a* **Streeruwitz** (W. H. von). Trans-Pecos, Texas.
Abstract: Am. Nat., vol. xxviii, p. 263.
Noticed in Bibliography and Index for 1892 and 1893.

T.

549 **Tarr** (Ralph S.). The origin of drumlins.
Am. Geol., vol. xiii, pp. 393–407.
Reviews the theories advanced to explain the formation of drumlins. Describes their distribution and discusses the evidences as to their mode of formation. Concludes that they may have been formed by glacial erosion.

550 —— Lake Cayuga a rock basin.
Geol. Soc. Am., Bull., vol. v, pp. 339–356, pl. 14.
Abstracts: Am. Geol., vol. xiii, p. 216 (¼ p.); Am. Nat., vol. xxviii, p. 596 (⅛ p.).
Describes the physical features of the region and reviews opinions of previous writers. Discusses the bearing of observations made and gives the author's summary. Includes a list of 21 papers on the geology of the Finger Lake region.

551 —— Lake Cayuga a rock basin.
Am. Geol., vol. xiv, pp. 194–195 (correspondence).
Refers to certain comments on a previous paper on the same subject.

551*a* **Tarr** (Ralph S.). The economic geology of the United States.
MacMillan & Co., New York.
Reviews: Jour. of Geol., vol. ii, pp. 226–231, by R. A. F. Penrose, jr.; Am. Geol., vol. xiii, pp. 189–192.

551*b* —— Physical geography of Texas.
Abstract: Am. Nat., vol. xxviii, pp. 50–51 (⅔ p.).
Noticed in Bibliography and Index for 1892 and 1893.

552 **Taylor** (F. B.). A reconnoissance of the abandoned shore lines of Green Bay [Michigan and Wisconsin].
Am. Geol., vol. xiii, pp. 316-327, with map.
Describes the character and location of some of the abandoned shore lines of Green Bay.

553 —— A reconnoissance of the abandoned shore lines of the south coast of Lake Superior.
Am. Geol., vol. xiii, pp. 365-383, with map.
Describes the occurrence of the various shore lines, with special reference to the highest shore line, and gives a summary of observations and the author's conclusions.

554 —— The limit of post-Glacial submergence in the highlands east of Georgian Bay [Ontario].
Am. Geol., vol. xiv, pp. 273-289, with map.
Describes the glacial formations of the region and gives a summary and conclusions.

555 —— The ancient strait at Nipissing [Ontario].
Geol. Soc. Am., Bull., vol. v, pp. 620–626, pl. 20.
Abstract: Am. Geol., vol. xiii, pp. 220–221 (⅔ p.).
Describes the Nipissing and other higher level beaches and glacial phenomena of the region and gives the author's conclusions.

555*a* **Texas, Geological Survey.** Fourth Annual Report, 1892.
Abstract: Am. Jour. Sci., 3d ser., vol. xlvii, pp. 319-320 (½ p.).

556 **Tight** (W. G.). A glacial ice dam and a limit to the ice sheet in central Ohio.
Am. Nat., vol. xxviii, pp. 488–493, pls. 13–15.
Describes the glacial phenomena in the vicinity of the Licking River, in Licking County, Ohio.

557 —— Contribution to the knowledge of the pre-Glacial drainage of Ohio.
Denison Univ., Bull., vol. viii, pp. 35–62.
Abstract: Am. Geol., vol. xiv, pp. 188–189.
Describes the present drainage systems of the Licking, Muskingum, Hocking, Scioto, and Miami rivers in Ohio, and discusses the evidences of the character of the pre-Glacial drainage of the region.

558 **Tilton** (J. E.). Origin of the present drainage system of Warren County [Iowa].
Iowa Acad. Sci., Proc., vol. i, pt. iv, pp. 31–33.
Describes the drainage systems and concludes that they were marked out in pre-Glacial time.

559 **Todd** (James E.). A preliminary report on the geology of South Dakota.

South Dakota Geol. Surv., Bull. No. 1, pp. 1–172, pls. i–v, figs. 1–2.

Describes the topographic and geologic features of the State, discusses the origin and distribution of rocks of Archean age, and describes the lithologic character and distribution of the sedimentary and eruptive rocks, and gives an account of the economic resources. Includes a preliminary geologic map of South Dakota and a table showing the geologic formations occurring in the State.

560 —— Preliminary report of a reconnoissance in northwestern Minnesota in 1892.

Minn. Geol. and Nat. Hist. Surv., 21st Ann. Rept., pp. 68–78.

Describes the route traversed and the glacial phenomena of the region.

560*a* —— Preliminary report of a reconnoissance in northwestern Minnesota during 1893.

Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., pp. 90–96.

Describes the character of the country traversed and the glacial deposits.

561 —— Pleistocene problems in Missouri.

Geol. Soc. Am., Bull., vol. v, pp. 531–548.

Abstracts: Am. Geol., vol. xiii, pp. 216–217 (⅛ p.); Am. Nat., vol. xxviii, p. 1027 (⅛ p.).

Describes the bowldery drift and loess of the pre-Glacial formations of Missouri, and discusses the subglacial lacustrine and fluviatile hypotheses as to the origin of the Pleistocene formations.

562 **Turner** (Henry W.). Jackson folio. California.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 11.

Describes the relations of land and water, and the dynamic movements affecting the Gold Belt of California in Paleozoic, Mesozoic, and Cenozoic times, and gives a generalized section of the strata. Describes the topography of the Jackson sheet and the character and distribution of the Auriferous slates, igneous rocks, the Tertiary rocks, including the Neocene auriferous gravels, and the Pleistocene beds. Describes the occurrence of the gold-quartz veins, gold-bearing gravels, copper, iron, coal, and building stones. Includes topographic, colored areal geologic, economic geologic, and structure section maps.

563 —— The rocks of the Sierra Nevada.

U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 435–495, pls. xlviii–lix, figs. 49–51.

Describes the several divisions of the Auriferous slate series and the overlying Chico, Tejon, Ione, Neocene, and Pleistocene deposits. Describes the character and occurrence of the intrusive and extrusive igneous rocks.

564 —— Geological notes on the Sierra Nevada.

Am. Geol., vol. xiii, pp. 228–249 and 297–316.

Describes the characteristics of each of the sedimentary formations recognized in the Sierra Nevada, ranging in age from the Silurian to Pleistocene. In the second part the author describes the occurrence and structure of the intrusive and extrusive igneous rocks.

665 **Turner** (Henry W.). Notes on the gold ores of California.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 467–473.
Describes the veins of the Auriferous slate series, the veins in granite, and the occurrence of gold with albite, barite, calcite, quartz in rhyolite, and cinnabar.

565*a* —— **Lindgren** (W.) and. Placerville folio. California.
U. S. Geol. Surv., Geologic Atlas of the United States, folio 3.
See Lindgren (W.) and Turner (H. W.), No. 365.

566 —— and **Stanton** (T. W.). Notes on the geology of the Coast ranges of California.
Am. Geol. xiv, pp. 92–98.
Discusses the evidence indicating the conformability of the Chico and Tejon series at New Idria, Cal., and gives a list of fossils from Tejon strata collected in Fresno, Sonomo, Lake, and Yulo counties.

