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1900



UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

BIBLIOGRAPHY AND INDEX

OF

NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY
AND MINERALOGY

FOR

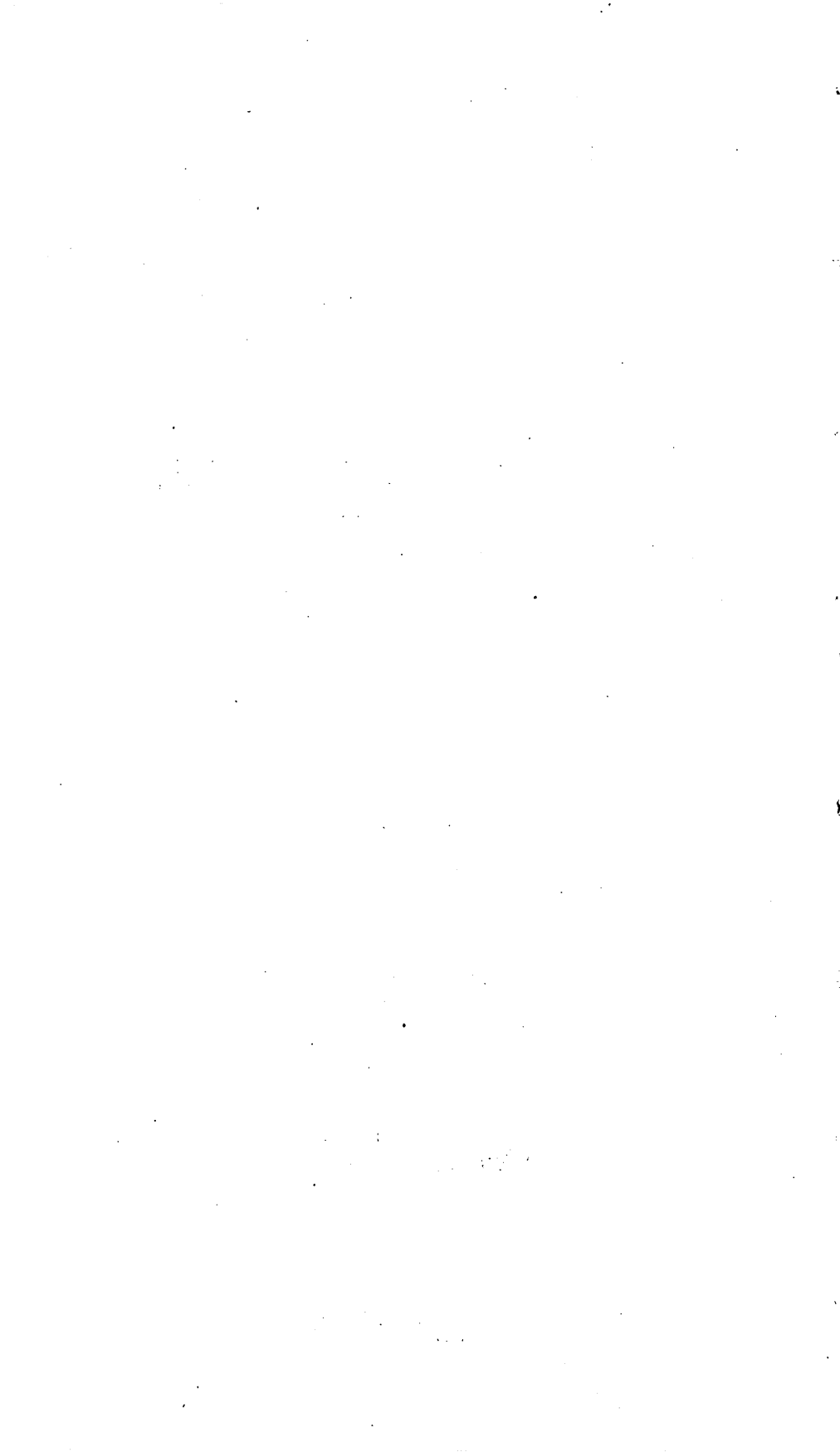
THE YEAR 1899

BY

FRED BOUGHTON WEEKS



WASHINGTON
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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF GEOLOGY,

Washington, D. C., June 12, 1900.

