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UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

BIBLIOGRAPHY AND INDEX

OF

NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY

FOR

THE YEAR 1896

BY

FRED BOUGHTON WEEKS

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF GEOLOGY,
Washington, D. C., May 27, 1897.

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 1896, and to request that it be published as a bulletin of the Survey.

Very respectfully,

F. B. WEEKS.

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

BIBLIOGRAPHY AND INDEX OF NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY FOR THE YEAR 1896.

By FRED BOUGHTON WEEKS.

INTRODUCTION.

The method of preparing and arranging the material of the Bibliography and Index for 1896 is similar to that adopted for the previous publications on this subject (Bulletins Nos. 130, 135, and 146). A number of periodicals and transactions of societies not heretofore examined are included in the present work, and are given in the list of publications examined. Several papers that should have been entered in the previous bulletins are here recorded, and the date of publication is given with each entry (see page 98).

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 $\frac{1}{3}$ 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.

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9 **Agassiz** (Alexander). The Florida elevated reef. With notes on the geology of southern Florida by Leon S. Griswold.
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11 **Aldrich** (T. H.). New or little known Tertiary Mollusca from Alabama and Texas.
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Can. Rec. Sci., vol. vi, pp. 222–229, 1895.
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14 —— Notes on some fossils from the Trenton of Highgate Springs, Vt., near the Canadian boundary line.
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15 —— Note on Cardinia subangulata Dawson and Arca punctifer Dawson.
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16 **Ami** (Henry M.). New species of graptolites from Canada.
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Gives lists of graptolites from Point Levis and other localities in Quebec.

17 **Argall** (Philip). [Geology of Cripple Creek district, Colorado.]
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18 **Austin** (W. L.). The nickel deposits near Riddles, Oregon.
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B.

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21 —— The Cretaceous Foraminifera of New Jersey.
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N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 68–82, pls. iv–vi, 1896.
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Describes sand hill dunes, glacial phenomena, metamorphism, and vein and contact phenomena.

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25 **Bain** (Harry Foster.). Geology of Woodbury County [Iowa].
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26 —— Geology of Appanoose County [Iowa].
Iowa Geol. Surv., vol. v, pp. 363-438, pls. xi-xiv, figs. 52-72, 1896.
Describes the topography and drainage of the county, the lithologic character, distribution, and structure of the Carboniferous and Glacial strata, and the occurrence of coal and clays. Includes a geologic map of the county.

27 —— [Review of "General relations of the granitic rocks in the Middle Atlantic Piedmont plateau," by G. H. Williams.]
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28 **B**[**ain**] (H. F.). [Abstract. University Geological Survey of Kansas, vol. i, by Erasmus Haworth and assistants.]
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Mineral Industry, 1895, pp. 195-200, 1896.
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32 **Barbour** (Erwin Hinckley). Progress made in the study of Daemonelix.
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33 —— The deposits of volcanic ash in Nebraska.
Extract from publication No. V, Neb. Acad. Sci. Proc., 1894-95.
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35 **Barlow** (Alfred E.). On some dykes containing "huronite."
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36 —— **Ells** (R. W.) and. The physical features and geology of the route of the proposed Ottawa canal between the St. Lawrence River and Lake Huron.
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37 **Barrell** (Robert W.). Elkhorn Mountain and Rock Creek district of the Blue Mountains, Oregon.

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Describes the occurrence of gold and silver ores in this region.

38 **Barton** (George H.). Evidence of the former extension of glacial action on the west coast of Greenland, and in Labrador and Baffinland.

Am. Geol., vol. xviii, pp. 379–384, 1896.

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Iowa State Univ., Lab. of Nat. Hist., Bull., vol. iii, pp. 178–182, 1896.

Gives a list of fossil plants collected at Holman Cut, Woodbury County, Iowa.

40 **Bascom** (Florence). Volcanic rocks of South Mountain, Pennsylvania.

U. S. Geol. Surv., Bull. No. 136, 124 pp., 28 pls., 1896.

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43a **Bassler** (R. S.), **Harper** (G. W.) and. Catalogue of the fossils of the Trenton and Cincinnati periods, occurring in the vicinity of Cincinnati, Ohio.

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44 **Bather** (F. A.). [Review of "New and interesting species of Paleozoic fossils," by S. A. Miller and Wm. F. E. Gurley.]

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50 —— On a supposed discovery of the antennæ of trilobites by Linnæus in 1759.
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51 —— On the validity of the family Bohemillidæ Barrande.
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52 —— On the occurrence of Silurian strata in the Big Horn Mountains, Wyoming, and in the Black Hills, South Dakota.
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Stone, vol. xii, pp. 565–567, vol. xiii, pp. 24–27, 1896.
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55 **Bennett** (John). A geologic section along the Missouri Pacific Railway, from State Line, Bourbon County, to Yates Center [Kansas].
Univ. Geol. Surv. of Kans., vol. i, pp. 86–98, pl. iv. fig. 4, 1896.
Describes the limestones and shales which make up the Carboniferous series and mentions their contained fossils.

56 **Bennett** (John). A geologic section along the Kansas River from Kansas City to McFarland [Kansas].

Univ. Geol. Surv. of Kans., vol. i, pp. 107–124, pl. vi, fig. 5, 1896.

Gives the section of the Carboniferous strata at various localities and mentions the fossils collected.

57 —— A preliminary catalogue of the invertebrate paleontology of the Carboniferous of Kansas (preliminary).

Univ. Geol. Surv. of Kans., vol. i, pp. 270–310, 1896.

58 —— **Haworth** (Erasmus) and. A geologic section from Baxter Springs [Kansas] to the Nebraska State line.

See Haworth (Erasmus) and Bennett (John), No. 295.

59 **Beyer** (Samuel Walker). Geology of Boone County [Iowa].

Iowa Geol. Surv., vol. v, pp. 177–232, pl. iv, figs. 16–31, 1896.

Describes the topography and drainage, the stratigraphy of typical sections, the distribution of the Carboniferous and Glacial deposits, and the occurrence of coal, building stone, clays, and soils. Includes a geologic map of the county and a map of the surface deposits.

60 —— The spotted slates associated with the Sioux quartzites.

Johns Hopkins Univ. Circ., vol. xv, p. 10, 1895.

Describes the megascopic and microscopic characters of the slates overlying the Sioux quartzite in South Dakota.

61 **Bibbins** (Arthur). Notes on the paleontology of the Potomac formation.

Johns Hopkins Univ. Circ., vol. xv, pp. 17–20, Figs. A to H, 1895.

Describes the general characteristics of the plant and animal remains, with detailed notes on certain localities in Maryland.

62 **Blake** (William P.). Cinnabar in Texas.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 68–76, 1896.

Describes the occurrence of cinnabar in western Texas and the character and relations of the associated Tertiary and Cretaceous strata.

63 —— Notes and recollections concerning the mineral resources of northern Georgia and western North Carolina.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 796–811, 1896.

Describes the occurrence of gold in Georgia and copper in Tennessee, and mentions the occurrence of certain minerals in the southern Appalachians.

64 —— Gold in granite and plutonic rocks.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 290–298; Abstract: Mining and Scientific Press, vol. lxxiii, p. 296, 1896.

Describes the occurrence of gold in Arizona, California, and South Dakota.

65 —— Gypsum beds in southern Arizona.

Am. Geol., vol. xviii, p. 394 ($\frac{1}{6}$ p.) (correspondence), 1896.

Mentions occurrence of gypsum in this region.

66 **Blatchley** (W. S.). A preliminary report on the clays and clay industries of the coal-bearing counties of Indiana.

Ind. Dept. of Geol. and Nat. Res., 20th Ann. Rept., pp. 23–185, pls. i–vii, 1896.

Discusses the origin and classification of clays and describes their distribution and physical and chemical characters in the several counties in Indiana.

67 **Blauvelt** (Harrington). Mineral in basalt.

Eng. and Mg. Jour., vol. lxi, p. 111 (½ p.), pls. i–ii, 1896.

Describes occurrence of silver and copper in basalt in Yavapai County, Ariz.

68 **Bolton** (H.). The metamorphism of coal.

Colliery Engineering, vol. xvi, No. 1, pp. 254–255, 1896.

Discusses the origin of the metamorphism of coal.

69 **Brainerd** (Ezra) and **Seeley** (Henry M.). The Chazy of Lake Champlain [New York].

Am. Mus. Nat. Hist., Bull., vol. viii, pp. 305–315, 1896.

Gives two vertical sections of the Chazy beds and list of fossils of the various beds, accompanied by geologic sketch maps.

70 **Branner** (John Casper). A bibliography of clays and the ceramic arts.

U. S. Geol. Surv., Bull. No. 143, 114 pp., 1896.

Comprises an author's list of titles of publications.

71 —— Thickness of the Paleozoic sediments in Arkansas.

Am. Jour. Sci., 4th ser., vol. ii, pp. 229–236, with geologic map of Arkansas, 1896.

Describes the distribution of Paleozoic rocks in Arkansas and gives the thicknesses of the different series.

72 —— [Coal measures of Arkansas.]

Am. Phil. Soc., Proc., vol. xxxv, p. 214 (½ p.). In article by J. P. Smith on "Marine Coal Measures of Arkansas."

73 —— The phosphate deposits of Arkansas.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 580–598, 1896.

Describes the character of the Devonian strata in which the deposits occur and the occurrence and characteristics of the phosphate material, and discusses its origin. Gives chemical analyses.

74 **Brewer** (William M.). A preliminary report on the upper gold belt of Alabama. In the counties of Cleburne, Randolph, Clay, Talladega, Elmore, Coosa, and Tallapoosa.

Ala. Geol. Surv., Bull. No. 5, pp. 1–105, 3 pls., 1896.

Describes the topographic and geologic features of the region, mining operations, and occurrence of gold in the region.

75 —— The gold regions of Georgia and Alabama.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 569–587, 1896.

Comprises an account of the present condition of the gold mining industry in Georgia and Alabama.

76 **Brewer** (William M.). Further notes on the Alabama and Georgia gold fields.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 464–472, 1896.

Contains notes on the occurrence of gold ores and associated rocks in these States.

77 —— Mineral resources along the line of the East Tennessee, Virginia, and Georgia division of the Southern Railway.

Eng. and Mg. Jour., vol. lxi, pp. 65–66, 1896.

Includes general remarks on the occurrence of bauxite, iron, lead, and zinc ores in this region.

78 —— Gold mining in Alabama.

Ala. Ind. and Sci. Soc., Proc., vol. vi, pp. 42–49, 1896.

Gives a general description of the occurrence of gold in certain regions of Alabama.

79 —— The manganese ores of Georgia.

Ala. Ind. and Sci. Soc., Proc., vol. vi, pt. 2, pp. 72–78, 1896.

Gives general notes on the manganese ore bodies in Georgia.

80 **Broadhead** (Garland C.). Coal Measures of Missouri.

Mo. Geol. Surv., vol. viii, pp. 355–395, 1895.

Describes the general character and distribution of the Coal Measure rocks of Missouri and gives several vertical sections.

81 —— The Devonian of North Missouri, with notice of a new fossil.

Am. Jour. Sci., 4th ser., vol. ii, pp. 237–239, figs. 1–7, 1896.

Mentions the Devonian fossils found in this region and describes Pleurotomaria providencis.

82 **Brock** (R. W.), **Miller** (W. G.) and. Some dikes cutting the Laurentian system, counties of Frontenac, Leeds, and Lanark, Ontario.

See Miller (W. G.) and Brock (R. W.), No. 512.

83 **Brooks** (Alfred H.). Preliminary petrographic notes on some metamorphic rocks from eastern Alabama.

Ala. Geol. Surv., Bull. No. 5, pp. 177–197, 1896.

Describes the petrographic characters of some metamorphic and igneous rocks.

84 —— **Taff** (J. A.) and. Buckhannon folio, West Virginia.

See Taff (J. A.) and Brooks (A. H.), No. 657.

85 **Brown** (Amos P.). The crystallization of molybdenite.

Phil. Acad. Nat. Sci., Proc. 1896, pp. 210–211, 1896.

Describes crystallographic characters of molybdenite.

86 **Browne** (David H.). Segregation in ores and mattes.

Can. Rec. Sci., vol. vii, pp. 176–190, 1896.

Gives a brief description of the Sudbury, Ontario, copper ore deposits.

87 **Bryson** (John). Good Ground, Long Island [New York].

Am. Geol., vol. xviii, pp. 329–331 (correspondence), 1896.

Describes the glacial phenomena of the region.

88 **Burdsal** (C. W.). Cedar Canyon mining district [Washington].
Mining, vol. i, pp. 191–192, 1896.
Describes briefly the geology of the region and the occurrence of silver ores.

C.

89 **Calvin** (Samuel). Geology of Jones County [Iowa].
Iowa Geol. Surv., vol. v, pp. 33–112, pls. i–ii, figs. 1–8, 1896.
Describes the physiography, the stratigraphic features of the Niagara, Carboniferous, and Pleistocene deposits, including local details, and the occurrence of building stones, soils, lime, clays, road materials, and water supply. Includes geologic map of the county.

90 —— The Le Claire limestone [Iowa].
Iowa State Univ., Lab. of Nat. Hist., Bull., vol. iii, pp. 183–189, pls. i–ii, 1896.
Describes the character and distribution of the Le Claire limestone, a subdivision of the Niagara, and the phenomena of oblique bedding.

91 —— The Le Claire limestone.
Iowa Acad. Sci., Proc., vol. iii, pp. 52–58, pls. i–ii, fig. 2, 1896.
Describes peculiar features of deposition in the Niagara strata in portions of Iowa, and discusses its origin.

92 —— The Buchanan gravels; an inter-Glacial deposit in Buchanan County, Iowa.
Iowa Acad. Sci., Proc., vol. iii, pp. 58–60, pls. iii–iv, 1896.
Describes the occurrence of Glacial gravels.

93 —— The Buchanan gravels; an inter-Glacial deposit in Buchanan County, Iowa.
Am. Geol., vol. xvii, pp. 76–78, pls. iv–v, 1896.

94 —— Apparent anomalies of stratification in the Postville well [Iowa].
Am. Geol., vol. xvii, pp. 195–203, 1896.
Describes the characteristics of the Galena and Trenton limestones of the region and discusses some of the peculiarities of deposition.

95 —— The Cedar Valley quarry [Iowa].
Eng. and Mg. Jour., vol. lxi, p. 544, fig. 1, 1896.
Describes the occurrence of building stone at this locality, of Upper Siluran age.

96 **Campbell** (Marius R.). Pocahontas folio, Virginia and West Virginia.
U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26, 1896.
Describes the physiographic features, the character and distribution of rocks of Cambrian, Silurian, Devonian, and Carboniferous age, the geologic structure of the region and occurrence of coal, iron ores, and soils. Includes topographic, geologic, and structure section maps and a sheet of columnar sections.

97 **Campbell** (Marius R.). Drainage modifications and their interpretation.

Jour. of Geol., vol. iv, pp. 567–581 and 657–678, 1896.

Discusses the principles of drainage modification, the criteria for determining stream modifications, and the characteristics of Appalachian drainage.

98 —— Rapid section work in horizontal rocks.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 298–315, pls. i–iv, 1896.

Describes methods of studying areal geology in regions where the strata lie in a nearly horizontal position.

99 —— and **Mendenhall** (Walter C.). Geologic section along the New and Kanawha rivers in West Virginia.

U. S. Geol. Surv., 17th Ann. Rept., Pt. II, 39 pp., pls. xxxviii–xlix, 1896.

Describes the physiography, geologic structure, and stratigraphic features of the members of the Carboniferous series, and the occurrence of coal, and gives chemical analyses. Includes a sheet of geologic cross sections.

100 **Carlyle** (William A.). Report on Trail Creek Mining District, British Columbia.

Mining and Scientific Press, vol. lxxiii, pp. 236–237; Mining, vol. ii, pp. 95–100, 124–128, and 143–151, 1896.

Describes briefly the occurrence of the gold, silver, and copper ores and the associated igneous rocks on pages 144–147.

101 —— Report on the Slocan, Nelson, and Ainsworth mining districts in West Kootenay, British Columbia.

Bureau of Mines, B. C., Bull. No. 3, 95 pp. with map, 1896.

Describes the general geology of the region, the occurrence of the igneous rocks, and of the gold and silver lead ores.

102 **Carnot** (Adolphe). Sur les variations observées dans la composition des apatites, des phosphorites, et des phosphates sédimentaires. Remarques sur le gisement et le mode de formation de ces phosphates.

Annales des Mines, vol. x, pp. 137–231, 1896.

Discusses the character and formation of the South Carolina and Florida phosphate deposits.

103 **Chalmers** (Robert). Report on the surface geology of eastern New Brunswick, northwestern Nova Scotia and a portion of Prince Edward Island.

Canada Geol. Surv., new ser., vol. vii, Rept. M, 149 pp., 5 pls., 1896.

Describes the physiography, the character and distribution of the Pleistocene deposits, and glacial geology of the region. Discusses the evidences of Tertiary and post-Tertiary changes of level.

104 —— Pleistocene marine shore lines on the south side of the St. Lawrence Valley.

Am. Jour. Sci., 4th ser., vol. i, pp. 302–308, 1896.

Describes the topographic character of the region and the occurrence of the terraces. Gives a table showing the elevation of the shore lines along the north side of Notre Dame range, south of the St. Lawrence.

105 **Chamberlin** (T. C.). Alternative interpretations. [Discussion of history of Lake Agassiz.]
U. S. Geol. Surv., Mon. xxv, pp. 244–251, 1896.
Discusses Upham's interpretation of the glacial history of Lake Agassiz.

106 —— [The age of the second terrace on the Ohio at Brilliant, Ohio.]
Jour. of Geol., vol. iv, pp. 219–221, 1896.
In discussion of a paper by G. Frederick Wright on the same subject.

107 —— Glacial studies in Greenland, IX.
Jour. of Geol., vol. iv, pp. 582–592, pls. 60–63, 1896.
Describes the Tuktoo glacier. This paper is a continuation of the description of the glaciers of Greenland in papers noticed in the Bibliography and Index for 1895.

108 C[**hamberlin**] (T. C.). [Review of "Greenland ice fields and life in the North Atlantic, with a new discussion of the causes of the Ice age," by G. Frederick Wright and Warren Upham].
Jour. of Geol., vol. iv, pp. 632–636, figs. 1–2, 1896.

109 —— [Review of "Ice work, present and past," by T. G. Bonney.]
Jour. of Geol., vol. iv, pp. 636–638, 1896.

110 **Chamberlin** (T. C.) Salient points concerning the geology of north Greenland.
Jour. of Geol., vol. iv, pp. 769-810, 33 figs., 1896.
Describes the glacial geology of the region.

111 —— [Nomenclature of glacial deposits in the Mississippi Valley.]
Jour. of Geol., vol. iv, pp. 872–876, 1896.
Discusses the use of the terms, Kansan, Iowan, Wisconsin, Aftonian, and Albertan, with remarks on their correlation.

112 —— [Review of "Ice work, present and past," by T. G. Bonney.]
Science, new ser., vol. iv, pp. 406–408, 1896.

113 **Chambers** (R. E.). A Newfoundland iron deposit.
Can. Mining Review, vol. xv, pp. 69–72, 1896.
Describes briefly the geology of the region and the character of the ore bodies.

114 **Chaney** (L. W., jr.). Glaciers in the Montana Rockies.
Science, new ser., vol. iv, pp. 761–762, 1896.
Describes existing glaciers in northern Montana.

115 **Chapman** (Frederick). On some Pliocene Ostracoda from near Berkeley [California].
Univ. of Cal., Dept. of Geol., Bull., vol. ii, pp. 93–100, pl. 3, 1896.
Gives a description of the Ostracod-bearing beds, and describes and figures a number of new species.

116 **Chase** (Harvey S.). Southern magnetites and magnetic separation.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 551–557, 1896.
Describes the methods of treating nontitaniferous iron ores, and gives a table of chemical analyses of representative magnetic ores from North Carolina and Tennessee.

117 **Chester** (Albert H.). On caswellite, an altered biotite from Franklin Furnace, N. J.

N. J. Geol. Surv., Ann. Rept. for 1895, pp. xxxvii–xl, 1896.

Describes the occurrence and microscopic and chemical characters of the mineral.

118 **Clark** (William Bullock). The Eocene deposits of the Middle Atlantic slope in Delaware, Maryland, and Virginia.

U. S. Geol. Surv., Bull. No. 141, 167 pp., 40 pls., 1896.

Describes the general relations, distribution, character and stratigraphic and paleontologic characteristics of the Eocene strata of the region. Presents a bibliography, discusses the criteria to be employed in the correlation of the deposits, and describes a large number of species.

119 —— The Potomac River section of the Middle Atlantic Coast Eocene.

Am. Jour. Sci., 4th ser., vol. i, pp. 365–374, 1896.

Gives a columnar section and describes the lithologic character and fauna of the several beds of the Potomac River section, including a list of the fossils characteristic of the two faunal stages. Discusses the geologic and paleontologic criteria for the correlation of the deposits.

120 —— Descriptions of the geological excursions made during the spring of 1895.

Johns Hopkins Univ. Circ., vol. xv, pp. 1–3, 1895.

Describes the Cretaceous and Tertiary formations along the Potomac River, the Cambrian and Silurian limestones of the Great Valley of Virginia, and the Upper Silurian sandstone of Massanutten Mountain.

121 —— Two new brachiopods from the Cretaceous of New Jersey

Johns Hopkins Univ., Circ., vol. xv, p. 3 (½ p.), 1895.

Describes two new species.

122 —— Contributions to the Eocene fauna of the Middle Atlantic slope.

Johns Hopkins Univ., Circ., vol. xv, pp. 3–6, 1895.

Discusses the geologic and paleontologic criteria for the correlation of the Eocene deposits and describes many species, including a number of new ones.

123 —— Additional observations upon the Miocene (Chesapeake) deposits of New Jersey.

Johns Hopkins Univ., Circ., vol. xv, pp. 6–8, 1895.

Describes the occurrence, relations, and lithologic character of the beds and discusses the correlation of the strata and the deformation of the region.

124 —— [Review of "Mollusca and Crustacea of the Miocene formation of New Jersey," by R. P. Whitfield.]

Science, new ser., vol. iii, pp. 291–292, 1896.

125 **Clarke** (John M.). The structure of certain Paleozoic barnacles.

Am. Geol., vol. xvii, pp. 137–143, pl. vii, 1896.

Discusses some of the characters of the species of Lepidocoleus and describes two new species.

126 **Claypole** (E. W.). The timepiece of geology.
Am. Geol., vol. xvii, pp. 40-45, 1896.
Discusses the relations of paleontologic and stratigraphic evidence in geologic science.

127 —— A new Titanichthys.
Am. Geol., vol. xvii, pp. 166-169, pl. x, 1896.
Describes and figures Titanichthys brevis n. sp.

128 —— The ancestry of the Upper Devonian placoderms of Ohio.
Am. Geol., vol. xvii, pp. 349-360, 1896.
Gives a list of the genera and a number of species of placoderms occurring in the Cleveland (Devonian) shale of Ohio and compares them with European fish faunas and gives their vertical distribution.

129 —— Dinichthys prentis-clarki.
Am. Geol., vol. xviii, pp. 199-201, pl. vii, 1896.
Describes this species.

130 **Clements** (J. Morgan). Notes on the microscopical character of certain rocks from northeast Alabama.
Ala. Geol. Surv., Bull. No. 5, pp. 133-176, 1896.
Describes the petrographic characters of the rocks collected.