567 **Tuttle** (E. G.). The Sabinas coal field [Mexico].
Eng. and Mg. Jour., vol. lviii, pp. 390–392.
Describes the coal seams and the character of the coal, and gives its chemical analyses. Accompanied by a geologic sketch map and cross sections of the region.

568 **Tyrrell** (J. Burr). Notes on the Pleistocene of the Northwest Territories of Canada, northwest and west of Hudson Bay.
Geol. Mag., dec. iv, vol. i, pp. 394–399.
Abstract: Am. Geol., vol. xiv, pp. 338–340.
Describes the lithologic characters of the Cambrian, pre-Cambrian, and glacial deposits of this region, and presents a map of the Territories.

U.

569 **Udden** (J. A.). Erosion, transportation, and sedimentation performed by the atmosphere.
Jour. of Geol., vol. ii, pp. 318–331.
Abstract: Am. Nat., vol. xxviii, pp. 953–954.
Compares the erosive power of air and water and describes the conditions favorable to the erosion and transportation of the earth's material by wind and the character of the deposits thus formed.

570 **Ulrich** (E. O.). New and little known Lamellibranchiata from the Lower Silurian rocks of Ohio and adjacent States.
Ohio Geol. Surv., vol vii, pp. 627–693.
Describes and figures fossils from the Lower Silurian.

570*a* **United States Geological Survey**. Eleventh Annual Report, 1889–90.
Abstract: Am. Nat., vol. xxviii, p. 336 (¼ p.).

570*b* —— Twelfth Annual Report, 1890–91.
Abstract: Am. Geol., vol. xiv, pp. 113–114.

570*c* **United States National Museum**. Report, 1892.
Abstract: Am. Nat., vol. xxviii, pp. 866–867 (¼ p.).

571 **Upham** (Warren). Wave-like progress of an epeirogenic uplift.
Jour. of Geol., vol. ii, pp. 383–395.
Discusses the evidences of an epeirogenic movement in the northern two-thirds of North America in late Tertiary and Quaternary times.

572 —— Marine shell fragments in drumlins near Boston [Mass.].
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 238–239 (communicated).
Mentions fossils found in drumlins near Boston and considers them pre-Glacial.

573 —— Diversity of the glacial drift along its boundary.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 358–365.
Abstract: Am. Geol., vol. xiii, p. 223 (¾ p.).
Describes the early and later drift of the Mississippi Valley, and discusses the oscillations of the boundary of the ice sheet during its general recession.

574 —— British drift theories.
Am. Geol., vol. xiii, pp. 275–279.
Reviews the theories advanced by certain English writers to explain the formation of drift deposits.

575 —— Causes and conditions of glaciation.
Am. Geol., vol. xiv, pp. 12–20.
Reviews the recent literature on the origin and duration of the Glacial period, and remarks on the evidences of great erosion of the Lafayette formation in the United States in early Quaternary time.

576 —— The Niagara gorge as a measure of the post-Glacial period.
Am. Geol., vol. xiv, pp. 62–64 (correspondence).
Reviews the evidences indicating the extent of the glacial Lakes Warren and Algonquin and their bearing on the probable volume of the Niagara River.

577 —— The Madison type of drumlins.
Am. Geol., vol. xiv, pp. 69–83, with map, pl. iii, figs. 4–7.
Abstract: Am. Geol., vol. xiii, pp. 222–223 (9 l.).
Describes drumlins with nucleal stratified sand in Massachusetts, and gives a more detailed description of similar drumlins in the vicinity of Madson, Wis.

578 —— Tertiary and early Quaternary baseleveling in Minnesota, Manitoba, and northwestward.
Am. Geol., vol. xiv, pp. 235–246.
Abstracts: Jour. of Geol., vol. ii, p. 754 (¼ p.); Am. Geol., vol. xiv, p. 199 (⅓ p.)
Describes the Tertiary and Quaternary baseleveling and the resultant topographic forms in this region. Discusses the evidence of the direction of the drainage during this period and the relationship of the later baseleveling to the Ice age.

579 —— Evidence of superglacial eskers in Illinois and northward.
Am. Geol., vol. xiv, pp. 403–405 (correspondence).
Discusses certain glacial phenomena in Illinois and Minnesota.

580 **Upham** (Warren). Quaternary time divisible into three periods—the Lafayette, Glacial, and Recent.

Am. Nat., vol. xxviii, pp. 979–988.

Abstract: Am. Geol., vol. xiv, p. 203 (⅕ p.).

Reviews the previous opinions on the duration of the geologic subdivisions mentioned and discusses the classification proposed.

581 —— Preliminary report of field work during 1893 in northeastern Minnesota, chiefly relating to the glacial drift.

Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., pp. 18–66.

Describes the topography and the Archean outcrops of the region. Discusses the evidences of Cretaceous beds underlying the drift, and describes the glacial deposits.

582 —— The origin of drumlins.

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 2–17.

Abstract: Am. Nat., vol. xxviii, p. 596 (⅓ p.).

Describes the various forms of drumlins and their areal distribution and reviews the previous theories as to their origin. Considers them accumulations from englacial drift. Compares them with moraines, kames, and eskers.

583 —— Deflected glacial striæ in Somerville [Mass.].

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 33–42.

Describes the occurrence of glacial striæ and gives their observed courses at different points in the vicinity of Somerville, Mass.

584 —— The fishing banks between Cape Cod and Newfoundland.

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 42–48; Am. Jour. Sci., 3d ser., vol. xlvii, pp. 123–129.

Abstract: Am. Geol., vol. xii, pp. 190–191 (½ p.).

Describes the fishing banks of this region and discusses the evidences of a long-continued uplift at the close of the Tertiary period.

585 —— [Extra-morainic drift of the Delaware Valley.]

Geol. Soc. Am., Bull., vol. v, pp. 16–17 (¼ p.).

In discussion of papers by A. A. Wright and E. H. Williams, jr., on the glaciated regions of New Jersey and Pennsylvania.

586 —— [Terrestrial submergence southeast of the American Continent.]

Geol. Soc. Am., Bull., vol. v, p. 22 (¼ p.).

In discussion of paper by J. W. Spencer on the same subject.

587 —— Evidences of the derivation of the kames, eskers, and moraines of the North American ice sheet, chiefly from its englacial drift.

Geol. Soc. Am., Bull., vol. v, pp. 71–86.

Abstract: Am. Geol., vol. xii, p. 169 (⅛ p.).

Describes glacial phenomena of Long Island, near Rochester, and in portions of North Dakota and Manitoba, which are considered typical examples of the transportation and deposition of the materials of kames, eskers, and moraines.

588 **Upham** (Warren). The succession of Pleistocene formations in the Mississippi and Nelson River basins.

Geol. Soc. Am., Bull., vol. v, pp. 87–100.

Abstract: Am. Geol., vol. xii, pp. 170–171 (½ p.).