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 1899, 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 1899.

By FRED BOUGHTON WEEKS.

INTRODUCTION.

The method of preparing and arranging the material of the Bibliography and Index for 1899 is similar to that adopted for the previous publications on this subject (Bulletins Nos. 130, 135, 146, 149, 156, and 162). Several papers that should have been entered in the previous bulletins are here recorded and the date of publication is given with each entry.

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 $\frac{1}{2}$ p., 5 l (lines).

Index.—The subject headings, their subdivision 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 the 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 page in which the fossil, mineral, or rock is described.



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- 15 — On the geology of Wolfville, and part of the basin of Minas, Nova Scotia.
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- 32 **Barlow** (Alfred Ernest). Report on the geology and natural resources of the area included by the Nipissing and Temiscaming map sheet, comprising portions of the district of Nipissing, Ontario, and of the county of Pontiac, Quebec.
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- 34 **Barnard** (Charles). Some recent changes in the shore line of Nantucket [Massachusetts].
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- 35 **Barnard** (E. C.). Report of the Fortymile expedition [Alaska].
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- 36 **Barrois** (Charles). Notice sur James Hall.
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- 39 — On some dikes in the vicinity of Johns Bay, Maine.
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- 40 **Bayley** (William Shirley). The Sturgeon River tongue [Michigan].
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- 42 — [Review of "The Cretaceous Foraminifera of New Jersey," by R. M. Bagg, jr.]
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- 51 **Blake** (William P.). The Pliocene skull of California and the flint implements of Table Mountain.
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- 52 — Hübnerite in Arizona.
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- 55 — Corundum in Ontario.
Am. Inst. Min. Engrs., Trans., vol. xxviii, pp. 565-578, 1899.
Gives a historical sketch of corundum and describes discovery and occurrence in Ontario.
- 56 **Böse** (Emilio). Geologia de los Alrededores de Orizaba con un perfil de la vertiente oriental de la mesa central de Mexico.
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- 59 **Branner** (J. C.) [Review of "The Upper Silurian fauna of the Rio Trombetas, State of Para, Brazil," and "Devonian mollusca of the State of Para, Brazil," by John M. Clarke.]
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- 61 — Mining on Vancouver and Texada Islands [British Columbia].
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- 62 — Leech River, Alberni and Skirt Mountain [British Columbia].
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- 63 — Windemere mining division, East Kootenay district [British Columbia].
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- 64 **Brewer** (William M.). The copper deposits of Vancouver Island.
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- 65 **Britton** (Elizabeth G.). A new Tertiary fossil moss.
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- 66 **Broadhead** (G. C.). Biographical sketch of George Clinton Swallow.
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- 67 **Brock** (R. W.). West Kootenay ore bodies [British Columbia].
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- 68 **Brook** (W. M.). The Atlin district in British Columbia.
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- 69 **Brooks** (Alfred H.). The Yukon district [Alaska].
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- 70 — The coast from Point Barrow to the Mackenzie [Alaska].
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- 71 — Notes on the geology of the Tanana and White river basins, Alaska.
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- 72 — **Peters** (W. J.) and. Report on the White River-Tanana expedition [Alaska].
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- 73 **Buckley** (Ernest Robertson). On the building and ornamental stones of Wisconsin.
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- 74 — [Review of "Report on the building and decorative stones of Maryland," by George P. Merrill and Edward B. Mathews.]
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- 75 **Burr** (H. T.). A drainage peculiarity in Androscoggin County, Maine.

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- 76 **Bush** (Katherine J.). [Review of "Synopsis of the Recent and Tertiary Leptonacea of North America and the West Indies, by W. H. Dall."]

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- 77 **Bushong** (F. W.). The deep well at Madison, Kansas.

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- 78 **Calvin** (Samuel). Iowan drift.

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- 82 **Case** (E. C.). The development and geological relations of the Vertebrates, Part V, Mammalia (Continued).

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- 83 **Castleman** (J. W.). The brown iron ore mines near Leeds, in Jefferson County [Alabama].

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- 84 **Catlett** (Charles). The iron ores of the Potsdam formation in the Valley of Virginia.