131 **Codington** (E. W.). The Florida pebble phosphates.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 423-431, 1896.
Gives a brief discussion of the origin of the pebble phosphate and a description of the methods of mining.

132 **Coldwell** (A. E.). Notes on the superficial geology of Kings County, N. S.
N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 171-174, 1896.
Describes the distribution of the Triassic trap, Cambrian and Glacial deposits.

133 **Coleman** (A. P.). Anorthosites of the Rainy Lake region [Ontario].
Jour. of Geol., vol. iv, pp. 907-911, 1896.
Describes their geographic distribution in the region and their petrographic and chemical characters.

134 **Cooper** (W. F.). The Paleozoic formation.
Denison Univ., Sci. Lab., Bull., vol. ix, pp. 1-10, 1895.
Describes the general characters and distribution of the Paleozoic rocks.

135 **Cope** (E. D.). Sixth contribution to the knowledge of the marine Miocene fauna of North America.
Am. Phil. Soc., Proc., vol. xxxv, pp. 139-146, pls. xi-xii, 1896.
Describes several new species.

136 —— New and little known Mammalia from the Port Kennedy bone deposit [Pennsylvania].
Phil. Acad. Nat. Sci., Proc., 1896, pp. 378-394, 1896.
Describes material from the locality named, including several new species of mammals.

137 **Cope** (E. D.). Permian land Vertebrata with carapaces.
Am. Nat., vol. xxx, pp. 936–937, pls. xxi–xxii, 1896.
Includes brief remarks on the characters of the fossils and illustrations of two of the species.

138 **Cox** (E. T.). Geological sketch of Florida.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 28–36, 1896.
Reviews the literature on the geology of Florida and describes the character and distribution of the Eocene and overlying deposits.

139 —— The Albion phosphate district [Florida].
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 36–40, 1896.
Gives a brief description of the phosphate deposits and the methods of mining.

140 **Cragin** (F. W.). The Plains Permian.
Am. Geol., vol. xviii, pp. 131–132 (½ p.) (correspondence), 1896.
Note on the use of the term Marion in the classification of the Permian.

141 —— The Choctaw and Grayson terranes of the Arietna.
Colo. College Studies, 5th Ann. Pub., pp. 40–48, 1894.
Reviews the nomenclature of the formations, describes the lithologic characters and fauna of the Choctaw limestone and Grayson marl in Texas, and discusses the relations of the fauna.

142 —— Descriptions of the invertebrate fossils from the Comanche series in Texas, Kansas, and Indian Territory.
Colo. College Studies, 5th Ann. Pub., pp. 49–68, 1894.
Describes a number of new species from the Cretaceous of northern Texas.

143 —— Vertebrate fossils from the Neocomian of Kansas.
Colo. College Studies, 5th Ann. Pub., pp. 69–73, pls. 1–2, 1894.
Describes five new species from the Cretaceous beds of Kansas.

143*a* —— The Permian system in Kansas.
Colo. College Studies, vol. vi, pp. 1–48, 1896.
Gives the author's classification of the Permian rocks of Kansas. Describes the character and distribution of the several subdivisions and gives lists of fossils from different horizons.

143*b* —— On the stratigraphy of the Platte series, or Upper Cretaceous of the Plains.
Colo. College Studies, vol. vi, pp. 49–52, 1896.
Gives brief notes on the subdivisions of the Platte series.

143*c* —— Preliminary notice of three late Neocene terranes of Kansas.
Colo. College Studies, vol. vi, pp. 53–54, 1896.
Describes briefly the characters of the three terranes in southwestern Kansas.

144 **Crane** (W. R.). "Horsebacks" in the Kansas Coal Measures.
Kans. Univ. Quart., vol. iv, pp. 145–151, 5 figs., 1896.
Describes the occurrences, character, and extent of the "horsebacks" and discusses their origin.

145 **Crawford** (J. J.). Thirteenth Annual Report of the State Mineralogist for the two years ending September 15, 1896 [California]. Sacramento, Cal., 1896, 726 pp.

Contains notes on mines of the several counties of the State, yielding antimony, lead, asphalt, borax, chromic iron, coal, copper, gold, gypsum, iron, magnesite, manganese, mineral springs, natural gas, petroleum, quicksilver, silver, structural materials, and miscellaneous products.

146 **Crosby** (William O.). Englacial drift.

Am. Geol., vol. xvii, pp. 203–234, 1896.

Discusses the early history of the Pleistocene ice sheet, the basal relations of a sedentary ice sheet, the relations of englacial drift to modified drift, and the evidences of transportation. Compares the Pleistocene ice sheet with modern glaciers.

147 —— Englacial drift.

Tech. Quart., vol. ix, pp. 116–144, 1896.

148 —— Mr. Bouve's [Thomas Tracy Bouvé] work in geology and mineralogy.

Boston Soc. Nat. Hist., Proc., vol. xxvii, pp. 236–239, 1896.

149 **Cross** (Whitman). Geology of Silver Cliff and the Rosita Hills, Colorado.

U. S. Geol. Surv., 17th Ann. Rept., Part II, pp. 269–403, pls. xxv–xxxvi, 1896.

Describes the geology and geologic relationships of the regions and the petrographic characters, occurrence and distribution of the gneiss, granite, dike rocks, and volcanic series. Presents a geologic map of the region. See Emmons (S. F.) No. 200.

150 —— Geology of the Cripple Creek gold mining district, Colorado.

Read before the Colorado Scientific Society, in Denver, Colo., June 4, 1894, 18 pp.

Describes the general geology of the region and the occurrence and characters of the volcanic rocks. Discusses the relationships of the mineral deposits to the rock masses.

151 —— Igneous rocks of the Telluride district, Colorado.

Read before the Colorado Scientific Society, in Denver, Colo., Sept. 7, 1896, 10 pp.

Describes the general character and distribution of the igneous rocks and the occurrence of diorite stocks and of intrusive rocks in the Cretaceous shales. Includes description of the volcanic series of the western San Juan district.

152 —— The San Miguel formation [Colorado].

Read before the Colorado Scientific Society, in Denver, Colo., Sept. 7, 1896, 7 pp.

Describes the character, relationships, and distribution of the formation, and discusses its Eocene or Upper Cretaceous age.

153 —— **Emmons** (S. F.), and **Eldridge** (G. H.). Geology of the Denver Basin in Colorado.

See Emmons (S. F.), Cross (W.), and Eldridge (G. H.). No. 202.

154 **Cushing** (Henry P.). Notes on the areal geology of Glacier Bay, Alaska.

N. Y. Acad. Sci., Trans., vol. xv, pp. 24-34, pl. i, 1896.

Describes the character and distribution of the limestone and igneous rocks, compares them with other Alaskan sections, and gives petrographic notes on the quartz diorites and schists.

155 —— On the existence of pre-Cambrian and post-Ordovician trap dikes in the Adirondacks.

N. Y. Acad. Sci., Trans., vol. xv, pp. 248-252, 1896.

Discusses the rock classification and describes the character and distribution of the dikes.

D.

156 **Dale** (T. Nelson). Structural details in the Green Mountain region and in eastern New York.

U. S. Geol. Surv., 16th Ann. Rept., Pt. I, pp. 549-570, figs. 70-100, 1896.

Describes the structural features of the region and gives a bibliographic list of the author's descriptions of related phenomena in publications of the U. S. Geological Survey.

157 **Dall** (William H.). Report on coal and lignite of Alaska.

U. S. Geol. Surv., 17th Ann. Rept., Pt. I, pp. 771-875, pls. xlviii-lviii, figs. 23-25, 1896.

Describes the local occurrences of coal, the general Tertiary geology of Alaska, and includes notes on the occurrences of Silurian, Devonian, Carboniferous, and Mesozoic rocks.

158 —— Diagnoses of new Tertiary fossils from the southern United States.

U. S. Nat. Mus., Proc., vol. xviii, pp. 21-46, 1896.

Describes a large number of new species.

159 **Darton** (Nelson Horatio). Preliminary report on artesian waters of a portion of the Dakotas.

U. S. Geol. Surv., 17th Ann. Rept., Pt. II, 89, pp. pls. lxix-cvii, figs. 50-65, 1896.

Describes the extent, occurrence, composition, and origin of artesian waters of the several counties of the region.

160 —— Catalogue and index of contributions to North American geology, 1732-1891.

U. S. Geol. Surv., Bull. No. 127, 1045 pp., 1896.

Contains an author's list of titles of papers arranged chronologically under each author and a subject index.

161 —— Artesian well prospects in the Atlantic Coastal Plain region.

U. S. Geol. Surv., Bull. No. 138, 228 pp., 19 pls., 1896.

Gives the results of investigations of artesian well prospects in portions of the Middle and South Atlantic States, including records of well borings, and notes on the general geology of the region and on the Cretaceous and Tertiary deposits.

162 **Darton** (Nelson Horatio). Nomini folio, Maryland and Virginia.
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 23, 1896.
Describes the physiography, lithologic character and succession of the Pleistocene and Tertiary formations, the geologic history of the Coastal Plain, and the occurrence of marl and clay. Includes topographic, geologic, and artesian well maps.

163 —— Franklin folio, Virginia and West Virginia,
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 32, 1896.
Describes the geographic and stratigraphic features of the region, the character and distribution of the Silurian, Devonian, and Carboniferous rocks, the geologic structure, and the occurrence of iron, and the characters of the soils.

164 —— Examples of stream robbing in the Catskill Mountains [New York].
Abstract: Geol. Soc. Am., Bull., vol. vii, pp. 505–507, pl. 23, fig. 1,1896.
Describes the phenomena and gives a map and cross section of the region.

165 —— Notes on relations of lower members of the Coastal Plain series in South Carolina.
Geol. Soc. Am., Bull., vol. vii, pp. 512–518, fig. 2, 1896.
Describes the occurrence of the Potomac formation overlying the crystalline rocks and mentions the character and thickness of the other formations of the Coastal Plain series in this region.

166 —— and **Taff** (Joseph A.). Piedmont folio, West Virginia and Maryland.
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 28, 1896.
Describes the physiographic and drainage features, the character and distribution of Silurian, Devonian, and Carboniferous rocks, the geologic structure and the occurrence of coal, iron, and building stones. Includes topographic, geologic and structure section maps and a sheet of columnar sections.

167 **Davidson** (A. D.), **Weller** (S.) and. Petalocrinus mirabilis n. sp., and a new American fauna.
See Weller (S.) and Davidson (A. D.), No. 735.

168 **Davis** (William Morris). The quarries in the lava beds at Meriden, Conn.
Am. Jour. Sci., 4th ser., vol. i, pp. 1–13, figs. 1–3, 1896.
Describes the several beds of the quarries and discusses the evidences of the tilting and faulting that has taken place.

169 —— Bearing of physiography on uniformitarianism.
Abstract: Geol. Soc. Am., Bull., vol. vii, pp. 8–11, 1896.
Discusses the origin and development of land forms in their bearing on the principles of uniformitarianism.

170 —— Plains of marine and subaerial denudation.
Geol. Soc. Am., Bull., vol. vii, pp. 377–398, 1896.
Refers to the English and American authorities as to the origin of broad plains of denudation. Reviews the arguments and discusses the results of marine and of subaerial denudation.

171 **Davis** (William Morris). The outline of Cape Cod [Massachusetts].

Am. Acad. Arts and Sci., Proc., vol. xxxi, pp. 303–332, 1896.

Reviews previous descriptions of Cape Cod and discusses its origin and development.

172 **Davison** (John M.). Wardite; a new hydrous basic phosphate of alumina.

Am. Jour. Sci., 4th ser., vol. ii, pp. 154–155, 1896.

Describes the chemical and physical characters of an encrustation on decomposed massive variscite.

173 **Dawson** (George M.). Summary report on the operations of the Geological Survey for the year 1894 [Canada].

Canada Geol. Surv., new ser., vol. vii, Rept. A, 123 pp., 1896.

Gives a brief description of the field work in 1894 on the Tar sands of Athabasca, the cinnabar and gold ore deposits of British Columbia, reconnoissance surveys in the Northwest Territory, the Archean rocks of Ontario, the Ordovician rocks of Quebec and adjacent regions, reconnoisance surveys in the Northeast Territory, the Pleistocene and Glacial phenomena of New Brunswick, and the Triassic, Carboniferous, Devonian, and Silurian rocks of Nova Scotia.

174 —— Report on the area of the Kamloops map-sheet, British Columbia.

Canada Geol. Surv., new ser., vol. vii, Rept. B, 427 pp., 7 pls., 1896.

Describes the physiography of the region and presents a table showing the nomenclature, lithologic character, and thickness of the Cambrian, Carboniferous, Juratrias, Cretaceous, and Tertiary formation, and a comparative table of formations of the eastern border of the Rocky Mountains, in Selkirk range, and on the western side of the Rockies. Describes the distribution and relations of each of these formations. Gives an account of the glacial phenomena and of the occurrence of gold, cinnabar, iron, copper, coal, and building stones.

175 —— (with the collaboration of R. G. McConnell.) Glacial deposits of southwestern Alberta in the vicinity of the Rocky Mountains.

Geol. Soc. Am., Bull., vol. vii, pp. 31–66, pl. i, figs. 1–5, 1896.

Describes the physiography of the region and gives a summary of previous observations and sections on Belly and Oldman rivers. Describes the distribution of material derived from the Rocky Mountain and Laurentian glaciers. Includes a summary and discussion of results.

176 **Dawson** (J. William). On collections of Tertiary plants from the vicinity of the city of Vancouver, B. C.

Canada Roy. Soc., Proc. and Trans., 2d ser., vol. i, sect. iv, pp. 137–151, pls. iv–viii, 1896.

Discusses the relations of the Tertiary beds of the region, with notes on the fossil plants.

177 **Dawson** (J. William). Notes on the bivalve shells of the Coal formation of Nova Scotia.

Can. Rec. Sci., vol. vi, pp. 117–134 and 167, figs. 1–13, 1894.

Discusses the characters of the genus Naiadites and describes fossil shells from the Carboniferous strata of Nova Scotia, including new species.

178 —— Notes on a specimen of Beluga catodon from the Leda clay, Montreal.

Can. Rec. Sci., vol. vi, pp. 351–354, 1895.

Describes the occurrence in Pleistocene rocks.

179 —— Review of the evidence for the animal nature of Eozoon canadense.

Can. Rec. Sci., vol. vi, pp. 470–479, vol. vii, pp. 62–77, figs. 6–8, 1896.

Reviews the literature and discusses the petrologic, chemical, and biologic evidences of the animal nature of Eozoon canadense.

180 —— Pre-Cambrian fossils.

Can. Rec. Sci., vol. vii, pp. 157–162; Brit. Assoc. Adv. Sci., Rept. 1896, pp. 784–785; Abstract: Geol. Mag., dec. 4, vol. iii, pp. 513–514, 1896.

Remarks on occurrence of fossils in pre-Cambrian rocks of North America.

181 **Dean** (Bashford). On the vertebral column, fins, and ventral armor of Dinichthys.

N. Y. Acad. Sci., Trans., vol. xv, pp. 157–163, pls. vii–viii, 1896.

182 **De Kalb** (Courtenay). Onyx marbles.

Am. Inst. Mg. Engrs. Trans., vol. xxv, pp. 557–569, 1896.

Describes the commercial varieties of onyx marbles and their occurrence in different parts of the United States, Mexico, and other countries.

183 **Diller** (Joseph Silas). A geological reconnoissance in northwestern Oregon.

U. S. Geol. Surv., 17th Ann. Rept., Pt. I, pp. 447–520, pls. iv–xvi, figs. 4–17, 1896.

Describes the physiographic features and the character and distribution of the Cretaceous, Tertiary, and Pleistocene deposits of the region and the occurrence and character of the coal veins, iron ores, building stones, and gold.

184 **Dowling** (D. B.). Report on the country in the vicinity of Red Lake, and part of the basin of Berens River, Keewatin.

Canada Geol. Surv., new ser., vol. vii, Rept. F, 54 pp., 1896.

Describes the physiography of the region, the character and distribution of the Archean rocks and of the glacial phenomena.

185 **Dresser** (John A.). Petrographical notes on some Archean rocks from Chelsea, Quebec.

Ottawa Nat. vol. x, pp. 129–133, 1896.

Describes serpentine limestone, gneiss, and olivine diabase.

E.

186 **Earle** (Charles). Tapirs, past and present.
Science, new ser., vol. iv, pp. 934–935, 1896.
Discusses the relations of recent and fossil tapirs.

187 **Eastman** (Charles R.). Remarks on Petalodus alleghaniensis Leidy.
Jour. of Geol., vol. iv, pp. 174–176, 1896.
Reviews descriptions of P. securiger by O. P. Hay, with remarks on the retention of the name Petalodus alleghaniensis for P. securiger, P. destructor, and P. alleghaniensis, all of which the author considers identical.

188 —— Preliminary note on the relations of certain body-plates in the Dinichthyids.
Am. Jour. Sci., 4th ser., vol. ii, pp. 46–50, 1896.
Describes the character and relationships of new material from the Cleveland shale of Ohio.

189 **Edwards** (Arthur M.). On the occurrence of Neocene marine Diatomaceæ near New York.
Am. Nat., vol. xxx, pp. 212–216, 1896.
Describes the occurrence of strata containing Diatomaceæ on Long Island, N. Y. Gives a list of the forms.

190 **Eldridge** (George H.). The uintaite (gilsonite) deposits of Utah.
U. S. Geol. Surv., 17th Ann. Rept., Part I, pp. 909–949, pls. lix–lx, figs. 26–33, 1896.
Describes the classification and chemical relations of hydrocarbons, the geology of the region, and the occurrence and character of the veins. Presents a geologic map of the country.

191 —— Occurrence of uintaite in Utah.
Science, new ser., vol. iii, pp. 830–832, 1896.
Describes the veins of uintaite, cutting Tertiary strata in Utah, and gives its chemical analysis.

192 —— **Emmons** (S. F.), **Cross** (W.), and. Geology of the Denver Basin in Colorado.
See Emmons (S. F.), Cross (W.), and Eldridge (G. H.), No. 202.

193 **Ells** (R. W.). Report on a portion of the Province of Quebec comprised in the southwest sheet of the "Eastern Townships" map (Montreal sheet) [Canada].
Canada Geol. Surv., new ser., vol. vii, Rept. J, 157 pp., 1896.
Describes the character and distribution of the Devonian, Silurian, Cambro-Silurian, Cambrian, pre-Cambrian, and the volcanic and plutonic rocks of the region. Gives a brief account of the economic minerals.

194 —— The apatite-bearing rocks of the Ottawa district [Canada].
Can. Rec. Sci., vol. vi, pp. 213–222, 1895.
Describes the general features of Laurentian rocks, and the character, occurrence, and origin of the apatite deposits.

195 **Ells** (R. W.) The geology of the Ottawa and Parry Sound railway [Ontario].

Ottawa Nat., vol. x, pp. 165–173, 1896.

Describes the local geology along the route. The rocks are mainly Silurian.

196 —— and **Barlow** (A. E.). The physical features and geology of the route of the proposed Ottawa canal between the St. Lawrence River and Lake Huron.

Canada Roy. Soc., Proc. and Trans., 2d ser., vol. i, sect. iv, pp. 163–190, with geologic map, 1896.

Describes the drainage and physical features, and reviews the work of various geologists in this region.

197 **Elmore** (C. J.). Fossil Diatomaceæ from Nebraska and their relations to modern species.

Torrey Bot. Club., Bull., vol. xxiii, pp. 269–275, 1896.

Describes the general features of the deposits, discusses the relation of the diatoms to modern species and gives a list of the species determined.

198 —— See **Barbour** (E. H.), No. 34.

199 **Emerson** (B. K.). Geology of Old Hampshire County, in Massachusetts.

Abstract. Geol. Soc. Am., Bull., vol. vii, pp. 5–6, 1896.

Describes briefly the character and distribution of the pre-Cambrian, Triassic, and Quaternary rocks.

200 **Emmons** (Samuel Franklin). The mines of Custer County, Colorado.

U. S. Geol. Surv., 17th Ann. Rept. Part II, pp. 411–472, pl. xxxvii, figs. 38–43, 1896.

Describes the character and mode of occurrence of the gold and silver-bearing ores and discusses their origin. Includes analyses of sinters and waters from 500 and 2,000 feet levels of the Geyser Mine. See Cross (W.) No. 149.

201 —— Some mines of Rosita and Silver Cliff, Colorado.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 773–823, 1896.

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

202 —— **Cross** (Whitman), and **Eldridge** (George H.). Geology of the Denver Basin in Colorado.

U. S. Geol. Surv., Mon. xxvii, 556 pp., 31 pls., 102 figs., 1896.

Chapter I is a description of the physiography, and historical and structural geology of the region. Chapter II describes the lithologic characters, distribution, and structure of the Jurassic and Cretaceous subdivisions. Chapter III comprises an account of the stratigraphy and age of the Arapahoe, Denver, and Monument Creek formations. Chapter IV describes the character and distribution of the Pleistocene deposits. Chapter V is a description of the geological occurrence and petrographic characters of the igneous rocks. Chapter VI describes the occurrence of coal and clay and the artesian wells of the region. Includes topographic, geologic, structure section maps and columnar sections in pocket.

203 **Endlich** (F. M.). Mining in the Mojave Desert in California.
Eng. and Mg. Jour., vol. lxii, pp. 197–198, 1896.
Describes the gold mines of Kern County, California.

204 **Everman** (John). The genus Temnocyon and a new species thereof and the new genus Hypotemnodon from the John Day Miocene of Oregon.
Am. Geol., vol. xvii, pp. 267–287, pl. xi, 1896.
Describes Temnocyon ferox and Hypotemnodon coryphæus n. sp., from the Miocene beds of Oregon.

F.

205 **Fairbanks** (Harold W.). Ore deposits with special reference to the Mother Lode [California].
Cal. State Mining Bureau, 13th Ann. Rept., pp. 665–672, 1896.
Discusses the meaning of the term Mother Lode and describes the general features of the ore bodies occurring in this region.

206 —— The geology of Point Sal [California].
Univ. of Cal., Dept. of Geol., Bull., vol. ii, pp. 1–92, pls. 1–2, 1896.
Describes the characters of the Miocene and Knoxville beds, the petrographic characters of augite-teschenite, basalt, gabbro, peridotite, and serpentine, and discusses the age of these eruptions.

207 —— Notes on the geology of eastern California.
Am. Geol., vol. xvii, pp. 63–74, pl. iii, 1896.
Describes the topography of the portion of California east of the Sierra Nevada range and the character and distribution of the metamorphic, sedimentary, and igneous rocks.

208 —— The mineral deposits of eastern California.
Am. Geol., vol. xvii, pp. 144–158.
Describes the distribution and geologic relations of the gold and silver ores and the pyritiferous mineralization of the rocks. Discusses the origin of the gold and silver ore bodies.

209 —— The age of the California Coast ranges.
Am. Geol., vol. xviii, pp. 271-282, 1896.
Reviews the opinions of various writers as to the evolution of the Coast ranges and discusses the changes that have affected them during Jurassic, Cretaceous, and Tertiary times.

210 —— Stratigraphy at Slate's Springs, with some further notes on the relation of the Golden Gate series to the Knoxville.
Am. Geol., vol. xviii, pp. 350-356, 1896.
Discusses the evidence as to the Jurassic or Cretaceous age of the Golden Gate series and of its relations to the Knoxville beds.