Describes the Lafayette formation, the glacial drift and marginal moraines, and the loess and other modified drift deposits of the Mississippi Valley and Lake Agassiz and its deltas. Discusses the evidences of elevation prior and subsequent to the Glacial epoch.

589 —— Pleistocene climatic changes.

Geol. Mag., dec. iv, vol. i, pp. 340–349.

Abstract: Am. Nat., vol. xxviii, p. 886 (⅛ p.).

Reviews the history of the Glacial period in North America and discusses the causes of the climatic changes.

589*a* —— Tertiary and Quaternary stream erosion of North America.

Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlii, pp. 181–183; Am. Geol., vol. xii, pp. 180–181 (½ p.).

V.

590 **Van Hise** (Charles R.). Summary of current pre-Cambrian North American literature.

Jour. of Geol., vol. ii, pp. 109–118 and 444–454.

Reviews recent papers on the pre-Cambrian strata of North America.

591 —— The pre-Cambrian rocks of North America.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 110–150.

This paper is condensed from the final chapter of Bulletin No. 86 of the U. S. Geologic Survey, Correlation Papers, Archean and Algonkian, and noticed in Bibliography and Index for 1892 and 1893.

592 —— [Correlation of clastic rocks.]

Int. Cong. Geol., Compte Rendu, 5th session, pp. 167, 172, and 173.

Remarks on the methods employed in the correlation of pre-Cambrian rocks.

593 —— Excursion to Lake Superior: pre-Cambrian geology of the Lake Superior region.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 489–512.

Describes the relations of the Basement Complex, Lower Huronian, Upper Huronian, and Cambrian in this region, and gives the author's general conclusions. Gives a list of 27 papers referring to the geology of the Lake Superior region.

594 —— The succession in the Marquette iron district of Michigan.

Abstract: Geol. Soc. Am., Bull., vol. v, pp. 5–6.

Describes the stratigraphic relations of the formations of the region.

595 —— Character of folds in the Marquette iron district.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xlii, p. 171 (⅛ p.).

The folding is described as resembling the fan structure of the Alps, except that it is a synclinorium rather than an anticlinorium.

595*a* —— Correlation papers: Archean and Algonkian.

Abstract: Am. Nat., vol. xxviii, p. 944 (⅛ p.).

Noticed in Bibliography and Index for 1892 and 1893.

596 **Vermeule** (Cornelius Clarkson). Report on water supply, water power, the flow of streams, and attendant phenomena.

N. J. Geol. Surv., vol. iii, Final Report, pp. 1–352, appendixes i and ii, pp. 1–62.

Gives data concerning the amount of rainfall, evaporation, and stream gaugings of the drainage systems of New Jersey, and describes the process of stream pollution.

597 —— Water supply and water power.

N. J. Geol. Surv., Rept., 1893, pp. 373–385, with map.

Describes the pollution of the Passaic and other rivers of New Jersey, and gives the location and capacity of certain localities to furnish water supply in the future.

W.

598 **Wadsworth** (M. E.). A sketch of the geology of the iron, gold, and copper districts [Michigan].

Michigan, Rept. of the State Board of Geol. Surv., 1891 and 1892, pp. 79–174.

Describes the general succession of the formations in Michigan, the lithologic character of the rocks associated with the iron ore bodies, and those of the gold and copper deposits.

599 **Wahnschaffe** (Felix). [Classification of Pleistocene deposits.]

Int. Cong. Geol., Compte Rendu, 5th session, pp. 195 and 196–197.

Considers a chronologic classification possible for the Pleistocene deposits of North Germany.

600 **Walcott** (Charles Doolittle). Notes on the Cambrian rocks of Pennsylvania, from the Susquehanna to the Delaware.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 37–41.

Abstract: Am. Nat., vol. xxviii, pp. 950–951.

Describes the lithologic and paleontologic characteristics of the Cambrian beds of Lancaster County and of the northern belt of limestone in Pennsylvania and New Jersey. Concludes that the basal quartzite is the same from Vermont to Alabama, that the basal sandstone in this belt is of Lower Cambrian age, and that the superjacent limestones of the northern part carry the Olenellus fauna, and in the central and southern part the limestones appear to be represented by shales.

601 —— On the occurrence of Olenellus in the Green Pond Mountain series of northern New Jersey, with a note on the conglomerates.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 309–311.

Mentions the finding of Olenellus in the limestone in this region, and remarks on the occurrence of a conglomerate both under and overlying the limestone, and on the correlation of the conglomerate of this basin of sedimentation with those of another to the west and north.

602 —— Pre-Cambrian igneous rocks of the Unkar terrane, Grand Canyon of the Colorado, Arizona.

U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 497–519, pls. lx–lxv, figs. 52–53.

Describes the sections of the Chuar and Unkar terranes and of the Chuar lava butte. Discusses the conditions of deposition and age of these beds and their correlation with other Algonkian strata.

603 **Walcott** (Charles Doolittle). [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 168–170.
Remarks on the author's methods employed in the correlation of the Cambrian rocks of North America.

604 —— Silurian vertebrate life at Canyon City [Colo.].
Int. Cong. Geol., Compte Rendu, 5th session, pp. 427–428.
Gives a brief description of the character of the ichthyic fauna found in Silurian rocks in the vicinity of Canyon City, Colo.

605 —— Itinerary, Niagara Falls to New York City.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 459–463.
Describes the geology along the railroad from Niagara Falls to New York City.

606 —— [Terrestrial submergence southeast of the American Continent.]
Geol. Soc. Am., Bull., vol. v, p. 22 (½ p.).
In discussion of paper by J. W. Spencer on the same subject.

607 —— Paleozoic intraformational conglomerates.
Geol. Soc. Am., Bull., vol. v, pp. 191–198, pls. 5–7.
Abstract: Am. Nat., vol. xxviii, p. 1023 (½ p.).
Gives a definition of the term intraformational conglomerate and describes localities in Canada, Vermont, New York, Pennsylvania, and Tennessee where they occur, and discusses their origin.

608 —— Geologic time, as indicated by the sedimentary rocks of North America.
Am. Assoc. Adv. Sci., Proc., vol. xlii, pp. 129–169, with map of North America; Smith. Inst., Ann. Rept., 1892–93, pp. 301–334.
Abstract: Am. Nat., vol. xxviii, pp. 793–794.
Describes the growth and geographic conditions of the continent, the mode of formation and distribution of the deposits of the Cordilleran sea. Discusses the duration of Paleozoic time, as indicated by mechanical and chemical sedimentation, and gives an estimate of the duration of the different periods of post-Archean time.

609 —— Note on some appendages of the trilobites.
Geol. Mag., dec. iv, vol. i, pp. 246–251, pl. viii.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, p. 481 (½ p.); Am. Nat., vol. xxviii, p. 878 (½ p.).
Refers to the recent discovery of the antennæ of trilobites and compares them with the extremities of certain specimens of Ceraurus, Calymene, and Asaphus.

609*a* —— The North American Continent during Cambrian time.
Abstract: Am. Geol., vol. xiv, pp. 116–117.
Noticed in Bibliography and Index for 1892 and 1893.