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- 87 — Lord Kelvin's address on the age of the earth as an abode fitted for life.
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- 92 **Clarke** (F. W.). [Chemical composition of roscobelite.]
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- 94 — The alkaline reaction of some natural silicates.
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- 95 — and **Darton** (N. H.). Hydromica from New Jersey.
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- 99 — Geological time.
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Describes certain methods previously employed by which to estimate geologic time.
- 100 — (a) Paropsonema: A peculiar echinoderm from the Intumescens fauna, New York. (b) Remarkable occurrence of Orthoceros in the Oneonta sandstones of New York. (c) The Squaw Island "Water biscuit," Canandaigua Lake, New York.
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- 102 — **Hall** (J.) and. A memoir on the Paleozoic reticulate sponges constituting the family Dictyospongidae, Part I.
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- 103 — — A memoir on the Paleozoic reticulate sponges constituting the family Dictyospongidae, Part II.
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- 104 **Clements** (J. Morgan). Contributions to the study of contact metamorphism.
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- 105 — and **Smyth** (H. L.). The Crystal Falls iron-bearing district of Michigan. With a chapter on the Sturgeon River tongue by W. S. Bayley, and an introduction by C. R. Van Hise.
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- 106 **Coleman** (Arthur P.). Lake Iroquois and its predecessor at Toronto [Canada.]

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- 107 — A new analcite rock from Lake Superior.

Jour. of Geol., vol. vii, pp. 431-436, 1899.

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- 108 — Corundiferous nepheline syenite from eastern Ontario.

Jour. Geol., vol. vii, pp. 437-444, 1899.

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- 109 — Copper regions of the upper lakes [Ontario].

Ont. Bur. of Mines, vol. viii, pp. 121-174, 12 pls., 1899.

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- 110 — Corundiferous nephelite syenite.

Ont. Bur. of Mines, vol. viii, pp. 250-253, 1899.

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- 111 — Copper in Parry Sound district [Ontario].

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- 112 — and **Willmott** (A. B.). Michipicoton iron range.

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- 113 **Colquhoun** (A. J.). Notes on occurrence of quicksilver in Canada.

Can. Min. Inst. Jour., vol. ii, pp. 13-16; Can. Min. Rev., vol. xviii, pp. 41-42; Min. and Sci. Press, vol. lxxix, p. 288, 1899.

- 114 **Comely** (V. R. de). The gold resources of Mexico.

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- 115 **Cooper** (A. S.). The genesis of petroleum and asphaltum in California.

Cal. State Min. Bureau Bull., No. 16, 89 pp., 29 figs., 1899.

- 116 — The genesis of petroleum and asphaltum in California.

Min. and Sci. Press, vol. lxxviii, pp. 124, 149, 182, 205 (2 figs.), 236 (1 fig.), 264 (2 figs.), 289-290 (1 fig.), 320 (1 fig.), 344 (2 figs.), 377 (1 fig.), 401-402, 432 (1 fig.), 460 (1 fig.), 1899.

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- 117 **Cooper** (A. S.). Phenomena accompanying the accumulations of bitumen.
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- 118 **Cope** (Edward D.). Vertebrate remains from Port Kennedy bone deposit [Pennsylvania].
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- 119 **Crook** (A. R.). Oliver Marcy, LL. D.
Am. Geol., vol. xxiv, pp. 67-72, pl. iv, 1899.
Gives a sketch of Professor Marcy's life.
- 120 **Crosby** (W. O.). Archean-Cambrian contact near Manitou, Colorado.
Geol. Soc. Am., Bull., vol. x, pp. 141-164, pls. xiv-xviii, 38 figs. 1899.
Abstracts: Am. Geol., vol. xxiii, p. 92; Science, new ser., vol. ix, p. 101 ($\frac{1}{2}$ p.), 1899.
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- 121 — Geology of the Wachusett dam and Wachusett aqueduct tunnel of the Metropolitan waterworks in the vicinity of Clinton, Massachusetts.
Tech. Quart., vol. xii, pp. 68-96, 10 figs., 1899.
Describes the character and occurrence of the sedimentary and igneous rocks and structure features of the region.
- 122 — Geological history of the Nashua Valley during the Tertiary and Quaternary periods.
Tech. Quart., vol. xii, pp. 288-324, 4 pls., 1899.
Describes the physiography and character of the Tertiary and Pleistocene drainage.
- 123 — [Review of "The genesis of bitumens as related to chemical geology," by S. F. Peckham.]
Am. Geol., vol. xxiii, p. 327 (4 l.), 1899.
- 124 — [Review of "Notes on North Carolina minerals," by J. H. Pratt.]
Am. Geol., vol. xxiii, pp. 325-326, ($\frac{1}{2}$ p.), 1899.
- 125 — [Review of "The origin and chemical composition of petroleum," by S. P. Sadtler, S. F. Peckham, David T. Day, Francis C. Phillips, and Charles F. Mabery.]
Am. Geol., vol. xxiii, pp. 326-327, 1899.