211 —— The possibilities of the petroleum industry in California.
Eng. and Mg. Jour., vol. lxi, p. 588, 1896.
Describes the occurrence of petroleum in various parts of California.

212 —— The coal beds of California.
Eng. and Mg. Jour., vol. lxii, p. 10, 1896.
Describes the Tertiary coals of the Coast ranges.

213 **Fairbanks** (Harold W.). The great Mother Lode of California.
Eng. and Mg. Jour., vol. lxii, pp. 248–250, 1896.
Describes the characteristics of the gold-bearing veins of the region.

214 —— Note on a breathing gas well [California].
Science, new ser., vol. iii, pp. 693–694, 1896.
Describes the peculiar features of this well and the character of the associated Cretaceous and Jurassic strata.

215 —— The mineral deposits of eastern California.
Mining and Scientific Press, vol. lxxiii, pp. 480–481, 501, 1896.
Describes the occurrence of gold veins in this region.

216 **Fairchild** (Herman Le Roy). Glacial Genesee lakes.
Geol. Soc. Am., Bull., vol. vii, pp. 423–452, pls. 19–21, 1896.
Describes the hydrography, topography, and geologic history of the Genesee Valley. Gives a description of the history and outlets of the several glacial lakes and of contemporary local glacial lakes and subsequent morainal lakes.

217 —— Kame areas in western New York south of the Irondequoit and Sodus bays.
Jour. of Geol., vol. iv, pp. 129–159, figs. 1–7, 1896.
Describes the character and extent of massive deposits of sand and gravel of glacial origin. Compares these kame areas with the area at Rochester, N. Y., and discusses their manner of formation.

218 **Farr** (Marcus S.). Notes on the osteology of the White River horses.
Am. Phil. Soc., Proc., vol. xxxv, pp. 147–175, pl. xiii, figs. 1–6, 1896.
Discusses the osteology of Mesohippus and gives a bibliography of the literature.

219 **Farrington** (Oliver C.). Phenomena of falling meteorites.
Am. Geol., vol. xvii, pp. 82–89, 1896.
Reviews the history of the phenomena of falling meteorites.

220 —— [Review of "Expedition cientifica al Popocatapetl," by José G. Aguilera and Ezequiel Ordonez.]
Jour. of Geol., vol. iv, pp. 516–520, 1896.

221 **Ferrier** (W. F.). Petrographical characters of some rocks from the area of the Kamloops map sheet, British Columbia.
Canada Geol. Surv., new ser., vol. vii, Rept. B, appendix 1, pp. 349B–400B, 1896.
Describes the petrographic characters of schist, porphyrites, amphibolites, tuff, gabbro, dacite, trachyte, andesite, basalt, diorite, granite, svenite, and quartz porphyry.

222 —— Erythrite, stilpnomelane var. chalcodite, crystallized monazite, and pleochroic apatite from some Canadian localities.
Ottawa Nat., vol. ix, pp. 193–195, 1896.

223 **Finlay** (J. Ralph), **Smyth** (H. L.) and. The geological structure of the western part of the Vermillion range, Minnesota.
See Smyth (H. L.) and Finlay (J. R.), No. 640.

224 **Foerste** (Aug. F.). An account of the Middle Silurian rocks of Ohio and Indiana, including the Niagara and Ohio Clinton, and the bed at the top of the Lower Silurian strata, formerly considered the Medina.

Cin. Soc. Nat. Hist., Jour., vol. xviii, pp. 161–199, 1896.

Describes local details of the succession of Lower and Upper Silurian rocks at various places in southeastern Indiana and southwestern Ohio, and discusses the evidences as to correct separation of these two groups and the correlation of the several members.

225 **Fontaine** (William M.). The Potomac formation in Virginia.

U. S. Geol. Surv., Bull., No. 145, 149 pp. 2 pls., 1896.

Describes the character and occurrence of Potomac strata at various localities in Virginia and discusses the evidence as to the age of the formation.

226 —— Notes on some Mesozoic plants from near Oroville, California.

Am. Jour. Sci., 4th ser., vol. ii, pp. 273–275, 1896.

Gives a list of the plants collected and discusses their bearing on the evidence as to the age of the deposits, which is considered to be Jurassic.

227 **Foote** (H. W.). On the occurrence of pollucite, mangano-columbite, and microlite at Rumford, Maine.

Am. Jour. Sci., 4th ser., vol. i, pp. 457–461, 1896.

Gives a brief description of the occurrence of the minerals and the chemical composition of pollucite. Describes the crystallographic characters of mangano-columbite and microlite.

228 **Forbes** (E. H.). On the epidote from Huntington, Mass., and the optical properties of epidote.

Am. Jour. Sci., 4th ser., vol. i, pp. 26–30, 1896.

Gives the chemical analysis of the epidote and describes its crystallographic characters.

229 —— **Penfield** (S. L.) and. Fayalite from Rockport, Mass., and on the optical properties of the chrysolite-fayalite group and of monticellite.

See Penfield (S. L.) and Forbes (E. H.), No. 539.

230 **Fowke** (Gerard). Pre-Glacial and recent drainage channels in Ross County, Ohio.

Denison Univ., Sci. Lab., Bull., vol. ix, pp. 15–24, pl. i, 1895.

Discusses the origin of certain drainage features and gives a map of the region.

231 **Frazer** (Persifor). Two supposed new trap dikes in Chester County, Pennsylvania.

Phil. Acad. Nat. Sci., Proc., 1896, pp. 206–207, 1896.

Remarks on the occurrence of trap dikes in Chester County.

232 **Fuller** (Myron L.). A new occurrence of Carboniferous fossils in the Narragansett Basin.

Boston Soc. Nat. Hist., Proc., vol. xxvii, pp. 195–199, 1896.

Describes the lithologic character of the strata, with notes on the occurrence of Calamites and Sigillaria.

233 **Fultz** (Francis M.). Recent discoveries of glacial scorings in southeastern Iowa.

Iowa Acad. Sci., Proc., vol. iii, pp. 60–62, 1896.

Presents data showing that the Illinois ice lobe crossed the Mississippi into Iowa.

234 —— Some facts brought to light by deep wells in Des Moines County, Iowa.

Iowa Acad. Sci., Proc., vol. iii, pp. 62–63, 1896.

Gives brief notes on certain deep wells.

G.

235 **Gane** (Henry Stewart). A contribution to the Neocene corals of the United States.

Johns Hopkins Univ., Circ., vol. xv, pp. 8–10, 1895.

Describes the distribution of Neocene corals and the characters of a number of new species.

236 **Gesner** (G. W.). Dr. Abraham Gesner. A biographical sketch.

New Brunswick Nat. Hist. Soc., Bull. No. 14, pp. 3–11, 1896.

237 **Gilbert** (Grove Karl). The underground waters of the Arkansas Valley in eastern Colorado.

U. S. Geol. Surv., 17th Ann. Rept., Pt. II, 51 pp., pls. lvi–lxviii, figs. 45–49, 1896.

Describes the character, distribution, and structure of the Jurassic and Cretaceous strata, the sands and gravels, and the general conditions of the artesian and ground waters.

238 —— Laccolites in southeastern Colorado.

Jour. of Geol., vol. iv, pp. 816–825, 5 figs., 1896.

Describes the character of the laccolitic rocks, the structure of the region, and the lithologic character and distribution of the associated Dakota and Neocene beds.

239 —— The origin of hypotheses, illustrated by the discussion of a topographic problem.

Science, new ser., vol. iii, pp. 1–13, figs. 1–6; Washington Geol. Soc. Address of retiring President, in 1895, 1896.

Describes the nature and origin of hypotheses as indicated by a study of the Coon Butte region in Arizona.

240 —— [Review of "Elements of geology, a text-book for colleges and for the general reader," by Joseph Le Conte.]

Science, new ser., vol. iv, pp. 620–621, 1896.

241 —— Age of the Potomac formation.

Science, new ser., vol. iv, pp. 875–877, 1896.

Discusses methods of correlation employed by Prof. Marsh in his paper on the Jurassic formation of the Atlantic Coast.

242 **Gill** (Thomas). Note on the Devonian Palæospondylus.

Science, new ser., vol. iv, pp. 10–11, 1896.

Quotes Dr. Traquair's description of Palæospondylus gunni and discusses briefly their relations.

243 **Gilpin** (E.). The iron ores of Nictaux, N. S., and notes on steel making in Nova Scotia.

N. S. Inst. of Sci., Proc. and Trans., 2d ser., vol. ii, pp. 10–20, 1896.

Describes the character and extent of the iron ore bodies.

244 —— The undeveloped coal fields of Nova Scotia.

N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 134–149, 1896.

Describes the character of the Carboniferous strata and the occurrence of coal in parts of Nova Scotia.

245 **Girty** (George H.). Mr. Sardeson and fossil tabulates.

Am. Geol., vol. xviii, pp. 332–333, 1896.

246 **Glenn** (William). Chromic iron, with reference to its occurrence in Canada.

U. S. Geol. Surv., 17th Ann. Rept., pt. iii, pp. 261–273, 1896.

Gives a historical sketch of chromic iron and describes its occurrence in the United States and Canada.

247 —— Chrome in the southern Appalachian region.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 481–499, 1896.

Gives a historical account of chromium, describes the occurrence of chromic iron in Maryland and Pennsylvania, and discusses its origin and relations to the associated serpentine.

248 —— The form of fissure walls, as affected by subfissuring and by the flow of rocks.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 499–513, 1896.

Describes the form of certain fissures in the flow of rocks as shown by a section of the Appalachians in Maryland.

249 **Gordon** (Charles H.). A report on the Bevier sheet including portions of Macon, Randolph, and Chariton counties [Missouri].

Mo. Geol. Surv., vol. ix, Sheet Rept. No. 2, 75 pp., figs. 1–5, 1896.

Describes the physiographic character of the region, the lithologic characters of the Coal Measure and Quaternary beds, and the economic geology of the coal area.

250 —— Syenite-gneiss (leopard rock) from the apatite region of Ottawa County, Canada.

Geol. Soc. Am., Bull., vol. vii, pp. 95–134, figs. 1–9, 1896.

Describes the general geology of the region, the geologic occurrence of the syenite-gneiss and its megascopic and microscopic characters. Discusses the character, relations, nomenclature, and origin of the ellipsoidal structure of the rocks. Gives chemical analyses of the gneiss.

251 **Gould** (C. N.). A geologic section across the Flint Hills along the Missouri Pacific Railway, beginning near Cedarvale and extending to Winfield [Kansas].

Univ. Geol. Surv. of Kans., vol. i, pp. 31–34, fig. 1, 1896.

Gives a vertical section of the strata and descibes briefly the lithologic character and fauna of the exposures examined.

252 **Grant** (C. C.). Geological notes.

Hamilton Assoc., Jour. and Proc., No. 12, pp. 140–145, 1896.

Gives notes on the Upper Silurian fauna in the vicinity of Hamilton, Ontario.

253 **Grant** (C. C.). Additional notes regarding our local graptolites.
Hamilton Assoc., Jour. and Proc., No. 12, pp. 159–163, 1896.
Notes on localities in the vicinity of Hamilton, Ontario, where graptolites have been found.

254 **Grant** (U. S.), **Winchell** (N. H.) and. Volcanic ash from the north shore of Lake Superior.
See Winchell (N. H.) and Grant (U. S.), No. 766.

255 **Gratacap** (L. P.). Fossils and fossilization.
Am. Nat., vol. xxx, pp. 902–912, 993–1003, 1896.
Describes the characters, preservation, and distribution of fossils.

256 —— [Review of "A dictionary of the names of minerals, including their history and etymology," by A. H. Chester.]
Science, new ser., vol. iv, pp. 117–118, 1896.

257 **Greenleaf** (James L.). The hydrology of the Mississippi.
Am. Jour. Sci., 4th ser., vol. ii, pp. 29–46, 1896.
Describes the drainage area of the Mississippi and its tributaries, the distribution and amount of rainfall, and the temperature and character of the flow of the streams.

258 **Greenlee** (W. B.). The amount of water in the earth's crust.
Am. Geol., vol. xviii, pp. 33–35, 1896.
Describes the author's method of computing the amount of water in the earth's crust.

259 **Gresley** (W. S.). Traces of organic remains from Huronian (?) series at Iron Mountain, Mich., etc.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 527–534, 1896.
Describes the characteristics of markings, considered to be of organic origin, from the ore bodies at this locality.

260 —— Observations regarding the occurrence of anthracite, with a new theory of its origin.
Am. Geol., vol. xviii, pp. 1–21, pl. i, 1896.
Discusses J. J. Stevenson's theory as to the origin of Pennsylvania anthracite and the origin of the metamorphism in this region. Describes the conditions in other coal fields.

261 —— A granite bowlder near Pittsburg, Pa.
Am. Geol., vol. xviii, pp. 331–332 (correspondence), 1896.
Gives reasons for supposing this to be an erratic belonging to the Glacial period.

262 **Griswold** (Leon S.). Notes on the geology of southern Florida.
Harv. Coll., Mus. Comp. Zool., Bull., vol. xxviii, No. 2, pp. 52–62, pls. xvii–xxvi, 1896.
Describes the character of the Everglades and the occurrence of oolitic limestone. Discusses the origin of the oolite.

263 **Guentherodt** (J. J.). Twin lakes region [Colorado].
Colliery Eng., vol. xvii, pp. 201–202, 1896.
Describes the occurrence of gold placers and veins near Leadville, Colo.

264 **Gulliver** (F. P.). Cuspate forelands.

Geol. Soc. Am., Bull., vol. vii, pp. 399–422, pl. 18, figs, 1–15, 1896.

Describes the formation and method of growth of current, tidal, and delta cusps at typical localities on the Atlantic and Pacific coasts of the United States.

265 **Gurley** (R. R.). North American graptolites, new species and vertical range.

Jour. of Geol., vol. iv, pp. 63–102 and 291–311, pls. iv–v, 1896.

Mentions described species reported from American strata, giving their generic reference and geologic range. The paper also includes descriptions of new species, a list of American graptolites, and tables showing their vertical and geographic range.

266 **Gurley** (William F. E.), **Miller** (S. A.) and. Descriptions of new and remarkable fossils from the Paleozoic rocks of the Mississippi Valley.

See Miller (S. A.) and Gurley (W. F. E.), No. 508.

267 —— New species of crinoids from Illinois and other States.

See Miller (S. A.) and Gurley (W. F. E.), No. 509.

268 —— New species of Echinodermata and a new crustacean from the Paleozoic rocks.

See Miller (S. A.) and Gurley (W. F. E.), No. 510.

269 —— New species of Paleozoic invertebrates from Illinois and other States.

See Miller (S. A.) and Gurley (W. F. E.), No. 511.

270 **Gwillim** (J. C.). Gold and silver ores of the Slocan, B. C.

Can. Rec. Sci., vol. vi, pp. 494–498, 1896.

Describes gold and silver ore deposits in British Columbia.

H.

271 **Hague** (Arnold). Yellowstone National Park folio, Wyoming. General description.

U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 30, figs. 1–11. 1896.

Describe the physiography and general geologic features and history of the region. Includes topographic and gelogic maps.

272 —— The age of the igneous rocks of the Yellowstone National Park.

Am. Jour. Sci., 4th ser., vol. i, pp. 445–457, 1896.

Reviews the geologic history of the Park, mentions the fossil plant and invertebrate remains found in the Tertiary strata, and discusses the bearing of the data on the age of the igneous rocks and the character of the post-Laramie movement.

273 **Hall** (John G.). A geologic section from State Line, opposite Boicourt, to Alma, principally along the Osage River [Kansas].

Univ. Geol. Surv. of Kans., vol. i, pp. 99–106, pl. v, 1896.

Describes the limestones and shales which comprise the Carboniferous formation in the region.

274 **Halse** (Edward). The quicksilver mine and reduction works at Huitzuco, Guerrero, Mexico.

North of Eng. Inst. of Mg. and Mech. Engrs., Trans., vol. xlv, pt. 1, pp. 72–88, 1895.

Describes the geologic features of the region, the character and occurrence of the ore and discusses its origin.

274*a* **Harper** (G. W.) and **Bassler** (R. S.). Catalogue of the fossils of the Trenton and Cincinnati periods occurring in the vicinity of Cincinnati, Ohio.

Cincinnati, Ohio, 34 pp., 1896.

275 **Harrington** (B. J.). The chemical composition of andradite from two localities in Ontario.

Can. Rec. Sci., vol. vi, pp. 479–481, 1896.

Gives chemical analyses of the material.

276 —— **Adams** (Frank D.) and. On a new alkali hornblende and a titaniferous andradite from the nepheline-syenite of Dungannon, Hastings County, Ontario.

See Adams (F. D.) and Harrington (B. J.), No. 5.

277 **Harris** (Gilbert D.). Claiborne fossils.

Am. Pal., Bull., vol. i, No. 1, pp. 1–50, pl. i, 1895.

Gives a list of Claiborne fossils and a description of three new species.

278 —— Neocene Mollusca, of Texas, or fossils from the deep well at Galveston.

Am. Pal., Bull., vol. i, No. 3, 25 pp. 4 pls., 1895.

279 —— The Midway stage.

Am. Pal., Bull., vol. i, No. 4, 125 pp., 15 pls., 1896.

Gives a historical sketch of the study of the Midway stage and describes sections in Texas, Arkansas, Tennessee, Mississippi, Alabama, and Georgia. Includes descriptions of molluscan remains of Midway stage.

280 —— New and interesting Eocene Mollusca from the Gulf States.

Phil. Acad. Nat. Sci., Proc., 1896, pp. 470–482, pls. xviii–xxiii, 1896.

The fossils described are from the Eocene of Alabama and Mississippi.

281 —— See **Say** (Thomas), No. 599.

282 **Hartzell** (J. C., jr.). The history and principles of geology and its aim.

Am. Nat., vol. xxx, pp. 177–183, 271–279, 1896.

Gives a historical sketch of the science of geology and discusses its principles and aims.

283 **Hatcher** (J. B.). Recent and fossil tapirs.

Am. Jour. Sci., 4th ser., vol. i, pp. 161-180, pls. ii–v, 1896.

Describes Protapirus validens n. sp., and discusses the osteology of the genus. Reviews the literature regarding the genera Colodon and Protapirus.

284 **Hatcher** (J. B.). Some localities for Laramie mammals and horned dinosaurs.

Am. Nat., vol. xxx, pp. 112–120, with map of a part of Wyoming, 1896.

Describes localities in Wyoming where these fossils have been found, with remarks on the occurrence and fauna of the Laramie and Ceratops beds.

285 **Haworth** (Erasmus). A geologic section from Coffeyville to Lawrence [Kansas].

Univ. Geol. Surv. of Kans., vol. i, pp. 129–139, pl. vii, 1896.

Describes the character of Carboniferous limestones and shales, and compares them with those of the Baxter Springs-Kansas City section.

286 —— Résumé of the stratigraphy and correlations of the Carboniferous formations.

Univ. Geol. Surv. of Kans., vol. i, pp. 145–194, pl. xxii, figs. 7–8, 1896.

Describes the characters of the different subdivisions of the Carboniferous and Permo-Carboniferous formations in Kansas and gives a list of their characteristic fossils and a table showing thickness, lithologic character, and characteristic fossils of the Upper Paleozoic rocks of central Kansas.

287 —— Physiographic features of the Carboniferous.

Univ. Geol. Surv. of Kans., vol. i, pp. 195–217, pls. xxiii–xxx, figs. 9–11, 1896.

Describes the characteristic erosion features of the Carboniferous and Permo-Carboniferous areas of Kansas.

288 —— The coal fields of Kansas (preliminary).

Univ. Geol. Surv. of Kans., vol. i, pp. 218–231, 1896.

Describes the geographic and geologic distribution of the coal beds in Kansas and gives a résumé of the stratigraphy of the Coal Measure strata.

289 —— Oil and gas in Kansas (preliminary).

Univ. Geol. Surv. of Kans., vol. i, pp. 232–245, 1896.

Gives a historical account of the industry, describes their geographic extent, and the character of the Coal Measure strata in which the oil and gas occur, and discusses their origin and physical and chemical properties.

290 —— Surface gravels of the Carboniferous area.

Univ. Geol. Surv. of Kans., vol. i, pp. 246–255, 1896.

Describes the character and distribution of the surface gravels and discusses their origin.

291 —— The Coal Measure soils (preliminary).

Univ. Geol. Surv. of Kans., vol. i, pp. 256–269, 1896.

Describes the general characters of the Coal Measure soils of Kansas and discusses methods of fertilization.

292 —— The University Geological Survey of Kansas, Vol. I.

Plates x–xxi are sections of deep wells in the Carboniferous area, plate xxii is a general vertical section of Carboniferous of Kansas and plate xxxi is a preliminary geologic map of Kansas.

293 **Haworth** (Erasmus). The crystalline rocks of Missouri.

Mo. Geol. Surv., vol. viii, pp. 84–220, pls. x–xxx, figs. 1–15, 1895.

Discusses the classification of the crystalline rocks and describes the chemical and mineralogic characters of the dike rocks, granites, granite porphyries, and porphyries.

294 —— Local deformation of strata in Meade County, Kans., and adjoining territory (preliminary).

Am. Jour. Sci., 4th ser., vol. ii, pp. 368–373, 1896. (with drainage map).

Discusses the geographic and geologic evidence of deformation of the region.

295 —— and **Bennett** (John). A geologic section from Baxter Springs [Kansas] to the Nebraska State line.

Univ. Geol. Surv. of Kans., vol. i, pp. 35–71, pl. ii, figs. 2–3, 1896.

Describes the lithologic character and succession, and mentions the fossils found in the various beds which make up the Carboniferous series in the region.

296 **Haworth** (Erasmus), **Nason** (F. L.), **Winslow** (A.) and. A report on the Iron Mountain sheet, including portions of Iron, St. Francois, and Madison counties [Missouri].

See Winslow (A.), Haworth (E.), and Nason (F. L.), No. 769.

297 **Hay** (Robert). The geology of the Fort Riley military reservation and vicinity, Kansas.

U. S. Geol. Surv., Bull. No. 137, 35 pp., 8 pls., 1896.

Describes the occurrence and gives a section of the Permian and Permo-Carboniferous beds and the physiography and hydrography of the region. Includes notes on the occurrence of Cretaceous, Tertiary, and Pleistocene beds, and on the Glacial phenomena.

298 —— On the eastern extension of the Cretaceous rocks in Kansas, and the formation of certain sandhills.

Kans. Acad. Sci., Trans., vol. xiv, pp. 227–229, 1896.

Describes the characteristics of the Dakota Cretaceous beds in the region and considers certain sandhills are formed of the weathered Dakota sandstone.

299 —— The river counties of Kansas. Some notes on their geology and mineral resources.

Kans. Acad. Sci., Trans., vol. xiv, pp. 230–260, 1896.

Describes the character and distribution of the Carboniferous formation in the counties of Kansas bordering on the Missouri River, the Glacial phenomena, and mineral resources. Gives the sections of several artesian wells.

300 —— A bibliography of Kansas geology, with some annotations.

Kans. Acad. Sci., Trans., vol. xiv, pp. 261–278, 1896.

301 **Hayes** (Charles Willard). Gadsden folio, Alabama.

U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 35, 1896.

Describes the physiographic and stratigraphic features of the region, the occurrence, character, and distribution of the Cambrian, Silurian, Devonian, and Carboniferous rocks, the geologic structure and the occurrence of coal, iron, and soils. Includes topographic, geologic, structure section maps and columnar sections, and a list of formation names.