610 **Walker** (T. L.). Notes on nickeliferous pyrite from Murray mine, Sudbury, Ontario.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 312–314.
Describes this mineral and gives its chemical analysis.

611 **Wallace** (Alfred R.). The Ice age and its work.
Pop. Sci. Mo., vol. vliv, pp. 681–689, 781–791, and vol. xlv, pp. 40–50 and 244–258.
Describes glacial phenomena of Europe and North America.

611*a* **Ward** (Lester F.). Principes et méthodes d'étude de corrélation au moyen des plantes fossiles.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 97–109.
Abstract: Am. Geol., vol. xiv, pp. 334–335 (⅔ p.).
Published in English in American Geologist, vol. ix, p. 34, and noticed in Bibliography and Index for 1892 and 1893.

612 —— [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 167–168.
Gives a brief summary of methods of correlation of rock formations by means of fossil plants.

613 —— The Cretaceous rim of the Black Hills [South Dakota].
Jour. of Geol., vol. ii, pp. 250–266.
Abstract: Am, Nat., vol. xxviii, pp. 794–795 (½ p.).
Describes the occurrence of cycads in Cretaceous strata of the Black Hills and gives the section of the Cretaceous and Jurassic strata, with notes on the fossil plants collected. Discusses the bearing of the facts presented on the Lower Cretaceous of North America.

614 —— Recent discoveries of cycadean trunks in the Potomac formation of Maryland.
Torrey Bot. Club, Bull., vol. xxi, pp. 291–299.
Gives a historical sketch of the discovery of cycadean trunks in the Cretaceous strata of Maryland.

615 **Weed** (Walter Harvey). The formation of hot-spring deposits.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 360–363.
Describes the formation of hot-spring deposits in the Yellowstone National Park.

616 —— Livingston to Snake Plains. Itinerary, Livingston to Bozeman [Mont.].
Int. Cong. Geol., Compte Rendu, 5th session, pp. 364–365.
Describes the geologic structure of this region.

617 —— The Laramie and the overlying Livingston formation in Montana, with report on the flora by F. H. Knowlton.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, pp. 404–405; Am. Geol., vol. xiv, pp. 391–392.
Noticed in Bibliography and Index for 1892 and 1893.

617*a* —— The glaciation of the Yellowstone Valley north of the Park.
Abstract: Am. Geol., vol. xiv, pp. 393–394 (½ p.).
Noticed in Bibliography and Index for 1892 and 1893.

617*b* —— and **Iddings** (J. P.). Yellowstone Valley, from Livingston to Cinnabar.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 326–335.
Describes the geology and structure of the region and its glacial phenomena.

617*c* **Weed** (Walter Harvey) and **Iddings** (J. P.). Livingston folio. Montana.

U. S. Geol. Surv., Geologic Atlas of the United States, folio 1.

See Iddings (J. P.) and Weed (W. H.), No. 307.

618 **Weeks** (Joseph D.). The Potomac and Roaring Creek coal fields in West Virginia.

U. S. Geol. Surv., 14th Ann. Rept., pt. 2, pp. 567–590, pls. lxxiii–lxxiv, figs. 73–75.

Describes the location of the coal basins, gives the sections displayed at various points and chemical analyses of the coals.

618*a* **Wells** (H. L.), **Pirsson** (L. V.) and. On the occurrence of leadhillite in Missouri, and its chemical composition.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 219–226.

See Pirsson (L. V.) and Wells (H. L.), No. 457.

619 **Westgate** (Lewis G.). The mineralogical character of certain New Jersey limestones.

Am. Geol., vol. xiv, pp. 308–313.

Gives a chemical analysis of the limestone and describes the characters of pyroxene and biotite and the microscopic characters of the two special types of the rock, pyroxene rock and quartz rock.

620 —— The age of the crystalline limestones of Warren County, N. J.

Am. Geol., vol. xiv, pp. 369–379, with map.

Describes the petrographic characters of these limestones and their relationship with other crystalline limestones of the State, and reviews the opinions of other writers as to their age. Describes the relations of the limestones with the gneisses and eruptive rocks, and concludes that the limestones of this region are older than the blue magnesian limestone of Cambrian age.

621 **Weston** (T. C.). Notes on the "Quebec group."

Ottawa Nat., vol. viii, pp. 81–82.

Describes an exposure of these beds near Quebec.

622 —— Notes on the Miocene Tertiary rocks of the Cypress Hills, Northwest Territory, Canada.

Nova Scotian Inst. Sci., Proc. and Trans., 2d ser., vol. i, pp. 223–227.

Gives a section of the Miocene beds in this region and notes on the fossils found in them.

623 **Wheeler** (H. A.). The calculation of the fusibility of clays.

Eng. and Mg. Jour., vol. lvii, pp. 224–225 and 244.

Gives in tabular form the chemical analyses and fusibility of clays from different parts of Missouri, and discusses the results obtained.

624 **White** (Charles A.). The relation of biology to geological investigation.

U. S. Nat. Mus., Ann. Rept., 1892, pp. 245–368.

Describes the character and limitations of sedimentary formations and discusses the character, origin, and relation of fossil remains to structural geology, the chronological value of fossils, and the criteria of past aqueous conditions.

624*a* **White** (David). Flora of the outlying Carboniferous basins of southwestern Missouri.

Abstract: Am. Geol., vol. xiii, pp. 283-284 (½ p.).

Noticed in Bibliography and Index for 1892 and 1893.

625 **White** (Israel C.). From Cumberland, Md., to the Ohio River.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 279–288.

Describes the outcrops of the Devonian and Caboniferous rocks and the structure of the Appalachians in this region.

625*a* —— [Past drainage systems of the Upper Ohio basin.]

Abstract: Am. Geol., vol. xiii, p. 219 (½ p.).

626 **White** (Theodore Greely). The geology of Essex and Willsboro townships, Essex County, N. Y.

N. Y. Acad. Sci., Trans., vol. xiii, pp. 214–233, pls. vi–vii.

Describes the geology of the region, including strata of Archean, Cambrian, Silurian, and Pleistocene age. Includes a record of dikes and list of fossils collected.

626*a* **Whiteaves** (J. F.). The Cretaceous system of Canada.

Abstracts: Am. Geol., vol. xiii, p. 193 (9 l.); Am. Nat., vol. xxviii, p. 161 (⅔ p.).

Noticed in Bibliography and Index for 1892 and 1893.

626*b* —— Note on the recent discovery of large unio-like shells in the Coal Measures of South Joggins, Nova Scotia.

Abstracts: Am. Geol., vol. xiii, p. 193 (7 l.); Can. Rec. Sci., vol. vi, pp. 59–60 (½ p.).

Noticed in Bibliography and Index for 1892 and 1893.

627 **Whitfield** (Robert Parr). On new forms of marine algæ from the Trenton limestone, with observations on Buthograptus laxus Hall.

Am. Mus. Nat. Hist., Bull., vol. vi, pp. 351–358, pl. xi.

Considers that certain fossils that have been described as graptolites are true marine algæ. Describes three new genera and species.