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- 127 — The glacial lake of Nashua Valley.

Abstracts: Am. Geol., vol. xxiii, pp. 102-103 ($\frac{1}{2}$ p.); Science, new ser., vol. ix, p. 106 ($\frac{1}{3}$ p.), 1899.

- 128 **Cross** (Whitman). Telluride folio, Colorado.

U. S. Geol. Survey, Geol. Atlas of U. S., folio No. 57, 1899.

Describes the general physiography and geology of the San Juan region, and the occurrence and character of the Algonkian, Juratrias, Cretaceous, Tertiary, and igneous rocks of the quadrangle and discusses the geologic history. Includes topographic and geologic maps, columnar sections, and special illustrations.

- 129 — See **Hill** (R. T.). No. 313.

- 130 **Cummings** (Uriah). American cements.

Rogers and Manson, Boston, 299 pp., 1898. Review: Jour. of Geol., vol. vii, p. 627 ($\frac{1}{2}$ p.), 1899.

- 131 **Curtis** (G. C.) and **Woodworth** (J. B.). Nantucket, a morainal island.

Jour. of Geol., vol. vii, pp. 226-236, 5 figs., 1899.

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- 132 **Cushing** (H. P.). Augite-syenite gneiss near Loon Lake, New York.

Geol. Soc. Am., Bull., vol. x, pp. 177-192, pls. 19-20, 1899. Abstracts: Am. Geol., vol. xxiii, pp. 106, 330-331; Science, new ser., vol. ix, p. 141, 1899.

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- 133 — Report on the boundary between the Potsdam and pre-Cambrian rocks of the Adirondacks [New York].

N. Y. Geol. Surv., 16th Ann. Rept., pp. 5-27, 1 pl., 2 figs. 1899. Review: Am. Geol., vol. xxiii, p. 330, 1899.

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D.

- 134 **Dale** (T. Nelson). The slate belt of eastern New York and western Vermont.

U. S. Geol. Surv., 19th Ann. Rept., Pt. III, pp. 153-300, pls. xii-xli, figs. 7-16, 1899.

Describes the physiography, the occurrence, and character and structure of the Cambrian and Ordovician beds, the chemical composition of the slates, and the economic geology of the region. Includes a bibliography of the subject.