301*a* **Hayes** (Charles Willard). The Tennessee phosphates.
U. S. Geol. Surv., 17th Ann. Rept., Pt. II, 38 pp., pls. l–lv, fig. 44, 1896.
Describes the general physiographic and stratigraphic features of the region and the character and distribution of the black and white phosphates. Discusses their origin.

302 —— The white phosphates of Tennessee.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 19–28, 1896.
Describes the location, occurrence, and physical and chemical character of the phosphate deposits, and discusses their origin.

303 **Helmhacker** (R.) Sepiolite.
Eng. and Mg. Jour., vol. lxii, pp. 80–82, 1896.
Describes the characteristics of the mineral and its occurrence in different countries.

304 **Henrich** (Carl). The Ducktown ore deposits and the treatment of the Ducktown copper ores [Tennessee].
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 173–245, figs. 1–22, 1896.
Gives a historical sketch of mining in this region, describes the geologic structure of the ore deposits and the physical and chemical characters of the copper ores, and discusses the genesis of the ore deposits. The paper contains a sketch map and cross sections of the ore deposits.

305 —— Faulting and accompanying features observed in glacial gravel and sand in southern Michigan.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 460–464, fig. 1, 1896.
Describes the character of the strata and the faulting which has taken place in these Glacial deposits.

306 **Herbertson** (Andrew J.). The history of the Great Lakes and Niagara.
Sci. Amer. Suppl., vol. xlii, p. 17398, 1896.
Reviews the geologic history of the Great Lakes region.

307 **Herrick** (C. L.). The so-called socorro tripoli.
Am. Geol., vol. xviii, pp. 135–140, pls. iv–v, 1896.
Describes the occurrence in Newton County, Mo., gives a chemical analysis of the material and discusses its origin.

308 **Hershey** (Oscar H.). The Silveria formation (Illinois).
Am. Jour. Sci., 4th ser., vol. ii, pp. 324–330, 1896.
Describes the lithologic character, occurrence, and the fossil flora, gives a section of the formation and discusses the evidence of the age of the formation.

309 —— Ancient river deposits of the Spring River valley in Kansas.
Am. Geol., vol. xvii, pp. 37–40, 1896.
Describes the author's observations in southeastern Kansas and discusses the geologic history of the region.

310 —— Early Pleistocene deposits of northern Illinois.
Am. Geol., vol. xvii, pp. 287–303, 1896.
Describes Glacial deposits in the valley of Yellow Creek and discusses their evidence as to the early Pleistocene history of the region.

311 **Hershey** (Oscar H.). Pre-Glacial erosion cycles in northwestern Illinois.

Am. Geol., vol. xviii, pp. 72-100, 1896.

Describes the several peneplains of the region, correlates them with others in different parts of the United States and discusses the origin of drainage lines.

312 **Hilgard** (E. W.). The geologic efficacy of alkali carbonate solution.

Am. Jour. Sci., 4th ser., vol. ii, pp. 100-107, 1896.

Describes its occurrence and efficacy as a geologic agent.

313 **Hill** (Robert T.). Notes on the geology of Cuba.

Harv. Coll. Mus. Comp. Zool., Bull., vol. xvi, No. 15, pp. 243-288, 6 pls., 1895.

Describes the occurrence of pre-Tertiary metamorphic, igneous, and sedimentary rocks, the geologic history of the island as indicated by its topography, and the orogenic movements to which it has been subjected.

314 —— A question of classification.

Science, new ser., vol. iv, pp. 918-922, 1896.

Discusses the correlation of the so-called Jurassic of the Atlantic Coast with the Wealden of Europe, and of the relative importance of the evidence presented by Prof. Marsh, of the Jurassic age of the Potomac formation.

315 —— Fundamental geographic relations of the three Americas.

Nat. Geog. Mag., vol. vii, pp. 175-181, 1896.

Describes orographic features of the regions.

316 **Hill** (Walter Hovey). The Little Giant mine at Warren, Idaho.

Eng. and Mg. Jour., vol. lxii, p. 417 (¼ p.), 1896.

Gives a brief description of the gold veins of this vicinity.

317 **Hillebrand** (W. F.). Remarkable phosphorescence of wollastonite.

Am. Jour. Sci., 4th ser., vol. i, p. 323 (communicated), 1896.

Brief note on the phosphorescence of wollastonite.

318 **Hills** (R. C.). Ore deposits of Camp Floyd district, Tooele County, Utah.

Read before the Colorado Scientific Society, in Denver, Colo., Aug. 6, 1894, 12 pp.

Describes the geologic features of the region and the mode of occurrence and character of the gold ores, and discusses their origin.

319 —— The Costilla meteorite [New Mexico].

Read before the Colorado Scientific Society, in Denver, Colo., Jan. 7, 1895, 2 pp., 1 pl.

Describes the characteristics of the meteorite and gives chemical analyses of the material.

320 —— [Geology of Cripple Creek district, Colorado.]

In discussion of paper by Whitman Cross on the same subject. See No. 150.

321 **Hitchcock** (C. H.). Champlain Glacial epoch.

Abstract: Geol. Soc. Am., Bull., vol. vii, pp. 2-4, 1896.

Correlates the divisions of the Ice Age by James Geikie with those of North America and describes the glacial phenomena of the Champlain epoch.

322 **Hitchcock** (C. H.). Paleozoic terranes in the Connecticut valley.
Abstract: Geol. Soc. Am., Bull., vol. vii, pp. 510-512, 1896.
Discusses the succession of the argillites, the characters of the hornblende schist and gneiss, and the correlation of certain beds.

323 —— The geology of New Hampshire.
Jour. of Geol., vol. iv, pp. 44-62, 1896.
Reviews the work of the geological surveys of New Hampshire and gives a list of their publications. Discusses the character of the formations, the geologic structure, and the general features of the Glacial geology of the State.

324 —— Gotham's cave; or fractured rocks in northern Vermont.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, p. 133 (½ p.), 1896.
Describes openings or caves in a mica schist rock.

325 —— [Review of "Greenland ice fields and life in the North Atlantic, with a discussion of the causes of the ice age," by G. Frederick Wright and Warren Upham.]
Science, new ser., vol. iv, pp. 598-600, 1896.

326 **Hobbs** (William H.). Chloritoid from Michigan—a correction.
Am. Jour. Sci., 4th ser., vol. ii, p. 87 (⅛ p.), (communicated), 1896.
Makes a correction of the crystallographic characters of the mineral described in a former paper.

327 **Hoffman** (G. Christian). Report of the section of chemistry and mineralogy [Canada Geol. Survey].
Canada Geol. Surv., new ser., vol. vii, Rept. R, 68 pp., 1896.
Gives chemical analyses of certain ores, minerals, and rocks.

328 **Hollick** (Arthur). [Contributions of John Strong Newberry to fossil botany.]
U. S. Geol. Surv., Mon. xxvi, pp. 15-20, 1896.
Gives a historical account of Prof. Newberry's work in paleobotany, and a list of his publications relating to fossil plants.

329 —— Geological notes, Long Island and Nantucket [New York and Massachusetts].
N. Y. Acad. Sci., Trans., vol. xv, pp. 3-10, 1896.
Describes the occurrence of marine Cretaceous and Yellow Gravel on Long Island and the character and fauna of post-Pliocene beds on Nantucket. Includes notes on glacial phenomena.

330 —— The geology of Block Island [Rhode Island].
Science, new ser., vol. iv, pp. 571-572, 1896.
Discusses Prof. Marsh's statement as to the Jurassic age of certain Block Island and Long Island strata.

331 —— New species of leguminous pods from the Yellow Gravel at Bridgeton, N. J.
Torrey Bot. Club, Bull., vol. xxiii, pp. 46-49, pls. 258-259, 1896.
Gives a list of the fossil leguminous pods of certain genera, discusses their relations to existing genera, and describes two new species.

332 **Hollick** (Arthur). Marthas Vineyard Cretaceous plants.
Abstract: Geol. Soc. Am. Bull., vol. vii, pp. 12–14, 1896.
Gives a list of the most prominently represented species and correlates the beds of the Amboy clays series. Remarks on the absence of lower Potomac strata.

333 —— Recent discovery of the occurrence of marine Cretaceous strata on Long Island.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, pp. 133–135, 1896.
Describes recent observations of the author's on Long Island and discusses their bearing on the extension of the Cretaceous formation.

334 —— See **Newberry** (J. S.), No. 519.

335 **Holm** (Theo.). Remarks upon Paleohillia, a problematic fossil plant.
Bot. Gaz., vol. xxi, pp. 207–209, pl. xvii, 1896.
Reviews Prof. Knowlton's description of this genus.

336 **Holman** (F. C.). Notes on certain water-worn vein specimens.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 514–518, 1896.
Describes an occurrence of water-worn quartz crystals occurring in a gold-bearing quartz vein, and discusses the origin of the attrition and deposition of the material.

337 **Holmes** (J. A.). Corundum deposits of the southern Appalachian region.
U. S. Geol. Surv., 17th Ann. Rept., Pt. III (Cont.), pp. 935–943, 1896.
Describes the occurrence and distribution of corundum in the southern Appalachian region.

338 —— Notes on the kaolin and clay deposits of North Carolina.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 929–936, 1896.
Describes the occurrence of kaolin in dikes and of clay deposits containing residual material of dike decomposition. Gives chemical analyses of kaolin and fire clay.

339 —— Notes on the underground supplies of potable waters in the south Atlantic Piedmont plateau.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 936–943, 1896.
Describes the general distribution of underground waters in the region and gives a list of flowing wells in the Piedmont plateau of North and South Carolina.

340 **Hoover** (Herbert C.). Some notes on "crossings."
Mining and Scientific Press, vol. lxxii, pp. 166–167, 1896.
Describes the character and origin of certain vein phenomena in gold ore veins of California.

341 —— Mining geology of Cripple Creek, Colorado.
Mining and Scientific Press, vol. lxxiii, pp. 237–238, 1896.
Synopsis of the report of Whitman Cross and R. A. F. Penrose, of the U. S. Geological Survey.

342 **Hopkins** (T. C.). The sandstones of western Indiana.
U. S. Geol. Surv., 17th Ann. Rept., Pt. III (Cont.), pp. 780–787, 1896.
Describes the character and distribution of sandstones of the Carboniferous group in Indiana and gives several chemical analyses.

343 **Hopkins** (T. C.). The Carboniferous sandstones of western Indiana.
Ind. Dept. Geol. and Nat. Res., 20th Ann. Rept., pp. 188-327, pls. viii-xvi; Stone, vol. xiii, pp. 227-238, 334-342, and 456-466, 6 pls., 1896.
Describes the varieties and distribution of sandstones, and the geologic history of the Indiana sandstones, including local details of the different quarries. Gives tables of statistics, analyses, two colored geologic maps of portions of western Indiana and a bibliography.

344 —— The sandstones of western Indiana.
Mineral Industry, 1895, pp. 559-564, 1896.
Describes sandstones of the Carboniferous formation and gives a chemical analysis.

345 **Hoskins** (Leander Miller). Flow and fracture of rocks as related to structure.
U. S. Geol. Surv., 16th Ann. Rept., Pt. I, pp. 845-872, figs. 163-169, 1896.
Discusses the conditions of flow and structure, strain and stress, and their application to rock structure.

346 **Hovey** (Horace C.). The making of Mammoth Cave [Kentucky].
Sci. Amer., vol. lxxv, p. 151, 1896.
Discusses the formation of the Mammoth Cave in Kentucky.

347 —— The colossal cavern of Kentucky.
Sci. Amer., vol. lxxv, p. 183, 1896.
Describes a recently discovered cave in Kentucky.

348 —— Geological notes on the Isles of Shoals [New Hampshire].
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, pp. 136-137, 1896.
Gives a brief description of the island and of the occurrence of granite.

349 **Hubbard** (Lucius L.). The origin of salt, gypsum, and petroleum.
Mich. Geol. Surv., vol. v, Pt. I, pp. ix-xxiv, 1895.
Gives a brief description of the origin of these products.

350 **Hyatt** (Alpheus). Report on the Mesozoic fossils [Alaska].
U. S. Geol. Surv., 17th Ann. Rept., Pt. I, pp. 907-908, 1896.
Describes the relations of Mesozoic faunas of different localities.

351 —— Terminology proposed for description of the shell in Pelecypoda.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, pp. 145-148, 1896.
Describes briefly the characteristics of some shells and gives the author's proposed terminology.

I.

352 **Iddings** (Joseph P.). Igneous rocks [Yellowstone National Park].
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 30, 1896.
Describes the characters and distribution of the extrusive and intrusive rocks.

353 —— Extrusive and intrusive igneous rocks as products of magmatic differentiation.
London Geol. Soc., Quart. Jour., vol. lii, pp. 606-617, 1896.
Describes the relations of the eruptive rocks of Electric Peak and Sepulcher Mountain to the whole series of eruptions occupying Tertiary time, and which spread out over large areas in Montana, Wyoming, and Idaho. Presents a map showing the extent of the volcanic area.

354 **Ihlseng** (M. C.). A phosphate prospect in Pennsylvania.
U. S. Geol. Surv., 17th Ann. Rept., Pt. III (cont.), pp. 955-957, 1896.
Describes the occurrence of phosphatic material in Juniata County, in the detrital material between the Oriskany sandstone and Lower Helderberg limestone.

355 **Ingalls** (Walter Renton). The tin deposits of Durango, Mexico.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 146-163, 1896.
Presents a map of a portion of Mexico showing the location of the tin-ore deposits, describes the general geologic features and the character and distribution of the ore bodies, and discusses their origin.

356 **Irving** (John Duer). The stratigraphical relations of the Browns Park beds of Utah.
N. Y. Acad. Sci., Trans., vol. xv, pp. 252-259, pl. xviii, 1896.
Gives a brief summary of previous work in the Tertiary strata of Utah, reviews certain descriptions of the Browns Park beds, and discusses the evidences as to their geologic age.

J.

357 **Jackson** (Robert Tracy). Studies of Palæchinoidea.
Geol. Soc. Am., Bull., vol. vii, pp. 171-254, pls. 2-9, 1896.
Describes a number of new species from the sub-Carboniferous of the Mississippi basin. Includes discussion of general results and their bearing and a proposed new classification and a bibliography of Paleozoic Echini.

358 —— and **Jagger** (Thomas Agustus, jr.). Studies of Melonites multiporus.
Geol. Soc. Am., Bull., vol. vii, pp. 135-170, 1896.
Describes the spines and the arrangement, development, structure, and variations of the ambulacræ and interambulacral plates, and gives tables of plate arrangement.

359 **Jagger** (Thomas A., jr.), **Jackson** (R. T.) and. Studies of Melonites multiporus.
See Jackson (R. T.) and Jagger (T. A., jr.), No. 358.

360 **James** (Joseph F.). Manual of the paleontology of the Cincinnati group.
Cin. Soc. Nat. Hist., Jour., vol. xviii, pp. 115-140, 1896.
Continues descriptions of fossils from the Cincinnati group in former papers noticed in Bulletins Nos. 130-135 and 146.

361 —— Prof. Lesley's Final Report.
Am. Geol., vol. xviii, pp. 323-329 (correspondence), 1896.
Comprises a general review of Vols. I and II, Final Report of the Second Geological Survey of Pennsylvania.

362 —— Report of the State Geologist of New York for 1893—a correction.
Am. Geol., vol. xviii, pp. 392-393 (correspondence), 1896.
Refers to certain errors in citations.

363 **Johnson** (Guy R.). The Embreville estate, Tennessee.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. Eng. and Mg. Jour., vol. lxi, p. 540, 1896.

Describes the geology of the region and the occurrence of iron ores.

364 **Johnston-Lavis** (H. J.). The Highwood Mountains of Montana and magmatic differentiation. A criticism.

Brit. Asso. Adv. Sci., Rept. 1896, pp. 792–793, 1896.

Discusses Weed and Pirsson's paper on the "Highwood Mountains of Montana."

K.

365 **Kain** (Samuel W.). Bibliography of scientific publications relating to the Province of New Brunswick other than those contained in the Bulletins of the Society, 1896.

New Brunswick Nat. Hist. Soc., Bull., No. 14, pp. 56-57, 1896.

366 **Keith** (Arthur). Loudon folio, Tennessee.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio No. 25, 1896.

Describes the physiographic and stratigraphic features of the region, the character and distribution of certain rocks of unknown age and of the Cambrian, Silurian, Devonian, and Carboniferous strata, the geologic structure of the region, and the occurrence of coal and building stones. Includes topographic, geologic structure section maps and a sheet of columnar sections.

367 —— Morristown folio, Tennessee.

U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 27, 1896.

Describes the physiographic and stratigraphic features of the region, the occurrence of Cambrian, Silurian, Devonian and Carboniferous rocks. Discusses the geologic structure and gives an account of the marble and building stone resources. Includes topographic, geologic, and structure section maps and a sheet of columnar sections.

368 —— Briceville folio, Tennessee.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio No. 33, 1896.

Describes the physical features of the Appalachian province, the topographic and stratigraphic features of the quadrangle, the character and distribution of the Cambrian, Silurian, Devonian, and Carboniferous strata, the geologic structure, and the occurrence of coal, marble, iron, clay, and building stones. Includes topographic, geologic, and structure section maps.

369 —— Some stages of Appalachian erosion.

Geol. Soc. Am., Bull., vol. vii, pp. 519-525, pl. 24, 1896.

Describes the drainage features, surface forms, and variations of level in the southern Appalachians, and the peneplains of the Tennessee basin.

370 **Kemp** (James Furman). Titaniferous iron ores of the Adirondacks.

Abstract: Geol. Soc. Am., Bull., vol. vii, p. 15, 1896.

Gives a classification and a brief description of the forms and character of the ore bodies.

371 **Kemp** (James Furman). Illustrations of the dynamic metamorphism of anorthosites and related rocks in the Adirondacks.

Abstract: Geol. Soc. Am., Bull., vol. vii, pp. 488–489, 1896.

Gives a brief description of intrusive gabbros associated with crystalline limestones and gneisses of sedimentary origin.

372 —— Lecture notes on rocks.

School of Mines Quart., vol. xvii, pp. 38–56, 128–159, 267–295, and 401–434, 1896.

Discusses the classification of rocks and the chemical and petrographic characters of igneous rocks. Describes the formation and character of sedimentary deposits and the rocks produced by contact and regional metamorphism.

372*a* —— A handbook of rocks for use without the microscope.

N. Y., 1896, 176 pp.

373 —— The great quartz vein at Lantern Hill, Mystic, Conn., and its decomposition.

Abstract: N. Y. Acad. Sci., Trans., vol. xv, p. 189, 1896.

Gives a brief statement of the occurrence of the vein and the microscopic character of the material.

374 —— The pre-Cambrian topography of the Adirondacks.

Abstract: N. Y. Acad. Sci., Trans., vol. xv, pp. 189–190, 1896.

Discusses briefly the evidences as to the general features of pre-Cambrian topography.

375 —— [Review of "Geologic Survey of New Jersey. Annual report of the State geologist for the year 1894."]

Science, new ser., vol. iv, pp. 693–694, 1896.

376 —— [Origin of ore deposits.]

Can. Rec. Sci., vol. vii, pp. 189–191, 1896.

Discusses briefly the origin of ore deposits in igneous magmas.

377 —— An outline of the views held to-day on the origin of ores.

Mineral Industry, 1895, pp. 755–766, 1896.

Reviews the published opinions of certain geologists on the origin of ore deposits.

378 **Kempton** (C. W.). The tin deposits of Durango [Mexico].

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 997–998, 1896.

In discussion of paper on the same subject by W. R. Ingalls, mentions an occurrence of tin placers at Sain Alto, Zacatecas, Mexico.

379 **Kendall** (Percy F.). The ancient and modern glaciers of North America.

Abstract: Leeds Geol. Assoc., Trans., Pt. IX, pp. 37–41, 1895.

Describes preexisting and present glacial phenomena in North America.

380 **Keyes** (Charles Rollin). Organization and results of a State Geological Survey, embracing the Third Biennial report of the State Geologist [Missouri].

Mo. Geol. Surv., vol. viii, pp. 14–79, 1895.

Describes the general plan of the organization, the progress of the work, prospective work, and the future operations of the Missouri Geological Survey.

381 **Keyes** (Charles Rollin). General geology of the Missouri crystalline area.

Mo. Geol. Surv., vol. viii, pp. 84–101, 1895.

Describes the geographic distribution, physiography, and the general character and geologic structure of the igneous rocks.

382 —— Characteristics of the Ozark Mountains.

Mo. Geol. Surv., vol. viii, pp. 317–352, 1895.

Describes the topographic and drainage features, the distribution of the Archean, Algonkian, Cambrian, Silurian, Devonian, Carboniferous and Cretaceous crystalline and sedimentary rocks, and the general features of the geologic structure and deformation. Discusses the age of the uplift.

383 —— A report on Mine la Motte sheet including portions of Madison, St. Francois and Ste. Genevieve counties [Missouri].

Mo. Geol. Surv., vol. ix, sheet rept., No. 4, 132 pp., pls. i–xiv, figs. 1–27; Eng. and Mg. Jour., vol. lxii, p. 485 (½ p.), 1896.

Describes the physiography, the relations, lithologic character and structure of the Archean and Cambrian formations, and the occurrence of lead, iron, copper, manganese, nickel, cobalt, silver, building stone, and clay.

384 —— Bibliography of Missouri geology.

Mo. Geol. Surv., vol. ix, pp. 221–523, 1896.

Comprises an author's list of titles, a title index and subject and cross references.

385 —— The Mine la Motte sheet [Missouri].

Mo. Geol. Surv., folio No. 4, 1896.

Gives an abstract of the report and geologic and topographic maps of the region.

386 —— Geographic relations of the granites and porphyries in the eastern part of the Ozarks.

Geol. Soc. Am., Bull., vol. vii, pp. 363–376, pl. 17, 1896.

Describes the general geology of the region and the lithologic characters of the granites and porphyries. Gives an account of former and recent investigations, discusses the origin, distribution, and age of the crystalline rocks and the physiography and erosion of the region.

387 —— [Review of "North American fossil Crinoidea Camerata," by Charles Wachsmuth and Frank Springer.]

Jour. of Geol., vol. iv, pp. 221–240, 1896.

388 —— [Review of the following papers: "Stratigraphy of Kansas Coal Measures," by Erasmus Haworth; "Classification of the Upper Paleozoic rocks of central Kansas," by C. S. Prosser; and "Permian system of Kansas," by F. W. Cragin.]

Jour. of Geol., vol. iv, pp. 520–524, 1896.

389 **Keyes** (Charles Rollin). [Review of "Great Valley of California: a criticism of the theory of isostasy," by F. Leslie Ransome; "British geology," by T. Mallard Reade; and "Notes on the gravity determinations reported by Mr. G. R. Putnam," by G. K. Gilbert.]
Jour. of Geol., vol. iv, pp. 729–733, 1896.

390 —— [Review of "Text-book of Paleontology, vol. i, Part I," by K. A. von Zittel.]
Jour. of Geol., vol. iv, pp. 733–738, 1896.

391 —— The Bethany limestone of western interior coal field.
Am. Jour. Sci., 4th ser., vol. ii, pp. 221–225, 1896.
Discusses the use of the terms Bethany and Erie limestone and gives a list of bibliographic references.

392 —— Biographical sketch of Charles Wachsmuth.
Am. Geol., vol. xvii, pp. 131–136, pl. vi, 1896.
Gives a sketch of the life of Wachsmuth and a list of his principal scientific publications.