628 —— Mollusca and Crustacea of the Miocene formations of New Jersey.

U. S. Geol. Surv., Mon. xxiv, 195 pp., pls. i–xxiv.

Reviews previous descriptions of fossils from these beds. Gives a list of the genera and species found and describes many of them.

629 —— Contributions to the paleontology of Ohio.

Ohio Geol. Surv., vol. vii, pp. 407–494.

Describes fossils from the Paleozoic rocks of Ohio.

629*a* —— Republication of descriptions of Lower Carboniferous Crinoidea from the Hall collection in the American Museum of Natural History, with illustrations of the original type specimens not heretofore figured.

Review: Am. Geol., vol. xiii, p. 124–125.

630 **Whittle** (Charles Livy). The occurrence of Algonkian rocks in Vermont and the evidence for their subdivision.

Jour. of Geol., vol. ii, pp. 396-429.

Describes the topographic and geologic features of the Green Mountains, and the lithologic and structural differences in the different divisions of the Algonkian series.

631 —— The general structure of the main axis of the Green Mountains [Vermont].

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 347-355.

Describes the rocks which underlie the Olenellus horizon in this region, which are referred to the Algonkian, and the orographic disturbances which they have suffered, and discusses the character of the folding of the Green Mountains.

632 **Williams** (E. H., jr.). South Mountain glaciation [Pennsylvania].

Geol. Soc. Am., Bull., vol. v, pp. 13-15.

Describes glacial phenomena of this region which form a fringe of the great terminal moraine in Pennsylvania.

633 —— Extra-morainic drift between the Delaware and the Schuylkill [Pennsylvania].

Geol. Soc. Am., Bull., vol. v., pp. 281-296, pls. 9-11.

Abstract: Am. Geol., vol. xiii, p. 221 (½ p.).

Describes the topographic features, drainage systems, and the glacial deposits and underlying rocks of the region.

634 —— The age of the extra-morainic fringe in eastern Pennsylvania.

Am. Jour. Sci., 3d ser., vol. xlvii, pp. 34-37.

Describes the glacial deposits in the vicinity of Bethlehem, Pa., and concludes that they are of recent formation, and that the Ice age was of short duration.

635 **Williams** (George Huntington). The Appalachian region.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 268-273.

Describes the geologic formations of the Appalachian region, with special reference to the portion crossed by the Rocky Mountain excursion of the International Congress of Geologists.

636 —— Washington, D. C., to Cumberland, Md. Itinerary.

Int. Cong. Geol., Compte Rendu, 5th session, pp. 274-279.

Describes the geologic features along the route traversed by the excursion.

637 —— The distribution of ancient volcanic rocks along the eastern border of North America.

Jour. of Geol., vol. ii, p. 1-31.

Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, pp. 140-141; Am. Geol., vol. xiii, pp. 212-213 (½ p.).

Reviews the opinions of various writers on the nature of ancient volcanic rocks and describes the distribution of the volcanic areas of eastern North America and gives the author's general conclusions.

637*a* **Williams** (George Huntington). Piedmontite from a new locality.
Abstract: Am. Nat., vol. xxviii, pp. 517–518 (⅔ p.).
Noticed in Bibliography and Index for 1892 and 1893.

638 —— and **Clark** (W. B.). Outline of the geology and physical features of Maryland.
Johns Hopkins Univ. Press, Baltimore, Md., 1893.
Abstract: Am. Jour. Sci., 3d ser., vol. xlvii, p. 320 (½ p.).
This is a reprint of chapters relating to physical geography and geology from the work entitled "Maryland and its Resources," prepared by members of the Johns Hopkins University faculty for the World's Columbian Exposition.

638*a* —— **McGee** (W J), **Willis** (B.) and **Darton** (N. H.). Geology of Washington and vicinity.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 219–251.
See McGee (W J), Willis (B.), Darton (N. H.), and Williams (G. H.), No. 385.

639 **Williams** (Henry Slater). On the age of the manganese beds of the Batesville region of Arkansas.
Am. Jour. Sci., 3d ser., vol. xlviii, pp. 325–331.
Reviews the discussion as to the origin and age of these beds by R. A. F. Penrose, and discusses the paleontologic evidence which indicates that the manganese occurs at a distinct horizon between two limestones—the lower one containing Ordovician species which have been found in rocks called Upper Silurian, and the upper limestone carrying an Upper Silurian fauna which has been reported from Lower Silurian horizons.

640 —— [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, pp. 170–171.
Remarks on the importance of considering the relation of organisms to conditions of environment.

641 —— Dual nomenclature in geological classification.
Jour. of Geol., vol. ii, pp. 145–160.
Abstracts: Am. Jour. Sci., 3d ser., vol. xlvii, pp. 143–145; Am. Geol., vol. xiii, pp. 139–140.
Discusses the value of the time scale and formation scale in geologic classification.

641*a* **Willis** (Bailey). Relations of synclines of deposition to ancient shore lines.
Abstract: Am. Geol., vol. xiii, pp. 140–141.

641*b* —— **McGee** (W J), **Williams** (G. H.), and **Darton** (N. H.). Geology of Washington and vicinity.
Int. Cong. Geol., Compte Rendu, 5th session, pp. 219–251.
See McGee (W J), Williams (G. H.), Willis (B.) and Darton (N. H.), No. 385.

642 **Williston** (S. W.). Kansas pterodactyls.
Kans. Univ. Quart., vol. 1, pp. 1–13, pl. 1, and vol. ii, pp. 79–80.
Gives a list of Pteranodon species hitherto named, and describes some of their characters and those of Nyctodactylus.

643 **Williston** (S. W.). Kansas mosasaurs.
Kans. Univ. Quart., vol. ii, pp. 83–84, pl. iii.
Gives a restoration of Clidastes.

644 —— Restoration of Ceratherium fossiger Cope.
Kans. Univ. Quart., vol. ii, pp. 289–290, pl. viii.
Describes the strata in which the remains of the species were found and gives a figure of the restoration.

645 —— On various vertebrate remains from the lowermost Cretaceous of Kansas.
Kans. Univ. Quart., vol. iii, pp. 1–4, pl. i.
Describes the remains of fishes and turtles found in these beds, including one new species, Cimoliosaurus n. sp.

646 —— A new turtle from the Benton Cretaceous.
Kans. Univ. Quart., vol. iii, pp. 5–18, pls. ii–v.
Describes a new genus and species, Desmatochelys lowii, from the Cretaceous of Nebraska.

647 —— Notes on Uintacrinus socialis Grinnell.
Kans. Univ. Quart., vol. iii, pp. 19–20.
Brief note on the discovery of a colony of this crinoid in Cretaceous strata of Kansas.

648 —— Restoration of Platygonus.
Kans. Univ. Quart., vol. iii, pp. 23–39, pls. vii–viii.
Describes the occurrence of the remains found in Pliocene strata of western Kansas and their characteristics.

649 —— and **Case** (E. C.). Kansas mosasaurs.
Kans. Univ. Quart., vol. i, pp. 15–32, pls. ii–vi.
Gives a list of the species found in Kansas, with notes on Clidastes velox and C. westii n. sp.

650 **Winchell** (Horace V.). A bit of iron range history.
Am. Geol., vol. xiii, pp. 164–170.
Reviews some of the literature on the iron mines of the Lake Superior region.

651 —— [The genesis of ore deposits.]
Am. Inst. Mg. Engrs., Trans., vol. xxiii, pp. 591–593.
In discussion of paper on the same subject by F. Posepny.

652 **Winchell** (N. H.). Field observations of N. H. Winchell in 1892.
Minn. Geol. and Nat. Hist. Surv., 21st Ann. Rept., pp. 79–152.
Notes on the structure and stratigraphy of the Mesabi range, on the strata at Republic, Mich., and on the Potsdam sandstone at Potsdam, N. Y. Includes a paper on some problems of the Mesabi iron ore, previously published in the American Geologist.

653 —— A sketch of the geological investigations in Minnesota.
Jour. of Geol., vol. ii, pp. 692–707.
Gives a historical sketch of the work accomplished by the geological surveys of Minnesota.

653*a* **Winchell** (N. H.) and **Schuchert** (C.). Sponges, graptolites, and corals from the Lower Silurian of Minnesota.

Abstract: Am. Geol., vol. xii, p. 331 (¼ p.).

Noticed in Bibliography and Index for 1892 and 1893.

654 **Winslow** (Arthur). Geological survey in Missouri.

Jour. of Geol., vol. ii, pp. 207-221.

Gives a historical sketch of the geological surveys of Missouri, describes the work undertaken, and gives a list of the publications.

655 —— [The lead and zinc deposits of the Mississippi Valley.]

Am. Inst., Mg. Engrs., Trans., vol. xxii, pp. 634-636.

In discussion of paper by W. P. Jenney on the same subject.

656 —— [Geological distribution of the useful metals in the United States.]

Am. Inst. Mg. Engrs., Trans., vol. xxii, pp. 735-737.

In discussion of paper by S. F. Emmons on the same subject.

657 —— [The genesis of ore deposits.]

Am. Inst. Mg. Engrs., Trans., vol. xxiii, pp. 588-599.

In discussion of paper on the same subject by F. Posepny.

658 **Wolff** (J. E.). The geology of Hoosac Mountain and adjacent territory [Massachusetts].

U. S. Geol. Surv., Mon. xxiii, pp. 35-108, pls. iv-xi, figs. 9-29.

Describes the topography of the region and the petrographic character of the pre-Cambrian gneiss and the Cambrian (Stockbridge) limestone, and discusses the geologic structure and relations of the formations.

659 —— The geological structure in the vicinity of Hibernia, N. J., and its relation to the ore deposits.

N. J. Geol. Surv., Rept., 1893, pp. 359-369.

Abstract: Am. Geol., vol. xiii, pp. 142-143.

Describes the character of the rocks, the geologic structure, and the probable extension of the iron-ore body.

660 **Woodward** (Anthony). Foraminifera found in the Alabama chalk.

Ala. Geol. Surv., Rept., on the geology of the Coastal Plain of Alabama, p. 289 (¼ p.).

Gives a list of Foraminifera, identified by the author, occurring in the Alabama chalk.

661 **Woodward** (Henry). [Mammoth remains of Canada and Alaska.]

Geol. Soc. London, Quart. Jour., vol. l, p. 9 (¼ p.).

In discussion of paper by G. M. Dawson, "Notes on the occurrence of mammoth remains in the Yukon districts of Canada and Alaska."

662 **Woodworth** (J. B.). Post-Glacial eolian action in southern New England.

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 63-71.

Abstract: Am. Geol., vol. xiii, p. 122 (8 l.).

Discusses the evidences of the carving of rock surfaces by drifting sand, and describes localities in New England where such phenomena have been observed, the wear on the pebble, and their lithologic character.

663 **Woodworth** (J. B.). Carboniferous fossils in the Norfolk County basin [Massachusetts].

Am. Jour. Sci., 3d ser., vol. xlviii, pp. 145-148.

Describes the occurrence of vegetable remains in sandy partings of a quartzose conglomerate, and gives the section of the Carboniferous rocks found in this region.

664 —— The relation between baselevelling and organic evolution.

Am. Geol., vol. xiv, pp. 209-235.

Abstract: Jour. of Geol., vol. ii, pp. 753-754.

Reviews the various theories concerning land erosion, discusses the effect of river changes on organisms, and their distribution, and the relation of the development of the Jura-Cretaceous peneplain with the development of the contemporaneous fauna and flora, and gives a general summary of the facts presented.

665 —— On traces of a fauna in the Cambridge slates.

Abstract: Bost. Soc. Nat. Hist., Proc , vol. xxvi, pp. 125-126.

Describes trails occurring in these slates in the Boston basin.

666 —— Some typical eskers of southern New England.

Bost. Soc. Nat. Hist., Proc., vol. xxvi, pp. 197-220.

Abstract: Am. Geol., vol. xiv, p. 396 (½ p.).

Gives a list of publications on the eskers of this region. Describes the characteristics and distribution of these eskers and discusses their origin.

667 **Woolman** (Lewis). Artesian wells and water horizons in southern New Jersey, with economical, geological, and paleontological notes.

N. J. Geol. Surv., Rept., 1893, pp. 389-421.

Gives the section displayed by several artesian wells in New Jersey and Delaware, with lists of fossils found.

668 **Wortman** (J. L.). Osteology of Patriofelia, a Middle Eocene creodont.

Am. Mus. Nat. Hist., Bull., vol. vi, pp. 129-164, pl. i.

Abstract: Am. Nat., vol. xxviii, pp. 1027-1028.

Describes Patriofelia and compares it with Oxyæna, Hyænodon, and with seals. Discusses its probable habits and the classification and species.

669 —— On the affinities of Leptarctus primus of Leidy.

Am. Mus. Nat. Hist., Bull., vol. vi, pp. 229-231.

Describes a new specimen.

669*a* —— and **Earle** (Charles). Ancestors of the tapir.

Abstract: Am. Nat., vol. xxviii, p. 416 (½ p.).

Noticed in Bibliography and Index for 1892 and 1893.

669*b* —— **Osborn** (H. F.) and. Fossil mammals of the Lower Miocene White River beds; collection of 1892.

Am. Mus. Nat. Hist., Bull., vol. vi, pp. 192-228, pls. ii-iii.

See Osborn (H. F.) and Wortman (J. L.), No. 433*b*.

670 **Wright** (Albert A.). On the ventral armor of Dinichthys.
Ohio Geol. Surv., vol. vii, pp. 620–626.
Reviews some of the previous descriptions of the ventral armor of Dinichthys.

671 —— The ventral armor of Dinichthys.
Am. Geol., vol. xiv, pp. 313–320, pl. ix, figs. 1–2.
Describes material collected from the Cleveland shale of Ohio.

672 —— Limits of the glaciated area in New Jersey.
Geol. Soc. Am., Bull., vol. v, pp. 7–13.
Abstract: Am. Geol., vol. xii, p. 166 (⅝ p.).
Describes the character of the glacial material, the topography of the region and its influence on glaciation, the determination of the limits of the glaciated area, and the duration and efficiency of glacial ice.