393 —— Thickness of the Paleozoic rocks in the Mississippi basin.
Am. Geol., vol. xvii, pp. 169–173, 1896.
Discusses the evidences of the thickness of the Paleozoic series in Missouri, with special reference to the thickness of the Carboniferous series.

394 —— Serial nomenclature of the Carboniferous.
Am. Geol., vol. xviii, pp. 22–28, 1896.
Reviews the history of the nomenclature of the Carboniferous in the Mississippi Valley.

395 —— Orotaxis: a method of geologic correlation.
Am. Geol., vol. xviii, pp. 289–302, 1896.
Discusses the value of biotic and of physical methods of correlation and of the practicability of defining stratigraphic succession by the succession of orographic movements.

396 —— A gigantic orthoceratite from the American Carboniferous.
Science, new ser., vol. iii, pp. 94–95, 1896.
Describes briefly the occurrence of the Orthoceras group in Paleozoic rocks and the occurrence of O. fauslerensis in the Carboniferous rocks of Iowa.

397 —— [Review of "Iowa Geological Survey, Vol. V, Annual Report for 1895."]
Science, new ser., vol. iv, p. 408, 1896.

398 —— Note on the nature of cone-in-cone.
Iowa Acad. Sci., Proc., vol. iii, pp. 75–76, 1896.
Describes specimens found in Iowa which contain a large percentage of lime.

399 —— Two remarkable cephalopods from the upper Paleozoic.
Iowa Acad. Sci., Proc., vol. iii, pp. 76–78, fig. 4, 1896.
Describes Nautilus ponderosus and Orthoceras fauslerensis from the Coal Measures of Iowa.

400 **Keyes** (Charles Rollin). Ueber das Carbon des Mississippithales.
Neues Jahr. für Min., etc., 1896, Band 1, pp. 96–110, 1896.
Gives the classification of the Carboniferous beds of the Mississippi Valley and describes their characters and distribution.

401 —— Iowa gypsum.
Mineral Industry, 1895, pp. 379–396, 2 pls., 1896.
Describes the gypsum deposits and discusses the age of the strata.

402 —— Missouri building and ornamental stones.
Stone, vol. xii, pp. 432–436, 546–557; vol. xiii, pp. 30–32, pls. 2–14; Eng. and Mg. Jour., vol. lxii, pp. 199–201, 1896.
Describes the distribution and petrographic characters of granite, syenite, and porphyry suitable for building stones.

403 —— Central Maryland granites.
Stone, vol. xiii, pp. 421–428, 527–531; vol. xiv, pp. 20–24, pls. 1–2, 1896.
See Bibliography and Index for 1895, No. 251.

404 **Killebrew** (J. B.). The phosphate deposits in Maury County, Tennessee.
Eng. and Mg. Jour., vol. lxii, pp. 462–463, 1896.
Describes the character and occurrence of phosphate in this county.

405 **Kindle** (Edward M.). The whetstone and grindstone rocks of Indiana.
Ind. Dept. of Geol. and Nat. Res., 20th Ann. Rept., pp. 329–368, with geologic map, 1896.
Gives a historical sketch of the whetstone area, describes its topography and geologic features and the character and distribution of the beds. Includes a paper on the "Fossil plants of the Hindostan whetstone beds" by David White.

406 —— The relation of the fauna of the Ithaca group to the faunas of the Portage and Chemung.
Am. Pal., Bull., vol. ii, No. 6, 54 pp., 1 pl., 1896.
Reviews the previous work on the upper Devonian of New York, and describes sections in the vicinity of Ithaca, giving lists of fossils collected. Gives a list of fossils occurring in the Portage and Ithaca faunas and a list of important papers consulted, and describes two new species.

407 —— On some Paleozoic fossils from Baffinland.
Am. Jour. Sci., 4th ser., vol. ii, pp. 455–456 (communicated), 1896.
Remarks on the occurrence of Silurian fossils in erratics.

408 **Kirk** (M. Z.). A geologic section along the Neosho and Cottonwood rivers [Kansas].
Univ. Geol. Surv. of Kans., vol. i, pp. 72–85, pl. iii, 1896.
Describes the lithologic character and the succession of the Carboniferous rocks of the region.

408*a* —— The sands of the Kansas River valley.
Kans. Univ. Quart., vol. iv, pp. 125–128, 1896.
Describes the character and distribution of the sands of this valley and discusses their origin.

409 **Klittke** (M.). Entwicklung, Organization und Leistungen der geologischen Landesaufnahmen in der Vereingten Staaten von Nordamerika.

Zeit. für prak. Geol., 1896, pp. 211–213 and 289–352, 1896.

Gives a historical sketch of the work of the U. S. Geological Survey and of the other National and State geological surveys.

410 **Knerr** (E. B.). A geologic section from Atchison to Banes [Kansas] along the central branch of the Missouri Pacific Railway.

Univ. Geol. Surv. of Kans., vol. i, pp. 140–144, pl. viii, 1896.

Describes the succession of the Carboniferous and Permo-Carboniferous beds of the region.

411 —— Coal in Atchison County, Kans.

Kans. Acad. Sci., Trans., vol. xiv, pp. 216–217, 1896.

Describes the occurrence of coal in the bluffs of the Missouri River, near the city of Atchison, and gives its chemical analyses.

412 **Knight** (F. C.). A suspected new mineral from Cripple Creek [Colorado].

Read before the Colorado Scientific Society, in Denver, Colo., Oct. 1, 1894, 6 pp.

Describes the chemical character of the material.

413 **Knight** (Wilbur C.). The Salt Creek oil field, Wyoming.

Eng. and Mg. Jour., vol. lxi, pp. 87–88, 1896.

Describes briefly the Cretaceous strata in which the oil occurs.

414 —— The geology and technology of the Salt Creek oil field [Wyoming].

Wyoming Univ., School of Mines, Petroleum series, Bull. No. 1, 22 pp., 1896.

Describes the character and occurrence of the oil in Cretaceous strata.

415 **Knowlton** (F. H.). Report on the fossil plants collected in Alaska in 1895, as well as an enumeration of those previously known from the same region, with a table showing their relative distribution.

U. S. Geol. Surv., 17th Ann. Rept., Pt. I, pp. 876–897, 1896.

Gives a list of fossil plants and localities from which they were collected, and a table showing their distribution.

416 —— The fossil plants of the Denver Basin [Colorado].

U. S. Geol. Surv., Mon. xxvii, pp. 466–473, 1896.

Gives a list of fossil plants from the Dakota group and a brief account of the flora of the Dakota, Laramie, and Denver beds.

417 —— Report on the flora of Independence Hill [California].

Jour. of Geol., vol. iv., pp. 886–893, 1896.

Gives a list of the fossils collected and discusses their relations with Tertiary faunas of other regions.

418 **Knowlton** (F. H.). The Tertiary floras of the Yellowstone National Park.

Am. Jour. Sci., 4th ser., vol. ii, pp. 51–58, 1896.

Gives a brief account of the geology of the Park, names the fossil plants found in the Tertiary beds, and discusses the relations of the present and Tertiary floras.

419 —— Report on a collection of fossil plants from Morgantown, W. Va.

Am. Geol., vol. xviii, pp. 370–372, 1896.

Gives a list of species collected in the Glacial beds of this locality.

420 —— Description of a supposed new species of fossil wood from Montana.

Torrey Bot. Club., Bull., vol. xxiii, pp. 250–252, pl. 271, 1896.

Describes Pityoxylon pealei n. sp., from Miocene strata of Montana.

421 **Kraatz** (K. von). Note on the formation of gold ore.

Am. Geol., vol. xviii, pp. 100–108 (translated by N. H. Winchell), 1896.

Discusses the various theories as to the origin and deposition of gold-ore bodies.

422 **Kümmel** (Henry B.). Note on the glaciation of Pocono Knob and Mounts Ararat and Sugar Loaf, Pennsylvania.

Am. Jour. Sci., 4th ser., vol. i, pp. 113–114, 1896.

Gives the author's recent observations on the glacial geology of the region.

L.

423 **Ladd** (George T.). Notes on certain undescribed clay occurrence in Missouri.

Science, new ser., vol. iii, pp. 691–693, 1896.

Describes the occurrence of fireclay in the Paleozoic rocks of Missouri.

424 **Lakes** (Arthur). Sketch of a portion of the Gunnison gold belt, including the Vulcan and Mammoth Chimney mines [Colorado].

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 440–448, figs. 1–2, 1896.

Describes the igneous rocks of the region and the occurrence of gold ores.

425 —— Cripple Creek [Colorado].

Sci. Amer. Suppl., vol. xlvi, pp. 17192–17193, 1896.

Describes the occurrence of the gold ores of Cripple Creek, Colorado.

426 —— The placers of North America.

Colliery Eng., vol. xvi, pp. 195–197, 1896.

Describes the character and distribution of placer deposits in different parts of North America.

427 —— The Oquirrh Mountains or the Mercur mining district [Utah].

Colliery Eng., vol. xvi, pp. 243–245, 1896.

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

428 **Lakes** (Arthur). Iron and manganese. The great Cebolla River deposits [Colorado].
Colliery Eng. vol. xvi, pp. 267-268, 1896.
Describes the occurrence of the ore bodies and discusses their origin.

429 —— Pikes Peak [Colorado].
Colliery Eng., vol. xvii, pp. 59-60, 1896.
Describes the character of the Pikes Peak granite and its disintegration.

430 —— The Cripple Creek region. Epitome of the U. S. Geological Survey's report on the Cripple Creek mining region [Colorado].
Colliery Eng., vol. xvii, pp. 105-110, 1896.
Gives a résumé of this report.

431 —— Summit district gold regions. An epitome of a description of the ore deposits of Summit district, Rio Grande County, Colorado, by R. C. Hills.
Colliery Eng., vol. xvii, pp. 164-165, 1896.
Describes the occurrence and character of the gold ores.

432 —— The San Juan region [Colorado].
Colliery Eng., vol. xvii, pp. 206-209, 1896.
Describes the topographic and geologic features of the region.

433 —— Victor (Cripple Creek), Colorado.
Colliery Eng., vol. xvii, pp. 210-211, 1896.
Describes the occurrence of gold at this locality.

434 **Lambe** (Lawrence M.). Description of a supposed new genus of Polyzoa from the Trenton limestone at Ottawa [Ontario].
Can. Rec. Sci., vol. vii, pp. 1-3, pl. 1, 1896.
Describes Astroporites ottawaensis n. sp.

435 **Lane** (Alfred C.). The geology of Lower Michigan, with reference to deep borings. Edited from notes of C. E. Wright, late State geologist.
Mich. Geol. Surv., vol. v., Pt. II, pp. 1-100, pls. i-lxxiii, and map of Lower Michigan, 1895.
Describes the character of the Silurian, Devonian, and Carboniferous formations as shown by a large number of artesian borings. Describes the occurrence of coal, gypsum, natural gas, and petroleum.

436 **Langdon** (Daniel W.). The Loop Creek, West Virginia, coal field.
Colliery Eng., vol. xvi, p. 122, 1896.
Gives a section of the strata and a chemical analysis of the coal.

437 **Lawson** (Andrew C.). On malignite—a family of basic plutonic orthoclase rocks rich in the alkalies and lime, intrusive in the Coutchiching schists of Poohbah Lake [Ontario].
Univ. of Cal., Dept. of Geol., Bull., vol. ii, pp. 337-362, pl. 18, 1896.
Describes the field relations of the rocks occurring in the Province of Ontario and their petrographic characteristics.

438 **Leach** (J. C.). Report of the State natural gas supervisor [Indiana].

Ind. Dept. of Geol. and Nat. Res., 20th Ann. Rept., pp. 369–410, 1896.

Describes the occurrence of natural gas in the Trenton limestones and the general geologic features of the area, including a map of the natural gas field of Indiana.

439 **Leckie** (R. G. E.). Notes on the Grand Lake coal field of New Brunswick.

Can. Mg. Review, vol. xv, pp. 90–91, 1896.

Describes the geologic features and occurrence and chemical characters of the coal.

440 **Le Conte** (Joseph). Elements of geology. A text-book for colleges and for the general reader.

Fourth edition, 1896. D. Appleton & Co., N. Y.

441 **Leonard** (A. G.). Lead and zinc deposits of Iowa.

Iowa Geol. Surv., vol. vi, 66 pp., 2 pls., 19 figs., 1896.

Describes the character and occurrence of the various members of the Cambrian and Silurian series and the mode of occurrence of the lead and zinc ore bodies, and discusses their origin.

442 —— Lead and zinc deposits of Iowa.

Eng. and Mg. Jour., vol. lxi, p. 614, 1896.

Describes the occurrence of lead and zinc in the Galena limestone.

443 —— Lead and zinc. A description of the mines of Iowa in the Upper Mississippi region.

Colliery Eng., vol. xvii, pp. 121–122, 1896.

Describes the geology of the region and the occurrence of the ore bodies.

444 **Lesley** (J. P.). Atlas to accompany Report F3 [Pennsylvania].

Pa. Geol. Surv., Atlas Rept. F3, 1896.

Contains a geologic map of Stone Mountain fault, geologic and topographic map of parts of Huntingdon, Mifflin, Center, and Union counties, and a sheet of cross sections.

445 **Leverett** (Frank). The water resources of Illinois.

U. S. Geol. Surv., 17th Ann. Rept., Pt. II, 155 pp., pls. cviii–cxiii, figs. 66–74, 1896.

Describes the physiographic and drainage features and the occurrence and chemical composition of artesian waters. Includes a paper by J. A. Udden on the Paleozoic rocks at Rock Island, Ill.

446 **Lewis** (J. Volney). Corundum of the Appalachian crystalline belt.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 852–906, 1896.

Reviews the literature on corundum, describes the character of the peridotites and pyroxenites, amphibolites and secondary rocks of the corundum region, and the character, mode of occurrence, and distribution of corundum. Includes a bibliography of the subject and a map showing the location of the corundum deposits.

447 **Lindgren** (Waldemar). Nevada City special folio, California.

U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 29, 1896; Abstract: Mining and Scientific Press, vol. lxxiii, pp. 480 and 502, 1896.

Describes the physiographic and general geologic features of the quadrangle, the character and distribution of the Paleozoic, Neocene and Pleistocene strata, and of the igneous rocks, and the occurrence of auriferous gravels and gold quartz veins. Includes topographic, geological, and structure section maps.

448 —— Pyramid Peak folio, California.

U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 31, 1896.

Includes a description of the geology of the gold belt of California. Describes the topography, the character and distribution of the Carboniferous and Juratrias, Neocene, and Pleistocene formations and of the igneous rocks and the occurrence of auriferous gravels. Includes topographic, geologic, and structure section maps.

448*a* —— The gold quartz veins of Nevada City and Grass Valley districts, California.

U. S. Geol. Surv., 17th Ann. Rept., Pt. II, 262 pp., 24 pls., 37 figs., 1896.

Describes the character and distribution of the igneous and sedimentary rocks and of the ore bodies. Discusses the origin of the ores and of the vein systems, and includes detailed descriptions of mines.

449 —— Age of the auriferous gravels of the Sierra Nevada. With a report on the flora of Independence Hill [California].

Jour. of Geol., vol. iv, pp. 881–906, 1896.

Reviews the paleobotanical evidence of the age of the beds and discusses the post-Jurassic history of the Sierra Nevada and the correlation of these beds with those of the Coast ranges.

450 —— The gold quartz veins of California.

Am. Geol., vol. xvii, pp. 338–339 (correspondence), 1896.

Refers to an article by H. W. Fairbanks on "The mineral deposits of eastern California," and to certain criticisms on the author's former paper on the gold quartz veins of California.

451 **Lobley** (J. Logan). The foldings of the rocks.

Sci. Amer. Suppl., vol. xlii, pp. 17225–17226, 1896.

Describes the foldings of rocks in North America and in other parts of the world.

452 **Loring** (Frank C.). Mineral resources of British Columbia.

Eng. and Mg. Jour., vol. lxii, p. 148 (½ p.), 1896.

Gives a brief note on the occurrence and extent of the Trail Creek ore bodies.

453 **Lucas** (A. P.). The Avery Island salt mine and the Joseph Jefferson salt deposit, Louisiana.

Eng. and Mg. Jour., vol. lxii, pp. 463–464, 1896.

Describes the occurrence of salt and the system of mining.

454 **Luquer** (Lea McI.). The mineral of the pegmatite veins at Bedford, N. Y.

Am. Geol., vol. xviii, pp. 259–260, 1896.

Contains brief notes on the minerals occurring in these veins.

455 **Luquer** (Lea McI.). Optical mineralogy.

School of Mines Quart., vol. xvii, pp. 435–469, 29 figs., 1896.

Gives a brief sketch of elementary optics for optical mineralogy and describes the use of the petrographic microscope and the manner of studying the microscopic and optical characters of minerals.

456 —— and Ries (Heinrich). The "augen"-gneiss area, pegmatite veins and diorite rocks at Bedford, N. Y.

Am. Geol., vol. xviii, pp. 239–258, pls. viii–ix, figs. 3–4, 1896.

Describes the characters of the pegmatite veins and diorite dike rocks, and the petrographic characters of the augen-gneiss, schists, and diorites. Reviews the literature on the origin of augen-gneiss.

457 **Lyman** (Benjamin Smith). Note on the trap rock of the Palisades.

Am. Jour. Sci., 4th ser., vol. i, p. 149 (⅓ p.), (communicated), 1896.

Brief note on the intrusive character of the trap of the Palisades.

458 —— Folds and faults in Pennsylvania anthracite beds.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 327-369 and 1010–1011, pls. i–xxxiv, 1896.

Gives a brief discussion of the folds and faults of the Appalachian region of Pennsylvania, illustrated by 177 cross sections made by the Pennsylvania Geological Survey.

M.

459 **McCalley** (Henry). On the Tennessee Valley region [Alabama].

Ala. Geol. Surv., Rept. on the Valley regions of Alabama, Pt. I, 436 pp., pls. i–ix, figs. 1–4, 1896.

Describes the physiography of the region, the general features of the Silurian, Devonian, Carboniferous, Cretaceous, and Tertiary strata, and the occurrence of coal, iron, asphaltum, petroleum, natural gas, building stone, abrasive materials, clay, and mineral waters, and gives local geologic details by counties.

460 —— The limonites of Alabama geologically considered.

Eng. and Mg. Jour., vol. lxii, pp. 583–584, 2 pls., 1896.

Describes the occurrence of the limonite deposits of Alabama.

461 **McCarn** (H. L.). Pine Creek district, Colorado.

Mining and Scientific Press, vol. lxxiii, p. 173, 1896.

Describes the general geology of the region and the occurrence and character of the gold ores.

462 **McConnell** (R. G.). Report on an exploration of the Finlay and Omenica rivers [British Columbia].

Canada Geol. Surv., new ser., vol. vii, Rept. C, 40 pp., 2 pls , 1896.

Describes the physiography of the region and includes notes on the occurrence of Archean, Cambrian, Carboniferous, Juratrias, Tertiary rocks, and Glacial deposits.

463 —— Glacial deposits of southwestern Alberta in the vicinity of the Rocky Mountains.

See Dawson (G. M.), No. 175.

464 **Macfarlane** (Graham). The eastern coal regions of Kentucky.
Am. Inst. Mg. Engrs, Trans., vol. xxv, pp. 518–532, figs. 1–5, 1896.
Gives a section showing the vertical distribution of the coal seams and describes the general features of the Coal Measures of the region.

465 **McGee** (W. J.). Expedition to Seriland [Mexico].
Science, new ser., vol. iii, pp. 493–505, 1896.
Describes briefly the general geographic and geologic features of the region.

466 —— Two erosion epochs. Another suggestion.
Science, new ser., vol. iii, pp. 796–799, 1896.
Discusses the evidences of the age of the deposition and degradation of the Potomac and Lafayette formations.

467 **MacKay** (A. H.). A foraminiferous deposit from the bottom of the North Atlantic.
N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 64–67, 1896.
Describes the character of the material and names the species determined.

468 **Marbut** (Curtis Fletcher). Dictionary of altitudes [Missouri].
Mo. Geol. Surv., vol. viii, pp. 227–316, 1895.
Gives the altitudes of localities in various parts of the State and along the several railway lines.

469 —— Physical features of Missouri.
Mo. Geol. Surv., vol. x, pp. 14–109, pls. i–xi, figs. 1–19, 1896.
Describes the hydrographic and physiographic features of Missouri and discusses the age of the peneplain.

470 —— **Woodworth** (J. B.) and. The Queen's River moraine in Rhode Island.
See Woodworth (J. B.) and Marbut (C. F.), No. 778.

471 —— **Shaler** (N. S.), **Woodworth** (J. B.), and. The glacial brick clays of Rhode Island and southeastern Massachusetts.
See Shaler (N. S.), Woodworth (J. B.), and Marbut (C. F.), No. 612.

472 **Marcou** (Jules). The Jura of Texas.
Boston Soc. Nat. Hist., Proc., vol. xxvii, pp. 149–158, 1896.
Reviews the literature on the subject and discusses the paleontologic evidence as to the age of certain areas in Texas.

473 —— The Jura in the United States.
Science, new ser., vol. iv, pp. 945–947, 1896.
Discusses briefly the age of the Potomac formation.

474 **Margerie** (Emmanuel de). Catalogue des Bibliographies géologiques. Paris, 1896. 733 pp.

475 **Marsh** (Othniel C.). On the Pithecanthropus erectus from the Tertiary of Java.
Abstract: Am. Jour. Sci., 4th ser., vol. i, pp. 475–482, pl. xiii, figs. 1–6, 1896.

476 **Marsh** (Othniel C.). A new belodont reptile (Stegomus) from the Connecticut River sandstone.

Am. Jour. Sci., 4th ser., vol. ii, pp. 59–62, pl. 1, figs. 1–3, 1896.

Describes and figures a new species of Belodontia from the Connecticut River sandstone at New Haven, Conn., and discusses its relations to other reptilian forms of this horizon.

476 —— The geology of Block Island [Rhode Island].

Am. Jour. Sci., 4th ser., vol. ii, pp. 295–298 and 375–377, 1896.

Compares the clay beds of Block Island with those of the Potomac formation of Maryland and the Raritan clays of New Jersey. Discusses the origin of the clays, considers the clays of Marthas Vineyard are Jurassic and resemble the Block Island clays. In the second paper reviews the literature of the subject.

478 —— Amphibian footprints from the Devonian.

Am. Jour. Sci., 4th ser., vol. ii, pp. 374–375, 1896.

Describes a footprint from upper Devonian strata of Pennsylvania.

479 —— The Jurassic formation on the Atlantic Coast.

Am. Jour. Sci., 4th ser., vol. ii, pp. 433–447, 1896.

Describes the Baptanodon and Atlantosaurus beds of the West, and gives a general section showing the lithologic character and the horizons of vertebrate fossils of the Cenozoic and Mesozoic series. Describes the Pleurocœlus beds and the Potomac formation. Discusses the relative importance of fossils, the age of the Wealden and the Laramie, and the position and character of the Jurassic, and reviews the work of early investigators.

480 —— The dinosaurs of North America.

U. S. Geol. Surv., 16th Ann. Rept., Pt. I, pp. 143–244, pls. ii–lxxxv, figs. 1–66, 1896.

Describes the characters of the Jurasic and Triassic dinosaurs and discusses their affinities and classification.

481 —— Vertebrate fossils [Denver Basin, Colorado].