673 **Wright** (G. Frederick). Continuity of the Glacial period.
Am. Jour. Sci., 3d ser., vol. xlvii, pp. 161–187, figs. 1–7.
Abstracts: Am. Geol., vol. xiii, p. 286 (¼ p.); Am. Nat., vol. xxviii, pp. 508–510.
Discusses the evidences as to whether the erosion of the rocky gorge of the Ohio and its tributaries was pre-Glacial or inter-Glacial, illustrated by four maps. Reviews the evidences of pre-Glacial erosion in the Delaware valley, and gives a summary of the events of the Glacial period.

674. —— The Cincinnati ice dam.
Pop. Sci. Mo., vol. xlv, pp. 184–198.
Discusses the evidence which indicates the former existence of an ice dam in the vicinity of Cincinnati.

674*a* —— [Past drainage systems of the Upper Ohio basin.]
Abstract: Am. Geol., vol. xiii, p. 219 (½ p.).

674*b* —— Glacial history of western Pennsylvania.
Abstract: Am. Geol., vol. xiii, pp. 219–220 (⅝ p.).

675 **Wurtz** (Henry). The density of the earth.
Sci. Am. Suppl., vol. xxxvii, p. 15028.
Discusses some of the methods used by certain investigators to ascertain the earth's density.

676 —— Gold genesis.
Sci. Am. Suppl., vol. xxxviii, pp. 15644–15645.
Reviews the theories as to the origin of gold.

Z.

677 **Zittel** (K. von). [Correlation of clastic rocks.]
Int. Cong. Geol., Compte Rendu, 5th session, p. 155 (½ p.).
Discusses briefly the relative value of plant and animal remains for purposes of correlation.

INDEX.

[The numbers refer to the entries in the Bibliography.]

Paleontology—Continued.
Genera and species described—Continued.
Opisthoptera Meek—Continued.
notabilis, n. sp., Ulrich, 570.
obliqua n. sp., Ulrich, 570.
Oreodon
bullatus Leidy, Osborn and Wortman, 433*b*.
culbertsonii Leidy, Osborn and Wortman, 433*b*.
gracilis Leidy, Osborn and Wortman, 433*b*.
Orodus basilis n. sp., Cope, 95.
Oromeryx plicatus n. sp., Marsh, 398.
Orthis
fausta var. squamosa, n. var., Foerste, 197.
glypta n. sp., Hall and Clarke, 235.
tioga, Whitfield, 629.
(Dalmanella) elegantula, Foerste, 197.
(Herbertella) daytonensis, Foerste, 197.
(Herbertella) fausta, Foerste, 197.
(Orthis-Dinorthis) calligramma, Foerste, 197.
(Platystrophia) biforata, Foerste, 197.
(Rhipidomella) hybrida, Foerste, 197.
Orthoceras
albersi S. A. Miller, Miller and Faber, 415.
colletti n. sp., Miller, 413.
cribrosum Geinitz, Miller, 412.
fenestrulatum n. sp., Clarke, 78.
franklinense n. sp., Miller, 413.
geneva n. sp. Clarke, 78.
gorbyi n. sp., Miller, 413.
incarceratum n. sp., Clarke, 78.
inceptum var. acceleratum n. var., Foerste, 197.
ludlowense n. sp., Miller and Faber, 415.
nuntium, Whitfield, 629.
nuntoides n. sp., Clarke, 78.
staffordensis n. sp., Clarke, 78.
(Actinoceras) clavatum, Foerste, 197.
(Actinoceras) youngi, Foerste, 197.
(Cycloceras) amycus, Foerste, 197.
(Cycloceras) inceptum, Foerste, 197.
(Eu-Orthoceras) ignotum, Foerste, 197.
(Eu-Orthoceras) erraticum, Foerste, 197.
(Eu-Orthoceras) hanoverense, Foerste, 197.
(Eu-Orthoceras) virgulatum, Foerste, 197.
(Spyroceras?) syproceroides n. sp., Foerste, 197.
Orthodesma ashmani n. sp., Miller and Faber, 415.
cylindricum n. sp., Miller and Faber, 414.
cymbula n. sp., Miller and Faber, 415.
parvum n. sp., Ulrich, 570.
scaphula n. sp., Miller and Faber, 415.
subangulatum n. sp., Ulrich, 570.
Orthorhynchula Hall, Hall and Clarke, 236.
Orthothetes bellulus n. sp., Clarke, 78.
Ortonella hainesi, Ulrich, 570.
Oryctogma n. gen., Scudder, 502.
sackenii, Scudder, 502.
Ostrea
percrassa, Whitfield, 628.
præ-compressirostra n. sp., Harris, 242.

Paleontology—Continued.
Genera and species described—Continued.
Ostrea—Continued.
virginiana, Whitfield, 628.
var. procyon, Whitfield, 628.
Oxyrhina mantelli Agassiz, Eastman, 165.
Pagiophyllum dubium n. sp., Fontaine, 200.
Palæoconcha faberi S. A. Miller, Miller and Faber, 415.
Palæopalæmon Whitfield, Whitfield, 629.
newberryi, Whitfield, 629.
Palæosaccus dawsoni Hinde, Rauff, 473.
Paleoneilo similis, Whitfield, 629.
Paleopupa abrupta n. gen. et sp., Foerste, 197.
Paliurus integrifolius n. sp. Hollick, 280.
Panopæa goldfussi, Whitfield, 628.
Parahyus aberrans n. sp., Marsh, 398.
Parameryx lævis n. sp., Marsh, 398.
Parastrophia Hall, Hall and Clarke, 236.
divergens n. sp., Hall and Clarke, 235.
greenii n. sp., Hall and Clarke, 235.
latiplicata n. sp., Hall and Clarke, 235.
multiplicata n. sp., Hall and Clarke, 235.
Parazyga Hall, Hall and Clarke, 236.
Patriofelis, Wortman, 668.
Pattersonia
aurita (Beecher)?, Rauff, 473.
difficilis S. A. Miller, Rauff, 473.
tuberosa (Beecher), Rauff, 473.
ulrichi n. sp., Rauff, 473.
Pecten madisonius, Whitfield, 628.
vicenarius (?), Whitfield, 628.
Pentagonia Cozzens, Hall and Clarke, 236.
Pentamerella Hall, Hall and Clarke, 236.
Pentamerus Sowerby, Hall and Clarke, 236.
pes-ovis, Whitfield, 629.
Pentremites elegans, Whitfield, 629.
Peregrinella Oehlert, Hall and Clarke, 236.
Peripetoceras n. gen., Hyatt, 305.
frieslebeni Geinitz, Hyatt, 305.
Periploma (?) alta, Whitfield, 628.
Perisphinctes colfaxi, Hyatt, 304.
filiplex (?), Hyatt, 304.
muhlbachi n. sp., Hyatt, 304.
virgulatiformis n. sp., Hyatt, 304.
Perissodon Conrad, Whitfield, 628.
Perna torta, Whitfield, 628.
Petersia medicinensis n. sp., Cragin, 102.
Pexidella Bittner, Hall and Clarke, 236.
Phacops trisulcatus, Foerste, 197.
Pholadomya multilineata, Hyatt, 304.
nevadana, Hyatt, 304.
Phos albirupina n. sp., Harris, 242.
hilli n. sp., Harris, 242.
Physetomya acuminata n. gen. et sp., Ulrich, 570.
Pinna comancheana n. sp., Cragin, 102.
maxvillensis, Whitfield, 629.
Platidia Costa, Hall and Clarke, 236.
Platyceras niagarense, var. clintonense n. var., Foerste, 197.
squalodens, Whitfield, 629.
(Platystoma) niagarense, Foerste, 197.
Platycrinus
caducus n. sp., Miller, 413.
chouteauensis n. sp., Miller, 413.
colletti n. sp., Miller, 413.