U. S. Geol. Surv., Mon. xxvii, pp. 473–527, pls. xxi–xxxi, figs. 23–102, 1896.

Gives a brief account of the succession and distribution of the Jurassic, Cretaceous, and Tertiary beds, and the description of the vertebrata collected.

482 —— The Jurassic formation on the Atlantic coast.

Abstract: Science, new ser., vol. iv, pp. 805–816, 1896.

Gives a table of the geologic horizons of vertebrate fossils of the Mesozoic and Cenozoic eras and discusses the evidences of the Jurassic age of the Potomac beds.

483 —— Restoration of some European dinosaurs, with suggestions as to their place among the Reptilia.

Abstract: Geol. Mag., dec. 4, vol. iii, pp. 1–9, pls. i–iv, 1896.

Noticed in Bibliography and Index for 1895.

484 —— Classification of dinosaurs.

Geol. Mag., dec. 4, vol. iii, pp. 388–400, 1896.

Noticed in Bibliography and Index for 1895.

485 **Mathews** (Edward B.). Notes on some flattened garnets from North Carolina.

Johns Hopkins Univ. Circ., vol. xv, p. 8, 1895.

Describes the crystallographic characters of the material.

486 **Matthew** (G. F.). Notes on Cambrian faunas, the genus Microdiscus.

Am. Geol., vol. xviii, pp. 28-31, 1896.

Discusses the relations of the species of Microdiscus and describes M. schucherti n. sp.

487 —— Traces of the Ordovician fauna on the Atlantic coast.

Canada Roy. Soc., Proc. and Trans., 2d ser., vol. i, sect. iv, pp. 253-271, pl. i, 1896.

Describes a number of new species from Newfoundland and Cape Breton Island.

488 —— Organic remains of the Little River group. No. IV.

Canada Roy. Soc., Proc. and Trans., 2d ser., vol. i, sect. iv, pp. 273-279, pl. ii, 1896.

Describes new genera and species from Cambrian rocks of New Brunswick.

489 —— On the occurrence of cirripedes in the Cambrian rocks of North America.

N. Y. Acad. Sci., Trans., vol. xv, pp. 144-146, figs. 1-2, 1896.

Describes the occurrence of plates for which the name Cerripodites is proposed.

490 —— Faunas of the Paradoxides beds in eastern North America No. 1.

N. Y. Acad. Sci., Trans., vol. xv, pp. 192-247, pls. xiv-xvii, 1896.

Describes the characters of minute crustaceans and of the genera Agnostus and Microdiscus and their species.

491 —— Some features of the early Cambrian faunas.

Brit. Assoc. Adv. Sci., Rept. 1896, pp. 785-787, 1896.

Remarks on the general characters and distribution of Cambrian trilobites, brachiopods, and of the Ostracoda.

492 **Mendenhall** (Walter C.), **Campbell** (Marius R.) and. Geologic section along the New and Kanawha rivers in West Virginia.

See Campbell (M. R.) and Mendenhall (W. C.), No. 99.

493 **Merriam** (John C.). Sigmogomphius lecontei, a new castoroid rodent from the Pliocene, near Berkeley, Cal.

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 363-370, figs. 1-2, 1896.

Gives a history of the Castoridæ, a description of the fossil remains collected, and a comparison with other castoroid genera, and describes their geologic and geographic distribution.

494 —— Note on two Tertiary faunas from the rocks of the southern coast of Vancouver Island [British Columbia].

Univ. of Cal., Dept. of Geol., Bull., vol. ii, pp. 101-108, 1896.

Gives a list of the fossils of the two faunas and discusses their age and relationship.

495 **Merrill** (Frederick J. H.). Mineral resources of New York State.

N. Y. State Mus., Bull., vol. iii, No. xv, pp. 365-595, two geologic maps in pockets, 1895.

Describes the general characters and occurrence of building stones in the Cambrian, Silurian, and Devonian strata, and the occurrence of clay, salt, abrasive materials, petroleum. Gives list of the quarries, clay manufacturers, producers of lime and cement, and mineral springs of New York.

496 —— Post-Pliocene deposits of Sankaty Head [Massachusetts].

N. Y. Acad. Sci., Trans., vol. xv, pp. 10-16, 1896.

Gives a section and list of contained fossils of beds formed of transported material in the island of Nantucket.

497 —— Notes on the geology of Block Island [Rhode Island].

N. Y. Acad. Sci., Trans., vol. xv, pp. 16-19, 1896.

Describes two sections, and concludes they are post-Pliocene and are underlaid by Cretaceous sands and clays.

498 **Merrill** (George Perkins). Notes on asbestus and asbestiform minerals.

U. S. Nat. Mus., Proc., vol. xviii, pp. 281-299, 1896.

Describes the material from different parts of the United States, and suggests that the material used commercially is usually anthophyllite.

499 —— Disintegration and decomposition of diabase at Medford, Mass.

Geol. Soc. Am., Bull., vol. vii, pp. 349-362, pl. 16, 1896.

Describes the occurrence of the dike, and gives a mechanical analysis of the disintegrated rock and chemical analyses of fresh and disintegrated diabase. Compares these analyses with those of diabase from Venezuela and granite from the District of Columbia. Discusses the "time limit and extent of disintegration" and "the relative rapidity of rock weathering in high and low latitudes."

500 —— The principles of rock weathering.

Jour. of Geol., vol. iv, pp. 704-724 and 850-871, 1896.

Reviews some of the literature of the subject and describes the agencies that promote rock weathering.

501 —— An occurrence of free gold in granite.

Am. Jour. Sci., 4th ser., vol. i, pp. 309-311, 1896.

Describes an occurrence of gold embedded in the clear glassy quartz and unfissured feldspars of a granitic rock from Mexico.

502 —— On the composition and structure of the Hamblen County, Tenn., meteorite.

Am. Jour. Sci., 4th ser., vol. ii, pp. 149-155, figs. 1-2, 1896.

Describes the occurrence, chemical composition, and optical characters of the meteorite.

503 —— The onyx marbles: Their origin, composition, and uses, both ancient and modern.

Stone, vol. xii, pp. 116-121, 228-236, 326-330, 425-429, 559-564; vol. xiii, pp. 9-12, 116-120, pls. 5-18, 1896.

See Bibliography and Index for 1895, No. 339.

504 **Merrill** (J. A.). Fossil sponges of the flint nodules in the Lower Cretaceous of Texas.

Harv. Coll., Mus. Comp. Zool., Bull., vol. xxviii, No. 1, 26 pp., pl. 1, 1896.

Describes the general character of the flint nodules and of the contained organisms, the preservation of the sponge spicules, and the specific characters of the specimens, including some new species.

505 **Mezger** (C. A.). The monazite districts of North and South Carolina.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 822–826 and 1038–1039, 1896.

Describes the occurrence of monazite in gneiss and mentions the associated minerals. Discusses the characters of augen-gneiss.

506 **Miers** (Henry A.). Precious stones.

Sci. Amer. Suppl., vol. xlii, pp. 17298–17299 and 17308-17309, 1896.

Describes the optical properties of precious stones.

507 **Miller** (Arthur M.). The association of the gasteropod genus Cyclora with phosphate of lime deposits.

Am. Geol., vol. xvii, pp. 74–76, 1896.

Describes the investigation as to the origin and nature of the Tennessee phosphate deposits, and gives chemical analyses of the Cyclora casts and of the rock in which they occur.

508 **Miller** (S. A.) and **Gurley** (William F. E.). Descriptions of new and remarkable fossils from the Paleozoic rocks of the Mississippi Valley.

Ill. State Mus. Nat. Hist., Bull., No. 8, pp. 1–65, pls. i–v, 1896.

The fossils described are mainly from the Carboniferous formation.

509 —— New species of crinoids from Illinois and other States.

Ill. State Mus. Nat. Hist., Bull., No. 9, pp. 1–66, pls. i–v, 1896.

Describes crinoids from the Carboniferous series and two from the Upper Silurian of the Mississippi Valley.

510 —— New species of Echinodermata and a new crustacean from the Paleozoic rocks.

Ill. State Mus. Nat. Hist., Bull., No. 10, 91 pp., 5 pls., 1896.

The fossils described are mainly from the Burlington group of Missouri, Iowa, and Illinois.

511 —— New species of Paleozoic invertebrata from Illinois and other States.

Ill. State Mus. Nat. Hist., Bull., No. 11, 50 pp., 5 pls., 1896.

The fossils described are mainly from the Carboniferous of Illinois and Missouri.

512 **Miller** (W. G.) and **Brock** (R. W.). Some dikes cutting the Laurentian system, counties of Frontenac, Leeds, and Lanark, Ont.

Can. Rec. Sci., vol. vi, pp. 481–488, pl. iii, 1896.

Describes petrographic characters of basic dike rocks.

513 **Mitchell** (James A.). The discovery of fossil tracks in the Newark system (Juratrias) of Frederick County, Md.
Johns Hopkins Univ. Circ., vol. xv, pp. 15–16, 1895.
Describes the distribution of the Juratrias in Maryland and the occurrence of the fossil tracks.

514 **Moore** (Charles J.) [Geology of Cripple Creek district, Colorado.]
In discussion of paper by Whitman Cross on the same subject. See No. 150.

515 **Morris** (Charles). Life before fossils.
Am. Nat., vol. xxx, pp. 188–194 and 279–285, 1896.
Discusses the probable occurrence of life prior to the earliest known fossils.

N.

516 **Nason** (Frank L.). The auriferous gravels of the Upper Columbia River [British Columbia].
Eng. and Mg. Jour., vol. lxi, pp. 279–280, 1896.
Describes the auriferous gravels in this region.

517 —— **Winslow** (Arthur), **Haworth** (E.), and. A report on the Iron Mountain sheet, including portions of Iron, St. Francois, and Madison counties [Missouri].
See Winslow (A.), Haworth (E.), and Nason (F. L), No. 769.

518 **Neill** (James W.). Camp Floyd district, Utah.
Eng. and Mg. Jour., vol. lxi, pp. 85–86, 1896.
Describes the geologic features of the region and the occurrence of the gold ores.

519 **Newberry** (John Strong). The flora of the Amboy clays. A posthumous work edited by Arthur Hollick.
U. S. Geol. Surv., Mon. xxvi, 256 pp., 58 pls., 1896.
Includes a discussion of the botanical characters and geographical distribution of the flora and descriptions of species.

520 **Nicol** (W.). Anhydrite in Ontario.
Can. Rec. Sci., vol. vii, p. 61, 1896.
Describes mineralogic characters of a specimen and gives its chemical analysis.

521 **Nitze** (H. B. C.). North Carolina monazite.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 40–43, 1896.
Gives a brief description of the character and distribution of monazite.

522 —— and **Wilkens** (H. A. J.). The present condition of gold mining in the southern Appalachian States.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 661–796 and 1021 and 1025, figs. 1–28, 1896.
Describes the geographic and geologic distribution of the gold belts and gives an account of the mining industry of the several States, and a description of the mining, milling, and metallurgical methods.

523 **Norton** (William Harmon). Variation in the position of the nodes on the axial segments of pygdium of a species of Encrinurus.

Iowa Acad. Sci., Proc., vol. iii, pp. 79–81, 1896.

Describes Encrinurus punctatus, and gives a table showing the number of axial annulations in 43 specimens from the Niagara strata in Iowa.

O.

524 **Ordonez** (Ezequiel). Las rocas eruptivas del Suroeste de la cuenca de Mexico.

Institute geologico de Mexico, Bull. No. 2, 46 pp., 1895.

Describes the general character of the valley of Mexico, the occurrence of the igneous rocks, the character of the volcanoes of Santa Catarina and of the Sierra de la Cruces, with a discussion of their petrographic characters.

525 **Ortmann** (Arnold E.). An examination of the arguments by Neumayr for the existence of climatic zones in Jurassic times.

Am. Jour. Sci., 4th ser., vol. i, pp. 257–270, 1896.

Reviews the paleontologic and geologic evidences considered by Neumayr to indicate the existence of climatic zones in Jurassic time.

526 —— On separation, and its bearing on geology and zoogeography.

Am. Jour. Sci., 4th ser., vol. ii, pp. 63–69, 1896.

Discusses the causes of separation or isolation of animals and the evidences of its being a particular factor in the differentiation of species.

527 **Osborn** (Henry Fairchild). The cranial evolution of Titanotherium.

Am. Mus. Nat. Hist., Bull., vol. viii, pp. 157–198, pls. iii–iv, figs. 1–13, 1896.

Discusses the evolution of the titanotheres of the White River beds and describes a number of species.

P.

528 **Patton** (Horace B.). Concretions of chalcedony and opal in obsidian and rhyolite in Colorado.

Read before the Colorado Scientific Society, in Golden, Colo., Nov. 4, 1895, 6 pp., 2 pls.

Describes the occurrence of the concretions and their megascopic and microscopic characters.

529 —— Peculiar geological formations at the head waters of the Rio Grande, Colorado.

Read before the Colorado Scientific Society, in Golden, Colo., Nov. 4, 1895, 2 pp., 2 pls.

Describes erosion forms of volcanic conglomerates.

530 **Peale** (A. C.). Three Forks folio, Montana.

U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 24, 1896.

Describes the physiography and geologic history of the region, the character and distribution of Archean, Algonkian, Cambrian, Devonian, Carboniferous, Juratrias, Cretaceous, Tertiary, Pleistocene, and igneous rocks. Includes a discussion of the geologic structure, the economic features, and topographic, geologic, economic, and structure section maps, and a sheet of columnar sections.

531 **Pearce** (Richard). The mode of occurrence of gold in the ores of the Cripple Creek district [Colorado].

Read before the Colorado Scientific Society, in Denver, Colo., Jan. 8, 1894, 8 pp.

Describes the characters of the ores and discusses briefly their origin.

532 —— Further notes on Cripple Creek ores [Colorado].

Read before the Colorado Scientific Society, in Denver, Colo., April 5, 1894, 7 pp., 1 pl.

Gives additional results of the author's study of these ores.

533 —— Some notes on the occurrence of uraninite in Colorado.

Read before the Colorado Scientific Society, in Denver, Colo., Sept. 9, 1895, 3 pp.

534 —— Notes on the occurrence of a rich silver and gold mineral containing tellurium, in the Griffith lode, near Georgetown, Clear Creek County, Colo.

Read before the Colorado Scientific Society, in Denver, Colo., Oct. 5, 1896, 2 pp.

Describes the characters of the mineral and gives its chemical composition.

535 —— Notes on the occurrence of tellurium in an oxidized form in Montana.

Read before the Colorado Scientific Society, in Denver, Colo., Nov. 2, 1896, 2 pp.

Describes the chemical characters of the material.

536 **Pechin** (Edmund C.). The Oriskany ores at Rich Patch mines, Va.

Eng. and Mg. Jour., vol. lxi, pp. 113, 134 and 159–160, 1896.

Describes the geologic occurrence of the brown hematite ores and the extent of the mining developments.

537 **Peckham** (S. F.). What is bitumen?

Sci. Amer. Suppl., vol. xli, pp. 17071–17072, and 17083–17084, 1896.

Describes the character of bitumen and allied substances and their occurrence in various parts of the world.

538 **Penfield** (S. L.). On pearceite, a sulpharsenite of silver, and on the crystallization of polybasite.

Am. Jour. Sci., 4th ser., vol. ii, pp. 17–29, 1896.

Discusses the relations of the sulphantimonites and sulpharsenites of silver. Proposes the name pearceite for the sulpharsenite species, and describes the chemical composition and crystallization of material from the Drumlummon mine, Montana. Describes the crystallization of polybasite from Colorado, and discusses the relations of pearceite and polybasite to each other and to other minerals.

539 **Penfield** (S. L.) and **Forbes** (E. H.). Fayalite from Rockport, Mass., and on the optical properties of the chrysolite-fayalite group and of monticellite.

Am. Jour. Sci., 4th ser., vol. i, pp. 129–135, 1896.

Describes the occurrence and mineralogic and chemical characters of fayalite, hortonolite, and monticellite, and the optical properties of chrysolite.

540 —— and **Pratt** (J. H.). On the occurrence of thaumasite at West Paterson, N. J.

Am. Jour. Sci., 4th ser., vol. i, pp. 229–233, 1896.

Reviews previous descriptions of this mineral and discusses the chemical and mineralogic characters of material from New Jersey.

541 **Penhale** (Matthew.). Chrome ore in Quebec.

Mineral Industry, 1895, pp. 92–93, 1896.

542 **Penhallow** (D. P.). Nematophyton crassum.

Can. Rec. Sci., vol. vii, pp. 151–156, pl. ii, 1896.

Describes this species from Upper Silurian strata of New York.

543 **Penrose** (R. A. F., jr.). The ore deposits of Cripple Creek, Colo.

Read before the Colorado Scientific Society, in Denver, Colo., June 4, 1894, 5 pp.

Describes the occurrence and character of the gold ores.

544 **Perrine** (Charles D.). Earthquakes in California in 1895.

U. S. Geol. Surv., Bull., No. 147, 22 pp., 1896.

Gives a chronologic record of earthquakes occurring in California in 1895.

545 **Pilsbry** (Henry A.). Pleurotomaria crotaloides Morton in the New Jersey Cretaceous.

Phil. Acad. Nat. Sci., Proc., 1896, pp. 10–11, pl. 1, 1896.

546 —— Geology of the Mussel-bearing clays of Fish House, N. J.

Phil. Acad. Nat. Sci., Proc., 1896, pp. 567–570, 1896.

Describes the lithologic characters and paleontology of the beds and discusses the evidences of their Pleistocene age.

547 **Pirsson** (Louis V.). On the monchiquites or analcite group of igneous rocks.

Jour. of Geol., vol. iv, pp. 679–690, 1896.

Describes the petrographic and chemical characters of monchiquites from Montana.

548 —— A needed term in petrography.

Abstract: Geol. Soc. Am., Bull., vol. vii, pp. 492–493, 1896.

Discusses the use of the term anhedron for those "indeterminate forms without crystal planes in which minerals occur, especially in igneous rocks."

549 —— **Weed** (W. H.) and. Geology of Castle Mountain mining district, Montana.

See Weed (W. H.) and Pirsson (L. V.), No. 723.

549*a* **Pirsson** (Louis V.), **Weed** (W. H.) and. The Bearpaw Mountains, Montana.
See Weed (W. H.) and Pirsson (L. V.), Nos. 724, 725.

549*b* —— Missourite, a new leucite rock from the Highwood Mountains of Montana.
See Weed (W. H.) and Pirsson (L. V.), No. 726.

549*c* —— The geology of the Little Rocky Mountains [Montana].
See Weed (W. H.) and Pirsson (L. V.), No. 727.

550 **Porter** (J. A.). The Smuggler-Union mines, Telluride, Colo.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 449–459, figs. 1–2, 1896.
Describes the occurrence and character of the gold and silver ores in these mines.

551 —— The Smuggler-Union mines, Telluride, Colo.
Abstract: Mining and Scientific Press, vol. lxxiii, p. 461, 1896.
Describes the geology of the region and the character and occurrence of the gold ores.

552 **Powell** (J. W.). James Dwight Dana.
Science, new ser., vol. iii, pp. 181–185, 1896.
Gives a sketch of Professor Dana's work as a scientific investigator.

553 **Pratt** (J. H.). On northupite, pirssonite, a new mineral, gaylussite and hanksite from Borax Lake, San Bernardino County, Cal.
Am. Jour. Sci., 4th ser., vol. ii, pp. 123–135, 1896.
Describes the occurrence and chemical and crystallographic characters of the minerals named.

554 —— **Penfield** (S. L.) and. On the occurrence of thaumasite at West Paterson, N. J.
See Penfield (S. L.) and Pratt (J. H.), No. 540.

555 **Prest** (W. H.). Glacial succession in central Lunenburg, N. S.
N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 158–170, 1896.
Describes the glacial deposits of the region, and gives the author's views of the succession of glacial phenomena.

556 **Price** (John M., jr.). Rock exposures about Atchison [Kansas].
Kans. Acad. Sci., Trans., vol. xiv, pp. 218–219, 1896.
Describes the rock exposures in the vicinity of Atchison, and gives a vertical section showing the thickness and character of the strata.

557 **Prosser** (Charles S.). [Review of "A preliminary report on the geology of South Dakota," by J. E. Todd.]
Science, new ser., vol. iii, pp. 368–369, 1896.

558 —— [Review of "Report on field work in Chenango County, New York," by J. M. Clarke.]
Science, new ser., vol. iii, pp. 525–526, 1896.

559 —— [Review of "The University Geological Survey of Kansas, Vol. I."]
Science, new ser., vol. iv, pp. 81–83, 1896.

560 **Purdue** (A. H.). [Review of "Sketch of the geology of the San Francisco peninsula," by Andrew C. Lawson.]
Jour. of Geol., vol. iv, pp. 640–644, 1896.

561 **Pynchon** (W. H. C.). The great falls of the Mohawk at Cohoes, N. Y.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, p. 138 (½ p.), 1896.

Q.

562 **Quille** (Dan de). The geological age of gold.
Eng. and Mg. Jour., vol. lxii, p. 54, 1896.
Discusses the age of gold deposits in various parts of the United States.

R.

563 **Ramsay** (George S.). The northeastern bituminous Coal Measures of the Appalachian system.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 76–83, 1896.
Describes the character and distribution of the Coal Measure rocks and the occurrence of coal seams in Pennsylvania, West Virginia, and Ohio.

564 **Rand** (Thomas D.). The serpentines of eastern Pennsylvania.
Phil. Acad. Nat. Sci., Proc., 1896, p. 219 (½ p.), 1896.
Brief note on the occurrence of serpentine.

565 **Ransome** (F. Leslie). The great valley of California. A criticism of the theory of isostasy.
Univ. of Cal., Dept. of Geol., Bull., vol. i, pp, 371–428, 1896.
Describes the great valley and its geologic evolution, and discusses the theory of isostasy as applied to other regions of elevation and subsidence.

566 —— [Review of "The Neocene stratigraphy of the Santa Cruz Mountains of California," by George H. Ashley.]
Am. Geol., vol. xvii, pp. 331–335, 1896.

567 **Raymond** (R. W.). [The distinction between schistosity and original bedding in crystalline schists.]
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 1020–1021, 1896.
In discussion of paper by H. B. C. Nitze and H. A. J. Wilkins on "The present condition of gold mining in the southern Appalachian States."

568 —— The monazite districts of North and South Carolina.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 1036–1038 and 1039–1040, 1896.
Discusses the use of the term augen-gneiss by C. A. Mezger in a paper on the same subject. See No. 505.

569 **Reid** (Harry Fielding.). Glacier Bay and its glaciers [Alaska].
U. S. Geol. Surv., 17th Ann. Rept., pt. 1, pp. 421–461, pls. lxxxvi–xcvi, 1896.
Describes the glacial features of Glacial Bay and is vicinity, Alaska.

570 **Reid** (Harry Fielding). Notes on glaciers.
Abstract: Geol. Soc. Am., Bull., vol. vii, p. 508 (⅛ p.), 1896.
Brief remarks on the movements of existing glaciers in western North America.

571 —— The mechanics of glaciers. I.
Jour. of Geol., vol. iv, pp. 912–928, 1896.
Discusses the flow, stratification, form of surface, and variations of glaciers.

572 —— Variations of glaciers.
Science, new ser., vol. iii, p. 867, 1896.
Discusses methods of observing glacial phenomena.

573 —— The flow of glaciers.
Johns Hopkins Univ. Circ., vol. xv, pp. 90–91 (⅛ p.), 1896.
Gives a brief summary of conclusions.

574 **Rickard** (T. A.). Vein walls.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 193–241, 33 figs.; Mining and Scientific Press, vol. lxxii, pp. 152, 172, 194, and 216–217, 1896.
Describes and illustrates the phenomena of vein walls in different mines and discusses the formation of ore bodies.

575 —— Enterprise mine, Rico, Colo.
Am. Inst. Mg. Engrs., Trans, vol. xxvi, 75 pp., 46 figs., 1896.
Describes the occurrence of the gold and silver ores and the character and structure of the vein system.

576 —— [Geology of the Cripple Creek district of Colorado.]
In discussion of paper by Whitman Cross on the same subject. See No. 150.

577 —— The Cripple Creek gold field [Colorado].
Mining and Scientific Press, vol. lxxii, pp. 284–285, 1896.
Describes the general geologic features of the region and the occurrence of the gold ores.

578 **Ries** (Heinrich). The limestone quarries of eastern New York, western Vermont, Massachusetts, and Connecticut.
U. S. Geol. Surv., 17th Ann. Rept., Pt. III (cont.), pp. 795–811, 1896.
Describes local details of Cambrian and Silurian limestones in the States named and gives a number of chemical analyses.

579 —— The monoclinic pyroxenes of New York State.
N. Y. Acad. of Sci., Annals, vol. ix, pp. 124–180, pls. xiii–xvi, 1896.
Presents a bibliography of the subject, describes the crystallographic, optical, and chemical characters of the pyroxenes and discusses the genesis of New York pyroxenes.

580 —— **Luquer** (Lea McI.) and. The "Augen"-gneiss area, pegmatite veins, and diorite rocks at Bedford, N. Y.
See Luquer (Lea McI.) and Ries (H.), No. 456.

581. **Riggs** (Elmer S.). A new species of Dinictis from the White River Miocene of Wyoming.

Kans. Univ. Quart., vol. iv, pp. 237–241, fig. 1, 1896.

Describes and figures the skull of Dinictis paucidens and compares it with other species of Dinictis.

582 **Roberts** (D. E.). Note on the Cretaceous formations of the eastern shore of Maryland.

Johns Hopkins Univ. Circ., vol. xv, pp. 16–17, 1896.

Gives lists of fossils found at various localities.

583 **Roeth** (A. J.). The lead and zinc fields of Wisconsin.

Eng. and Mg. Jour. vol. lxi, pp. 88–89, 1896.

Describes briefly the occurrence of lead and zinc in Wisconsin.

584 **Rominger** (C.). Geological report on the Upper Peninsula of Michigan, exhibiting the progress of work from 1881 to 1884. Iron and copper regions.

Mich. Geol. Surv., vol. v, Pt. I, pp. 1–179, with map and geologic cross sections, 1895.

Describes the character and distribution of the granitic and dioritic rocks, the lithologic character, succession, and structure of the iron ore and Keweenawan groups. Includes descriptions of some of the iron and copper mines.

585 **Ruedmann** (R.). Note on the discovery of a sessile Conularia—Article I.

Am. Geol., vol. xvii, pp. 158–165, pls. viii–ix, 1896.

Describes material from the Utica shales and discusses the evidence indicating that the Conulariæ, with their cuneiform appendages and similar bodies attached to Trochonema, belong together.

586 —— Note on the discovery of a sessile Conularia—Article II.

Am. Geol., vol. xviii, pp. 65–71, pl. ii, 1896.

Describes and figures the basal appendage of a Conularia gracilis.

587 **Russell** (Israel C.). Igneous intrusions in the neighborhood of the Black Hills of Dakota.

Jour. of Geol., vol. iv, pp. 23–43, pls. i–iii, 1896.

Describes an occurrence of igneous intrusions in sedimentary rocks, differing in form from either laccolites or volcanic rocks. Gives a detailed description of the several igneous masses.

588 —— On the nature of igneous intrusions.

Jour. of Geol., vol. iv, pp. 177–194, 1896.

Describes the different forms of igneous intrusions as shown by intruded sheets, laccolites, plutonic plugs, and great dome-shaped uplifts, and discusses their origin.

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589 **Safford** (James M.). A new and important source of phosphate rock in Tennessee.

Am. Geol., vol. xviii, pp. 261–264, 1896.

Describes the occurrence of the phosphate material and the character of the Trenton formation in which it is found, and gives its chemical analysis.

590 **Salisbury** (Rollin D.). Surface Geology—Report of Progress, 1895 [New Jersey].

N. J. Geol. Surv., Ann. Rept. for 1895, pp. 3-16, pls. i-iii, 1896.

Describes the occurrence and character of the Miocene, Pensauken, and Jamesburg formations in certain portions of the State. Presents a map showing the distribution of the Pensauken formation in New Jersey.

591 —— The Philadelphia brick clays et al.

Science, new ser., vol. iii, pp. 480-481, 1896.

Discusses briefly the evidence as to the age of these clays, forming a part of the Columbia formation.

592 —— Loess in the Wisconsin drift formation.

Jour. of Geol., vol. iv, pp. 929-937, 1896.

Describes the characters and relations of the loess and drift beds in Wisconsin.

593 —— Stratified drift.

Jour. of Geol., vol. iv, pp. 948-970, 1896.

Describes the origin and formation of stratified drift deposits and discusses their relations to unstratified drift beds.

594 **S[alisbury]** (R. D.). [Review of "Physical features of Missouri," by C. F. Marbut.]

Jour. of Geol., vol. iv, pp. 877-878, 1896.

595 **Salisbury** (Rollin D.). Volcanic ash in southwestern Nebraska.

Science, new ser., vol. iv, pp. 816-817, 1896.

Describes volcanic ash beds near Ingham and Orleans, Nebr.

596 **Sapper** (Carlos). Geology of Chiapas, Tabasco, and the peninsula of Yucatan. Translated by C. Joaquina Maury and G. D. Harris.

Jour. of Geol., vol. iv, pp. 938-947, 1896.

Describes the distribution of the Carboniferous, Cretaceous, and Tertiary formations and crystalline rocks, and gives a list of Pliocene fossils collected by Professor Heilprin.

597 —— Sobre la geografia fisica y la Geologia de la peninsula de Yucatan.

Instituto geologico de Mexico, Bull. No. 2, 57 pp., 1896.

Describes the character and distribution of the igneous, Cretaceous, Tertiary, and Pleistocene rocks of the regions. Includes a geologic map and cross section.

598 **Sardeson** (F. W.). The Galena and Maquoketa series.

Am. Geol. vol. xviii, pp. 356-368, 1896.

Defines the terms Galena and Maquoketa series, and gives tables of synonymy by each division and classification by authors generally.

599 **Say** (Thomas). A reprint of the paleontological writings of Thomas Say, with an introduction by G. D. Harris.

Am. Pal., Bull., vol. i, No. 5, 103 pp., pls. vii-xiii, 1896.

Comprises a republication of the following papers: Fossil zoology, two papers; Fossil shells found in a shell mass from Anastasia Island; An account of some of the fossil shells of Maryland; and Crinoidea.

600 **Schmitz** (E. J.). A section of Rich Patch Mountain at Iron Gate, Va.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 477–481, 1896.

Presents a cross section of the mountain and gives the author's notes on the character and succession of the strata found in the several tunnels, of Devonian and Silurian age.

601 —— Copper ores in the Permian of Texas.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 97–108, 1896.

Describes the stratigraphic and lithologic features of the district and the occurrence and character of the ore bodies.

602 —— The oil boom of Tennessee.

Eng. and Mg. Jour., vol. lxi, pp. 228–229, with map, 1896.

Gives two sections of artesian wells in this region.

603 **Schuchert** (Charles). Report on Paleozoic fossils from Alaska.

U. S. Geol. Surv., 17th Ann. Rept., Pt. I, pp. 898–906, 1896.

Gives a historical sketch of the collections of Paleozoic fossils and describes the relations and distribution of certain Devonian and Carboniferous forms. Includes a list of papers treating of Alaska Paleozoic fossils.

604 **Schweinitz** (E. A. de). A meteorite from Forsyth County, N. C.

Am. Jour. Sci., 4th ser., vol. i, pp. 208–209, figs. 1–4, 1896.

Gives a brief description of the occurrence of this meteorite and its chemical composition.

605 **Scott** (W. B.). A question of priority.

Am. Geol., vol. xvii, p. 58 (correspondence), 1896.

Refers to a previous paper by W. F. Cummins concerning the use of the term "Goodnight beds" and to the association of certain faunas in the Loop Fork beds of Texas and Kansas.

606 —— Paleontology as a morphological discipline.

Science, new ser., vol. iv, pp. 177–188, 1896.

Discusses some of the principles of paleontology and their relations to morphological investigations.

607 **Scudder** (Samuel H.). A caddis fly from the Leda clays of the vicinity of Ottawa, Canada.

Can. Rec. Sci., vol. vi, pp. 276–277, 1895.

Describes Phryganea ejecta n. sp.

608 **Seeley** (Henry M.), **Brainerd** (Ezra) and. The Chazy of Lake Champlain [New York].

See Brainerd (E.) and Seeley (H. M.), No. 69.

609 **Shaler** (N. S.). Conditions and effects of the expulsion of gases from the earth.

Boston Soc. Nat. Hist., Proc., vol. xxvii, pp. 89–106, 1896.

Discusses the phenomena of expulsion of gases in earthquakes, volcanic eruptions, and in artesian wells.

610 **Shaler** (N. S.). The share of volcanic dust and pumice in marine deposits.
Abstract: Geol. Soc. Am., Bull., vol. vii, pp. 490-492, 1896.
Discusses the amount and distribution of these materials in marine deposits.

611 —— The economic aspect of soil erosion.
Nat. Geog. Mag., vol. vii, pp. 328-338, 1896.
Describes the process of erosion.

612 —— **Woodworth** (J. B.), and **Marbut** (C. F.). The Glacial brick clays of Rhode Island and southeastern Massachusetts.
U. S. Geol. Surv., 17th Ann. Rept., Pt. I, pp. 957-1004, pls. lxi-lxii, figs. 34-43, 1896.
Describes the origin and character of the clays, their geographical distribution, correlation, and the general features of the clays about Boston.

613 **Shattuck** (George Burbank). Preliminary discussion of the geology of the Bordentown sheet [New Jersey] of the geologic atlas of the United States.
Johns Hopkins Univ. Circ., vol. xv, pp. 14-15, 1895.
Describes the character and distribution of the Pleistocene, Tertiary, and Cretaceous beds of the region.

614 **Shephard** (James H.). The artesian waters of South Dakota.
U. S. Exp. Stat., South Dakota, Bull. 41, 76 pp., 1894.
Gives sections of the wells and chemical analyses of the waters.

615 —— The shallow artesian wells of South Dakota.
U. S. Exp. Stat., South Dakota, Bull. No. 49, 24 pp., 1896.
Describes the occurrence of artesian waters and gives chemical analyses.

616 **Sherborn** (Charles Davies). An index to the genera and species of the Foraminifera.
Smith. Inst., Miscl. Coll., No. 1031, Part II, non to z, 1896.

617 **Shimek** (B.). A theory of the loess.
Iowa Acad. Sci., Proc., vol. iii, pp. 82-89, 1896.
Discusses the origin of the loess of the Mississippi Valley.

618 **Simonds** (Frederic W.). Floating sand: an unusual mode of river transportation.
Am. Geol., vol. xvii, pp. 29-37, 1896.
Describes the phenomena of floating sand on the Llano River in Texas and discusses its cause.

619 —— Floating sand: an unusual mode of river transportation.
Sci. Amer. Suppl., vol. xli, pp. 16745-16746, 1896.

620 **Simpson** (Charles T.). Description of four new Triassic Unios from the Staked Plains of Texas.
U. S. Nat. Mus., Proc., vol. xviii, pp. 381-385, 1896.

621 **Skewes** (Edward). The ore shoots of Cripple Creek [Colorado].

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 553-579, 1896.

Describes the occurrence of the ore shoots and their structural features.

622 **Slosson** (Edwin E.). The analysis of the Salt Creek petroleum [Wyoming].

Wyoming Univ., School of Mines, Petroleum ser., Bull. No. 1, pp. 23-47, 1896.

Describes the chemical character and composition of the petroleum.

623 **Smith** (Eugene A.). Supplementary notes on the most important varieties of the metamorphic or crystalline rocks of Alabama: Their composition, distribution, structure, and microscopic characters.

Ala. Geol. Surv., Bull. No. 5, pp. 108-130, 1896.

Describes the distribution and general characters of the metamorphic or crystalline rocks and the occurrence of gold.

624 —— The phosphates and marls of Alabama.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 811-822, 1896.

Describes the general relations of the Cretaceous and Tertiary rocks of Alabama and the geographic distribution of phosphates and marls in these beds.

625 —— Notes on native sulphur in Texas.

Science, new ser., vol. iii, pp. 657-659, 1896.

Describes the occurrence of sulphur in the Guadalupe Mountains and discusses the origin of the deposits.

626 **Smith** (Frank Clemes). The occurrence and behavior of tellurium in gold ores, more particularly with reference to the Potsdam ores of the Black Hills, South Dakota.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 485-515, figs. 11, 1896.

Gives analyses of the ores, a description of the action of tellurium as a mineralizing agent and of the microscopic characters of the associated rocks.

627 **Smith** (George Otis). The volcanic series of the Fox Islands, Maine.

Johns Hopkins Univ. Circ., vol. xv, pp. 12-13, 1895.

Describes the petrographic characters of the rocks, including porphyrites and spherulites.

628 **Smith** (James Perrin). Marine fossils from the Coal Measures of Arkansas.

Am. Phil. Soc., Proc., vol. xxxv, pp. 214-285, pls. xvi-xxiv, 1896.

Gives lists of fossils from localities in Arkansas, describes briefly the lithologic characters of the Coal Measures and compares them with Coal Measure formations of other countries and with the Pacific Carboniferous. Discusses the classification and correlation of the Arkansas Coal Measures and gives a correlation table and notes on the marine fossils.

629 **Smith** (James Perrin). Classification of the marine Trias.

Jour. of Geol., vol. iv, pp. 385-398, 1896.

Gives a description of the geographic distribution of the Trias and table showing the classification of marine Trias sediments. Describes the distribution of the various subdivisions and mentions some of the characteristic fossils.

630 —— Supplementary notes on the metamorphic series of the Shasta region of California.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, pp. 137-138, 1896.

Brief remarks on the fauna of these beds.

631 **Smock** (John C.). See Merrill (F. J. H.), No. 495.

632 **Smyth** (B. B.). The Topeka coal hole [Kansas].

Kans. Acad. Sci., Trans., vol. xiv, pp. 207-215, 1896.

Gives the section of the hole to a depth of 1,638 feet.

633 —— The terminal bowlder belt in Shawnee County [Kansas].

Kans. Acad. Sci., Trans., vol. xiv, pp. 220-226, with map of the terminal moraine, 1896.

Describes the glacial phenomena of the region and discusses the causes of the Ice age.

634 **Smyth** (C. H., jr.). Metamorphism of gabbro in St. Lawrence County, N. Y.

Am. Jour. Sci., 4th ser., vol. i, pp. 273-281, 1896.

Describes the occurrence, secondary metamorphism and petrographic characters of this rock.

635 —— Note on recently discovered dikes of alnoite at Manheim, N. Y.

Am. Jour. Sci., 4th ser., vol. ii, pp. 290-292, 1896.

Describes the occurrence of alnoite and the petrographic characters of the dike rocks.

636 —— The genetic relations of certain minerals of northern New York.

N. Y. Acad. Sci., Trans., vol. xv, pp. 260-270, 1896.

Describes the occurrence of certain minerals and discusses the evidences of their genesis.

637 —— The genesis of the talc deposits of St. Lawrence County, N. Y.

School of Mines Quart., vol. xvii, pp. 333-341, 1896.

Discusses the relations of the gneiss and limestones of the region and the origin of the talc.

638 —— Fibrous talc and soapstone.

Mineral Industry, 1895, pp. 37-42, 1896.

Describes the occurrence of talc in the Adirondack region of New York.

639 **Smyth** (Henry Lloyd). Magnetic observations in geological mapping.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 640–709, 27 figs., 1896.

Describes the magnetic rock of the Lower Huronian series in the Upper Peninsula of Michigan, and the instruments and methods of work. Gives the results of tracing magnetic rocks by the disturbances produced in the instruments.

640 —— and **Finlay** (J. Ralph). The geological structure of the western part of the Vermilion range, Minnesota.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 595–645, figs. 1–11, 1896.

Reviews the literature on this region, describes the character, relations, and distribution of the sedimentary and igneous rocks, and discusses the geologic structure, the origin of the conglomerate breccias, and the general features of the ore deposits.

641 **Spencer** (Arthur C.). A preliminary note on the geology of Massanutten Mountain in Virginia.

Johns Hopkins Univ. Circ., vol. xv, pp. 13–14, 1895.

Describes the deformation of the region and the character of the Silurian strata.

642 **Spencer** (J. W.). Geographical evolution of Cuba.

Geol. Soc. Am., Bull., vol. vii, pp. 67–94, figs. 1–13, 1896.

Describes the topography, hydrography, igneous and metamorphic rocks, and the history of the Cretaceous, Tertiary, and Pleistocene formations. Gives an account of the occurrence of terraces, sea caves, and modern coralline limestones or reefs, and a table showing the geologic succession in Cuba.

643 —— Geological canals between the Atlantic and Pacific oceans.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, p. 139 (½ p.), 1896.

Brief statement regarding the occurrence of such phenomena on the Isthmus of Tehauntepec, Mexico.

644 —— Recent elevation of New England.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, pp. 139–140 (½ p.), 1896.

Discusses the origin of the terraces of the valleys of New England.

645 —— Niagara as a timepiece.

Pop. Sci. Mo., vol. xlix, pp. 1–19, figs. 1–17, 1896.

Describes the geologic history and erosion of Niagara River.

646 —— How the Great Lakes were built.

Pop. Sci. Mo., vol. xlix, pp. 157–172, figs. 1–15, 1896.

Describes the geologic history of the Great Lakes region.

647 **Stanton** (Timothy W.). The faunal relations of the Eocene and Upper Cretaceous on the Pacific Coast.

U. S. Geol. Surv., 17th Ann. Rept., Pt. I, pp. 1011–1048, pls. lxiii–lxvii, 1896.

Gives an account of the local features and stratigraphy of the formations and describes some Lower Tejon species.

648 **Stanton** (Timothy W.). Contributions to the Cretaceous paleontology of the PacificCoast: The fauna of the Knoxville beds.
U. S. Geol. Surv., Bull., No. 133, 132 pp., 20 pls., 1896.
Describes the distribution, succession, and lithologic character of the Knoxville beds and discusses the relations of their fauna with other faunas and the age of the beds. Includes descriptions of new species.

649 —— and **Vaughan** (T. Wayland). Section of the Cretaceous at El Paso, Tex.
Am. Jour. Sci., 4th ser., vol. i, pp. 21–26, 1896.
Gives a columnar section of the Cretaceous strata and lists of fossils collected from the various beds.

650 **Stevenson** (John J.). Notes on the geology of Indian Territory.
N. Y. Acad. Sci., Trans., vol. xv, pp. 50–61, 1896.
Quotes Winslow's unpublished table of the succession of the Coal Measures in Arkansas, and describes their character and distribution in Indian Territory. Reviews recent work in the region and discusses its geologic structure.

651 —— The Cerillos coal fields near Santa Fe, N. Mex.
N. Y. Acad. Sci., Trans., vol. xv, pp. 105–122, 1896.
Describes the character of the eruptive rocks and Cretaceous deposits, and the occurrence and chemical composition of the coals. Discusses the cause of the metamorphism of the coal.

652 —— The Cerillos coal field of New Mexico.
Abstract: Geol. Soc. Am., Bull., vol. vii, pp. 525–527; Science, new ser., vol. iii, pp. 392–394, 1896.
Describes the Laramie rocks in which the coal occurs, the thickness of the coal seams, and discusses the origin of the coal.

653 —— [Review of "A summary description of the geology of Pennsylvania," by J. P. Lesley.]
Science, new ser., vol. iii, pp. 876–877, 1896.

654 **Stewart** (Alban). A geological section at Providence, Mo.
Kans. Univ. Quart., vol. iv, pp. 161–162, 1896.
Describes the lithologic character and paleontology of the section, composed of Carboniferous and Devonian strata.

655 **Strieby** (William). The origin and use of the natural gas at Manitou, Colo.
Colo. College Studies, 5th Ann. Pub., pp. 14–35, 1894.
In discussing the origin of natural gas, describes the geologic structure of the region mentioned.

656 **Swem** (Earl G.). A preliminary report on the glaciated area of Kansas.
Kans. Univ. Quart., vol. iv, pp. 153–159, 1896.
Describes the physiography of the region and gives a vertical section of the Glacial beds.

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657 **Taff** (Joseph A.) and **Brooks** (Alfred E.). Buckhannon folio, West Virginia.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio No. 34, 1896.

Describes the physical features of the Appalachian province, the topography and stratigraphy of the quadrangle, the character and distribution of the Devonian and Carboniferous strata, the geologic structure, and the occurrence of coal and building stones. Includes topographic, geologic, and structure section maps.

658 —— **Darton** (N. H.) and. Piedmont folio, West Virginia, Maryland.

See Darton (N. H.) and Taff (J. A.), No. 166.

659 **Tarr** (Ralph S.). A query concerning the origin of atolls.

Nature, vol. liv, p. 101 (½ p.), 1896.

Remarks on the subsidence of Bermuda Islands and discusses the mode of formation of atolls.

660 **Taylor** (Frank B.). Preliminary notes on studies of the Great Lakes made in 1895.

Am. Geol., vol. xvii, pp. 253–257 (correspondence), 1896.

Describes the author's observations on the glacial phenomena in Michigan and on the north shore of Lake Superior.

661 —— The Algonquin and Nipissing beaches.

Am. Geol., vol. xvii, pp. 397–400 (correspondence), 1896.

Discusses the evidences as to the distinctness of these two beaches.

662 —— Notes on the Quaternary geology of the Mattawa and Ottawa valleys [Ontario].

Am. Geol., vol. xviii, pp. 108–120, 1896.

Describes the occurrence of old shore lines in the region.

663 **Thies** (Adolph). Present condition of gold mining in the southern Appalachian States.

Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 1016–1020, 1896.

In discussion of paper by H. B. C. Nitze and H. A. J. Wilkens on the same subject, remarks on the occurrence of certain clay slates in the Haile mine, S. C., previously called talcose slate.

664 **Tight** (W. G.). A pre-Glacial tributary to Paint Creek and its relation to the Beech flats of Pike County, Ohio.

Denison Univ., Sci. Lab., Bull., vol. ix, pp. 25–34, pl. xi, 1895.

Describes the drainage, discusses its origin, and presents a map of the region.

665 **Tilton** (J. L.). Geology of Warren County [Iowa].

Iowa Geol. Surv., vol. v, pp. 303–359, pls. vii–x, figs. 44–51, 1896.

Describes the physiography of the county, the lithologic character, distribution, and structure of the Glacial and Carboniferous deposits, and the occurrence of coal, water supply, building stones, and clays. Includes a geologic map of the county.

666 **Tilton** (J. L.). The area of slate near Nashua, N. H.

Iowa Acad. Sci., Proc., vol. iii, pp. 66–71, pl. v, fig. 3, 1896.