Paleontology—Continued.
Genera and species described—Continued.
Rhynchospira Hall, Hall and Clarke, 236.
(Homœospira Hall), Hall and Clarke, 236.
Rhynchotrema Hall, Hall and Clarke, 236.
Rhynchotreta Hall, Hall and Clarke, 236.
Rhyncorthoceras, Hyatt, 305.
Rhynoceroses, Osborn and Wortman, 433*b*.
Rhytimya byrnesi, Ulrich, 570.
compressa n. sp., Ulrich, 570.
convexa n. sp., Ulrich, 570.
mickleboroughi, Ulrich, 570.
oehana n. sp., Ulrich, 570.
producta n. sp., Ulrich, 570.
radiata n. sp., Ulrich, 570.
Richthofenia Kayser Hall and Clarke, 236.
Rondairia quadrans n. sp., Cragin, 102.
Saccocrinus benedicti n. sp., Miller, 413.
howardi n. sp., Miller, 413.
Salix purpuroides n. sp., Hollick, 280.
Salvinia elliptica Newby n. sp., Hollick, 281.
Saxicava
bilineata, Whitfield, 628.
myæformus, Whitfield, 628.
paralis, Whitfield, 628.
Scalaria multistriata, Whitfield, 628.
Scapharca subrostrata, Whitfield, 628.
Scaphiocrinus lyoni n. sp., Miller, 413.
maniformis n. sp., Miller, 413.
Scaphites, Hyatt, 305.
Schizodus chesterensis, Whitfield, 629.
Schroederoceras
angulatum, Hyatt, 305.
bandonis, Hyatt, 305.
casinensis, Hyatt, 305.
damesi, Hyatt, 305.
denckelmanni, Hyatt, 305.
eatoni, Hyatt, 305.
rarospira, Hyatt, 305.
saemanni, Hyatt, 305.
teres, Hyatt, 305.
tubulatum n. sp., Hyatt, 305.
Sciponoceras, Hyatt, 305.
Seminula dawsoni n. sp., Hall and Clarke, 235.
rogersi n. sp., Hall and Clarke, 235.
Sequoia pagiophylloides n. sp., Fontaine, 200.
Sieberella Oehlert, Hall and Clarke, 236.
Solenochilus blairi n. sp., Miller, 413.
Spermatodus pustulosus n. gen. et sp., Cope, 95.
Sphærexochus pisum n. sp., Foerste, 197.
Sphenolepidium sternbergianum var. densifolium Font., Fontaine, 200.
Sphenolium cuneiforme S. A. Miller, Miller and Faber, 415.
Sphenopteris valdensis Heer?, Fontaine, 200.
Spiladomyia Scudder, Scudder, 502.
simplex, Scudder, 502.
Spirifer Sowerby, Hall and Clarke, 236.
canandaiguæ n. sp., Hall and Clarke, 235.
crispatus n. sp., Hall and Clarke, 235.
disjunctus var. sulcifer n. var., Hall and Clarke, 235.
mucronatus var. posterus n. var., Hall and Clarke, 235.
newberryi, Hall and Clarke, 235.

Paleontology—Continued.
Genera and species described—Continued.
Spirifer Sowerby, etc.—Continued.
williamsi n. sp., Hall and Clarke, 235.
(Cyrtia Dalman), Hall and Clarke, 236.
Spirifera maia, Whitfield, 629.
rockymontana?, Whitfield, 629.
vanuxemi Whitfield, 629.
ziczac, Whitfield, 629.
(Martinia) contracta, Whitfield, 629.
(Martinia) lineata, Whitfield, 629.
Spiriferina D'Orbigny, Hall and Clarke, 236.
Spirorbis anthracosia, Whitfield, 629.
Spondylus inornatus n. sp., Whitfield, 628.
Steganocrinus benedicti n. sp., Miller, 413.
Stenoschisma Conrad, Hall and Clarke, 236.
Stephanocrinus cornetti n. sp., Miller, 413.
Straparollus similis, Whitfield, 629.
(cf. Orlostoma) incarinatum n. sp., Foerste, 197.
Streptodicus n. gen., Miller, 413.
indianensis n. sp., Miller, 413.
Streptorhynchus crassum, Whitfield, 629.
flabellum, Whitfield, 629.
hydraulicum, Whitfield, 629.
Striarca Conrad, Whitfield, 628.
Striatopora gorbyi n. sp., Miller, 413.
Stribalocystites gorbyi n. sp., Miller, 413.
Stricklandinia Billings, Hall and Clarke, 236.
Stringocephalus Defrance, Hall and Clarke, 236.
Strombina (Amycla) lævis n. sp., Whitfield, 628.
Strophomena (Orthothetes) hanoverensis, Foerste, 197.
(Orthothetes) tenuis, Foerste, 197.
(Strophonella) patenta, Foerste, 197.
Strophonella costalula n. sp., Hall and Clarke, 235.
crassa n. sp., Rowley, 481.
Stylastrea anna, Whitfield, 629.
Styptobasis aculeata n. sp., Cope, 95.
Subulites directus n. sp., Foerste, 197.
(Polyphemopsis) plani-lateralis, n. sp., Foerste, 197.
Suessia Deslongchamps, Hall and Clarke, 236.
Surcula parva (?), Whitfield, 628.
Symmorium reniforme Cope, Cope, 95.
Syndosyma (?) nuculoides, Whitfield, 628.
Synocladia rectisyla, Whitfield, 629.
Syntrophia Hall, Hall and Clarke, 236.
Syringoceras n. gen., Hyatt, 305.
Syringothyris Winchell, Hall and Clarke, 236.
missouri n. sp., Hall and Clarke, 235.
Systrophoceras n. gen., Hyatt, 305.
Tanyops undans, Marsh, 400.
Tapes belviderensis n. sp., Cragin, 102.
Tarphyceras n. gen., Hyatt, 305.
aucoini n. sp., Hyatt, 305.
champlainese Hyatt, 305.
convolvens Hyatt, 305.
extensum Hyatt, 305.
prematurum n. sp., Hyatt, 305.
Taxocrinus concavus, Rowley, 481.
Taxus baccata L., var. canadensis Gray, Penhallow, 450.