Describes the geologic features of the area and the gradations in the slate, schist, and gneiss. Accompanied by geologic map and cross section.

667 —— Notes on the geology of the Boston basin [Massachusetts].

Iowa Acad. Sci., Proc., vol. iii, pp. 72–74, 1896.

Gives a brief statement regarding the geologic work done in this field and a map of the southwestern part of the Boston basin.

668 **Todd** (James Edward). The moraines of the Missouri coteau and their attendant deposits.

U. S. Geol. Surv., Bull. No. 144, 71 pp., 21 pls., 1896.

Describes the moraines in North and South Dakota between the Missouri and James rivers and other glacial phenomena. Includes brief notes on the Fox Hills and Pierre formations of the region.

669 —— Formation of the Quaternary deposits [Missouri].

Mo. Geol. Surv., vol. ix, pp. 114–217, pls. xii–xxii, figs. 20–24, 1896.

Describes the drift loess and alluvial deposits and gives a summary of the Quaternary history of Missouri.

670 —— The Quaternary geology [Higginsville sheet, Missouri].

Mo. Geol. Surv., vol. ix, sheet rept., No. 1, pp. 54–59, 1896.

Describes the character of the Pleistocene deposits in the area of the Higginsville sheet, Missouri, accompanied by map showing their distribution.

671 —— The Quaternary geology [Bevier sheet, Missouri].

Mo. Geol. Surv., vol. ix, sheet rept., No. 2, pp. 37–47, 1896.

Describes the topography and the character and distribution of the Pleistocene deposits in the area of the Bevier sheet, Missouri.

672 —— Log-like concretions and fossils shores.

Am. Geol., vol. xvii, pp. 347–349, pl. xii, 1896.

Describes the occurrence of log-like concretions in the Laramie formation of South Dakota and discusses their origin.

673 —— [Review of "The formation of the Quaternary deposits of Missouri," by J. C. C.]

Jour. of Geol., vol. iv, p. 976 (⅓ p.), 1896.

674 **Tower** (G. W.). Naval erosion.

Science, new ser., vol. iii, pp. 563–564 (½ p.), 1896.

Describes the erosion of stream banks produced by a steamer in the Kennebec River, Maine.

675 **Turner** (H. W.). Further contributions to the geology of the Sierra Nevada.

U. S. Geol. Surv., 17th Ann. Rept., Pt. I, pp. 529–740, pls. xvii–xlvii, figs. 18–22, 1896.

Describes the character and distribution of the igneous and metamorphic rocks, the pre-Cretaceous sedimentaries, and the Cretaceous, Tertiary, and Pleistocene beds in various parts of the Sierra Nevada region. Gives an account of the occurrence of gold and a description of the petrographic and chemical characters of a large number of rock varieties. Discusses the rock classification.

676 **Turner** (H. W.). Notice of some syenitic rocks from California.

Am. Geol., vol. xvii, pp. 375–388; Abstract: Mining and Scientific Press, vol. lxxiii, p. 237, 1896.

Discusses the principles of nomenclature of rocks and describes the characters and chemical composition of syenitic rocks from different parts of California.

677 **Tyrrell** (J. Burr). The genesis of Lake Agassiz.

Jour. of Geol., vol. iv., pp. 811–815, 1896.

Discusses the evidences as to the origin of Lake Agassiz, and describes glacial phenomena of Manitoba.

678 —— Is the land around Hudson Bay at present rising?

Am. Jour. Sci., 4th ser., vol. ii, pp. 200–205, 1896.

Discusses the evidence indicating that the land in this region has reached an almost stable condition.

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679 **Udden** (J. A.). An account of the Paleozoic rocks explored by deep borings at Rock Island, Ill., and vicinity.

U. S. Geol. Surv., 17th Ann. Rept., Pt. II. In paper by Frank Leverett on "The Water Resources of Illinois."

Describes the stratigraphic features of the Devonian, Silurian, and Cambrian rocks of the region. Includes sections of the well drillings.

680 **Upham** (Warren). The glacial Lake Agassiz.

U. S. Geol. Surv., Mon. xxv, 658 pp., 38 pls., 35 figs., 1896.

Describes the topography of the lake basin, the character and distribution of the Archean, Silurian, Devonian, and Cretaceous beds underlying the drift, and also of the drift deposits. Discusses the history of Lake Agassiz, the formation of the beaches and deltas, and of changes of the level of the beaches. Gives an account of the artesian wells of the Red River Valley and of the economic features of the region.

681 —— Drumlins and marginal moraines of ice sheets.

Geol. Soc. Am., Bull., vol. vii, pp. 17–30, 1896.

Refers to the papers in which drumlins in North America are described. Discusses the formation of drumlins and marginal moraines and the growth and decline of the Pleistocene deposition of drift. Compares the present ice action in Alaska and Greenland.

682 —— Pre-Glacial and post-Glacial valleys of the Cuyahoga and Rocky rivers [Ohio].

Geol. Soc. Am., Bull., vol. vii, pp. 327–348, pl. 15, figs. 1–4, 1896.

Describes the extent of the pre-Glacial valleys, the post-Glacial erosion, the drift sections, the beach ridges in Cleveland and the temporary readvance of the ice sheet.

683 —— Physical conditions of the flow of glaciers.

Am. Geol., vol. xvii, pp. 16–29, pl. ii, 1896.

Reviews the theories and discusses the cause of veined or ribboned structure in glaciers and of the flow of glacial molecules and grains.

684 **Upham** (Warren). Sublacustrine till.

Am. Geol., vol. xvii, pp. 371-375, 1896.

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685 —— Beaches of Lakes Warren and Algonquin.

Am. Geol., vol. xvii, pp. 400-402 (correspondence), 1896.

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686 —— Origin and age of the Laurentian lakes and of Niagara Falls.

Am. Geol., vol. xviii, pp. 169-177, fig. 1, 1896.

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687 —— View of the Ice Age as two epochs. The Glacial and Champlain.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, pp. 140-145, 1896.

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Read before the Colorado Scientific Society, in Denver, Colo., November 5, 1894, 5 pp.

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690 **Van Diest** (P. H.). See **Van Diest** (E. C. and P. H.), No. 689.

691 **Van Hise** (Charles Richard). Principles of North American pre-Cambrian geology, with an appendix of flow and fracture of rocks as related to structure, by Leander Miller Hoskins.

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Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, pp. 135–136, 1896.

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Science, new ser., vol. iv, pp. 57–59, 1896.
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695 —— A northern Michigan base level.
Science, new ser., vol. iv, pp. 217–220, 1896.
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696 **Van Ingen** (D. A.) Petroleum [in New York].
N. S. State Mus., Bull., vol. iii, No. 15, pp. 558–560, 1896.
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697 **Van Ingen** (Gilbert) and **White** (Theodore G.). An account of the summer's work in geology on Lake Champlain.
N. Y. Acad. Sci., Trans., vol. xv, pp. 19–23, 1896.
Describes the character of Ordovician strata near Lake Champlain in New York and Vermont.

698 **Vaughan** (T. Wayland). A brief contribution to the geology and paleontology of northwestern Louisiana.
U. S. Geol. Surv., Bull., No. 142, 65 pp., 4 pls., 1896.
Describes the character and distribution of the Cretaceous, Tertiary, and Pleistocene deposits and of the Sparta sands, a new formation name for deposits of undetermined age. Also proposes the name Cockfield Ferry beds. Gives lists of fossils at various localities and a bibliography of Louisiana paleontology. Describes a number of new species from the Tertiary beds.

699 —— Cœlenterata from the Eocene deposits of Delaware, Maryland, and Virginia.
U. S. Geol. Surv., Bull. No. 141, pp. 89–91, 1896.
Describes four species from these beds.

700 —— Cœlenterata [Eocene fauna of the Middle Atlantic slope].
Johns Hopkins Univ. Circ., vol. xv, p. 61 (½ p.), 1895.
Describes two new species.

701 —— [Review of the "Fossil sponges of the flint nodules in the Lower Cretaceous of Texas," by J. A. Merrill.]
Jour. of Geol., vol. iv, pp. 112–116, 1896.

702 —— **Stanton** (T. W.) and. Section of the Cretaceous at El Paso, Tex.
See Stanton (T. W.) and Vaughan (T. W.), No. 649.

703 **Vogdes** (Anthony W.). A bibliography relating to the geology, paleontology, and mineral resources of California.
Cal. State Mg. Bureau, Bull., No. 10, 121 pp., 1896.

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Science, new ser., vol. iv, pp. 361–363, 1896.

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U. S. Geol. Surv., 16th Ann. Rept., Pt. I, pp. 5–130, 1896.
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U. S. Geol. Surv., Bull., No. 134, 43 pp., 15 pls., 1896.
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709 —— Fossil jelly fishes from the Middle Cambrian terrane.
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Hamilton Assoc., Jour. and Proc., No. 12, pp. 147–150, 1896.
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711 **Walker** (Francis A.). Memoir of William Barton Rogers, 1804–1882.
Nat. Acad. Sci., Biog. Mem., vol. iii, pp. 3–13, 1895.

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Am. Jour. Sci., 4th ser., vol. i, pp. 110–112, 1896.
Describes the mineralogic and chemical characters of material from the Vermilion mine, Algoma, Ontario.

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U. S. Geol. Surv., 16th Ann. Rept., Pt. I, pp. 469–540, pls. xcvii–cvii, figs. 67–69, 1896.
Compares the lithologic and faunal characters of the Potomac and Wealden formations and describes the Scaly clays of Italy and the Jurassic and Cretaceous of Portugal.

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Science, new ser., vol. iii, pp. 869–876, 1896.

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Science, new ser., vol. iv, pp. 757–760, 1896.

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Am. Geol., vol. xviii, pp. 56–57 (correspondence), 1896.

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U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 30, 1896.

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719 —— The Fort Union formation.

Am. Geol., vol. xviii, pp. 201–211, 1896.

Reviews the early descriptions of the Fort Union group, and of the Laramie and the Livingston beds, gives two sections of Fort Union strata in Montana, and discusses the differences of the physical and faunal characters of the Laramie and Fort Union beds, and the evidences indicating that the Fort Union, as originally described, includes strata of distinct and separate formations.

720 —— Ore deposits of the Little Rocky Mountains, Montana.

Eng. and Mg. Jour., vol. lxi, pp. 423–424, 1896.

Describes the geologic features of the region and the occurrence and character of the gold ores.

721 —— Mineral resources of the Judith Mountains, Montana.

Eng. and Mg. Jour., vol. lxi, pp. 496–498, 1896.

Describes the geology of the region and the occurrence of gold.

722 —— Notes on the geology of the Neihart mining district, Montana.

Mining, vol. i, pp. 25–29, 1896.

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Am. Jour. Sci., 4th ser., vol. i, pp. 283–301 and 351–362, figs. 1–4; vol. ii, pp. 136–148, 1896.

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725 —— Bearpaw Mountains of Montana. [Part II.]

Am. Jour. Sci., 4th ser., vol. ii, pp. 188–199, figs. 3–5, 1896.

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726 —— Missourite, a new leucite rock from the Highwood Mountains of Montana.

Am. Jour. Sci., 4th ser., vol. ii, pp. 315–323, 1896.

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727 —— Geology of the Little Rocky Mountains [Montana].

Jour. of Geol., vol. iv, pp. 399–428, figs. 1–3, 1896.

Describes the physiography of the region, the geologic structure and the lithologic character and distribution of the Cambrian, Siluro-Devonian, Jurassic, and Cretaceous rocks, and mentions the fossils collected. Describes the occurrence and petrographic character of the igneous rocks, including granite, porphyry, and phonolite. Gives a brief account of the occurrence of the gold and silver ores.

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U. S. Geol. Surv., Bull. No. 130, 210 pp., 1896.

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729 —— Bibliography and Index of North American geology, paleontology, petrology, and mineralogy for the year 1894.

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731 **Weller** (Stuart). [Review of the "Thirteenth Annual report of the State Geologist (New York) for the year 1893," by James Hall.]

Jour. of Geol., vol. iv, pp. 116–119, 1896.

732 —— [Review of "Neocene Mollusca of Texas, or fossils from the deep well at Galveston," by G. D. Harris.]

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733 **Weller** (Stuart). [Review of "Geological biology, an introduction to the geological history of organisms," by H. S. Williams.]
Jour. of Geol., vol iv, pp. 355–369, 1896.

734 —— [Review of "Canadian fossil insects," by S. H. Scudder.]
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Jour. of Geol., vol. iv, pp. 166–173, pls. vi–vii, 1896.
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736 **Wells** (G. M.). The Florida rock-phosphate deposits.
Am. Inst. Mg. Engrs., Trans., vol. xxv, pp. 163–172, 1896.
Presents two maps of Florida showing the location of the phosphate districts and describes the character and extent of the rock-phosphate beds.

737 **Westgate** (Lewis G.). The geology of the northern part of Jenny Jump Mountain, in Warren County, N. J.
N. J. Geol. Surv., Ann. Rept. for 1895, pp. 21–61, pls. iv–vi, 1896.
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N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 1–9, figs. 1–6, 1896.
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739 —— Notes on the geology of Newfoundland.
N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 150–157, 1896.
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Mo. Geol. Surv., vol. ix, sheet rept. No. 2, pp. 57–67, 1896.
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Am. Geol., vol. xviii, pp. 337–350, pl. xii, 1896.
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Ind. Dept. of Geol. and Nat. Res., 20th Ann. Rept., pp. 354–355, 1896.
Gives a list of the fossils collected and discusses the correlation of the beds with others of the Carboniferous series.

743 **White** (I. C.). Origin of the high terrace deposits of the Monongahela River.

Am. Geol., vol. xviii, pp. 368–379, 1896.

Describes the glacial phenomena along the river in Pennsylvania and West Virginia, and gives a chemical analysis of clay occurring at West Morgantown, W. Va.

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Am. Jour. Sci., 4th ser., vol. ii, pp. 430–432, 1896.

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745 —— The faunas of the upper Ordovician strata at Trenton Falls, N. Y.

N. Y. Acad. Sci., Trans., vol. xv, pp. 71–96, pls. iii–v, 1896.

Reviews the history of the term Trenton limestone and the original descriptions of the type section. Describes the stratiography and gives faunal lists of different localities, with remarks on the physical features. Presents a list of fossils for which Trenton Falls is the type locality and a table of faunas of the various zones.

746 —— **Van Ingen** (Gilbert) and. An account of the summer's work in geology on Lake Champlain.

See Van Ingen (G.) and White (T. G.), No. 696.

747 **Whiteaves** (J. F.). Notes on some of the Cretaceous fossils collected during Captain Palliser's explorations in British North America in 1857–60.

Canada Roy. Soc., Proc. and Trans., 2d ser., vol. i, sect. iv, pp. 101–117, pl. i, 1896.

Gives brief notes on the fossils collected, with references to the literature, and figures a specimen of Inoceramus, species uncertain.

748 —— On some fossils from the Nanaimo group of the Vancouver Cretaceous.

Canada Roy. Soc., Proc. and Trans., 2d ser., vol. i, sect. iv, pp. 119–133, pls. ii–iii, 1896.

Comprises a revision of the nomenclature of certain fossils of this group and description of new species.

749 —— Notes on some fossils from the Cretaceous rocks of British Columbia, with descriptions of two species that appear to be new.

Can. Rec. Sci., vol. vi, pp. 313–318, pl. ii, 1895.

Describes Aniscoceras vancouverense, Heteroceras hornbyense, and H. perversum.

750 —— Description of eight new species of fossils from the (Galena) Trenton limestones of Lake Winnipeg and the Red River Valley.

Can. Rec. Sci., vol. vi, pp. 387–397, 1895.

Describes new species from the Ordovician rocks of Manitoba.

751 **Whiteaves** (J. F.). Canadian stromatoporoids.
Can. Rec. Sci., vol. vii, pp. 129–146, 1896.
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752 **Whitfield** (Robert P.). Republication of descriptions of fossils from the Hall collection in the American Museum of Natural History, from the report of Progress for 1861 of the Geological Survey of Wisconsin, by James Hall, with illustrations from the original type specimens, not heretofore figured.
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753 —— Description of a new genus of fossil brachiopod from the Lower Helderberg limestones.
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Am. Jour. Sci., 4th ser., vol. ii, pp. 401–412, pl. vi, 1896.
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756 **Wilkens** (H. A. J.), **Nitze** (H. B. C.) and. The present condition of gold mining in the southern Appalachian States.
See Nitze (H. B. C.) and Wilkens (H. A. J.), No. 522.

757 **Williams** (Edward H., jr.). The mammoth bed at Morea, Pa.
Science, new ser., vol. iii, pp. 782–783, 1896.
Gives a section of the Coal Measures at this locality with remarks on the Glacial phenomena.

758 **Williams** (Henry Shaler). On the origin of the Choteau fauna.
Jour. of Geol., vol. iv, pp. 283–290, 1896.
This paper is mainly a review of a paper by S. Weller on "A circuminsular Paleozoic fauna, with remarks on the modification of faunas due to a sinking of the land."

759 **Willis** (Bailey). The geology of the Cascade Mountains.
Johns Hopkins Univ. Circ., vol. xv, p. 90, 1896.
Describes the history of the Cretaceous period in Washington and the Glacial phenomena of the region.

760 **Williston** (S. W.). On the skull of Ornithostoma.
Kans. Univ. Quart., vol. iv, pp. 195–197, pl. 1, 1896.
Describes characters of a skull recently found in western Kansas.

761 **Wilson** (Andrew Gordon). Frozen streams of the Iowa drift border.

Am. Geol., vol. xvii, pp. 364–371, 1896.

Describes peculiar Glacial phenomena of the region and discusses their origin.

762 —— Subdivisions of the Upper Silurian in northeastern Iowa.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliv, p. 137 (9 l.), 1896.

763 **Winchell** (N. H.). Microscopic characters of the Fisher meteorite (Minnesota No. 1).

Am. Geol., vol. xvii, pp. 173–176 and 234–238, 1896.

Describes the microscopic characters of the material.

764 —— The Black River limestone at Lake Nipissing.

Am. Geol., vol. xviii, pp. 178–179, 1896.

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765 —— The Arlington iron—Minnesota, No. 2.

Am. Geol., vol. xviii, pp. 267–271, pl. x, 1896.

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766 —— and **Grant** (U. S.). Volcanic ash from the north shore of Lake Superior.

Am. Geol., vol. xviii, pp. 211–213, 1896.

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767 **Winslow** (Arthur). The disseminated lead ores of southeastern Missouri.

U. S. Geol. Surv., Bull. No. 132, 31 pp., 1896.

Describes the stratigraphic and lithologic features of the Archean and Ordovician strata, the geologic structure and the distribution and character of the ore bodies, with notes on the mines. Accompanied by a geologic map.

768 —— A report on the Higginsville sheet, Lafayette County [Missouri].

Mo. Geol. Surv., vol. ix, sheet rept. No. 1, 99 pp., pls. i–iii, figs. 1–7, 1896.

Describes the physiography of the region, the distribution and characters of the Carboniferous and Quaternary formations, and the occurrence and character of the coal seams.

769 —— The Bevier sheet, including portions of Macon, Randolph, and Chariton counties [Missouri].

Mo. Geol. Surv., sheet No. 2, 1893.

Includes an abstract of accompanying report on the geology, a geologic and topographic map, and a sheet of columnar and structure sections.

770 —— The Iron Mountain sheet, including portions of Iron, St. Francois, and Madison counties [Missouri].

Mo. Geol Surv., sheet No. 3, 1894.

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771 **Winslow** (Arthur), **Haworth** (Erasmus), and **Nason** (Frank L.). A report on the Iron Mountain sheet, including portions of Iron, St. Francois, and Madison counties [Missouri].

Mo. Geol. Surv., vol. ix, sheet rept. No. 3, 85 pp., pls. i–v, figs. 1–14, 1896.

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772 **Wolff** (J. E.). On an occurrence of theralite in Costa Rica, Central America.

Am. Jour. Sci., 4th ser., vol. i, pp. 271–272, 1896.

Describes the occurrence and petrographic characters of this rock variety.

773 **Woodhouse** (C. C., jr.). Coal fields of Washington.

Mining, vol. i, pp. 67–71, 1896.

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774 **Woodward** (Henry). On some podophthalmatous crustacea from the Cretaceous formation of Vancouver and Queen Charlotte islands [British Columbia].

London Geol. Soc., Quart. Jour., vol. lii, pp. 221–228, figs. 1–6, 1896.

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775 **Woodworth** (J. B.). The retreat of the ice sheet in the Narragansett Bay region.

Am. Geol., vol. xviii, pp. 150–168, pl. vi, 1896.

Describes the different stages of the retreat of the ice sheet and discusses the evidences as to the time interval between these stages. Accompanied by geologic map.

776 —— The ice sheet in Glacial Narragansett Bay.

Am. Geol., vol. xviii, pp. 391–392 (correspondence), 1896.

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777 —— On the fracture system of joints, with remarks on certain great fractures.

Boston Soc. Nat. Hist., Proc., vol. xxvii, pp. 163–183, pls. 1–5, 1896.

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778 —— and **Marbut** (C. F.). The Queens River moraine in Rhode Island.

Jour. of Geol., vol. iv, pp. 691–703, figs. 1–7, 1896.

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779 —— **Shaler** (N. S.), and **Marbut** (C. F.). The Glacial brick clays of Rhode Island and southeastern Massachusetts.

See Shaler (N. S.), Woodworth (J. B.), and Marbut (C. F.), No. 612.

780 **Woolman** (Lewis). Report on artesian wells [New Jersey].
N. J. Geol. Surv., Ann. Rept. 1895, pp. 63–95, 1896.
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781 **Wortman** (J. L.) Species of Hyracotherium and allied perissodactyls from the Wahsatch and Wind River beds of North America.
Am. Mus. Nat. Hist., Bull., vol. viii, pp. 81–110, pl. ii, figs. 1–18, 1896.
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782 —— Psittacotherium, a member of a new and primitive suborder of the Edentata.
Am. Mus. Nat. Hist., Bull., vol. viii, pp. 259–262, 1896.
Describes an anterior limb of Psittacotherium multifragum Cope from New Mexico and discusses the relationships of this genus.

783 —— The North American origin of the edentates.
Science, new ser., vol. iv, pp. 865–866, 1896.
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784 **Wright** (Fred B.). The origin of the wind gap, Pennsylvania.
Am. Geol., vol. xviii, pp. 120–123, 1896.
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Jour. of Geol., vol. iv, pp. 218–219, 1896.
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786 —— The age of the Philadelphia brick clay [Pennsylvania].
Science, new ser., vol. iii, pp. 242–243, 1896.
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787 **Youtz** (L. A.). Clays of the Indianola brick, tile, and pottery works [Iowa].
Iowa Acad. Sci., Proc., vol. iii, pp. 40–44, 1896.
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Discusses the relations of paleontology and biology.

ADDENDA TO BIBLIOGRAPHIES FOR PREVIOUS YEARS.

The papers in the foregoing bibliography which have the following numbers were printed in 1894 and 1895, or bear one of these dates. A few were overlooked in compiling the literature of those years (Bulletins Nos. 135 and 146), but the greater portion were not received in time to be incorporated therein:

1894.

141	143	177	412	543	689
142	150	318	531	614	770

1895.

3	34	134	293	435	613
10	60	178	313	468	627
11	61	194	319	485	641
13	80	230	349	513	700
20	120	235	379	528	711
21	121	274	380	529	749
32	122	277	381	533	750
33	123	278	382	607	752

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