- 135 **Dall** (Wm. H.) Synopsis of the Recent and Tertiary Leptonacea of North America and the West Indies.
U. S. Nat. Mus., Proc., vol. xxi, pp. 873-897, pls. lxxxvii-lxxxviii, 1899.
- 136 **Daly** (R. A.). On the optical characters of the vertical zone of amphiboles and pyroxenes; and on a new method of determining the extinction angles of these minerals by means of cleavage planes.
Am. Acad. Arts and Sci., Proc., vol. xxxiv, pp. 309-323, pls. i-iii, 1899.
- 137 — On a new variety of hornblende.
Am. Acad. Arts and Sci., Proc., vol. xxxiv, pp. 431-437, 1899.
- 138 — The peneplain. A review.
Am. Nat., vol. xxxiii, pp. 127-138, 1899.
Discusses Professor Tarr's criticisms of the peneplain theory.
- 139 **Darton** (Nelson Horatio). Preliminary report on the geology and water resources of Nebraska west of the one hundred and third meridian.
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Describes the physiography, the character and occurrence of the Pleistocene, Tertiary, and Cretaceous strata and of the underground waters.
- 140 — The bad lands of South Dakota.
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- 141 — Fossil fish in Jurassic of Black Hills.
Abstracts: Am. Geol., vol. xxiii, p. 93 (4 l.), 1899; Science, new ser., vol. ix, p. 103 (7 l.), 1899.
- 141*a* — Mesozoic stratigraphy in southwestern Black Hills.
Abstracts: Am. Geol., vol. xxiii, p. 94 ($\frac{1}{2}$ p.), 1899; Science, new ser., vol. ix, p. 103 ($\frac{1}{2}$ p.), 1899.
- 141*b* — Relations of Tertiary formations in western Nebraska region.
Abstracts: Am. Geol., vol. xxiii, p. 94 ($\frac{1}{2}$ p.), 1899; Science, new ser., vol. ix, p. 103 (5 l.), 1899.
- 141*c* — Shore line of Tertiary lakes on slope of the Black Hills.
Abstracts: Am. Geol., vol. xxiii, p. 94 (9 l.), 1899; Science, new ser., vol. ix, p. 103 (8 l.), 1899.
- 142 — **Clarke** (F. W.) and. Hydromica from New Jersey.
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- 143 **Davis** (H. J.). Modification in the Jonathan Creek drainage basin [Ohio].
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- 144 **Davis** (W. M.). The peneplain.
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- 145 **Davison** (J. M.). Platinum and iridium in meteoric iron.
Am. Jour. Sci., 4th ser., vol. vii, p. 4, 1899. Review: Am. Geol., vol. xxiii, p. 327 (9 l.), 1899.
- 146 **Dawson** (George M.). Summary report of the Geological Survey department [Canada] for the year 1897.
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Contains a general summary of the operations of the survey and of the annual reports of the several geologists.
- 147 — Summary report of the Geological Survey department of [Canada] for the year 1898.
Can. Geol. Surv., 208 pp., 1899. Review: Am. Geol., vol. xxiii, pp. 384-385, 1899.
- 148 — The coals of the Canadian northwest and Rocky Mountain region.
The Mineral Industry for 1898, vol. vii, pp. 198-201, 1899.
Describes occurrence and distribution.
- 149 — A remarkable landslip on the Riviere Blanche, Port Neuf Co., Quebec.
Abstracts: Am. Geol., vol. 23, p. 103 ($\frac{1}{2}$ p.); Science, new ser., vol. ix, p. 139 (9 l.), 1899.
- 150 — Duplication of geologic formation names.
Science, new ser., vol. ix, pp. 592-593, 1899.
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- 151 **Dawson** (Sir J. William). Note on an echinoderm collected by Dr. Ami at Bessiers, Ottawa River, in the Pleistocene (Leda clay).
Ottawa Nat., vol. xiii, pp. 201-202, 1899.
Contains notes on a specimen representing a species of *Spatangus* or *Brissus*.
- 152 — Addendum to a note of Nova Scotia Carboniferous Entomos-traca in number for January, 1897.
Can. Rec. Sci., vol. vii, p. 396, fig. 10, 1898.
Gives figure of *Carbonia rankiniana*.
- 153 **Day** (David T.). Mineral Resources of the Antilles, Hawaii, and the Philippines.
Eng. Mag., vol. xvii, pp. 242-251, 1899.
Gives a general account of the mineral resources of these islands.
- 154 **Day** (William C.). The coal and pitch coal of the Newport mine [Oregon].
U. S. Geol. Surv., 19th Ann. Rept., Pt. III, pp. 370-376, 1899.
Discusses the character and origin of certain portions of these coal beds.

- 155 **Day** (William C.). See **Taff** (J. A.). No. 617.
- 156 **Dickhaut** (Henry E.). Collecting fossils in the Cincinnati shales.
Am. Geol., vol. xxiii, pp. 335-336, 1899.
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- 157 **Diller** (Joseph Silas). The Coos Bay coal field, Oregon.
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Describes the topographic and geologic features of the region and the occurrences and character of the coals.
- 158 ——— Origin of Paleotrochis.
Am. Jour. Sci., 4th ser., vol. vii, pp. 337-342, 1899. Review: Am. Geol., vol. xxiv, p. 182 ($\frac{1}{3}$ p.), 1899.
Describes microscopic characters of the material and origin of the Paleotrochis structure.
- 159 ——— Crater Lake, Oregon.
Smith. Inst., Ann. Rept. for 1897, pp. 369-379, pls. ii-xvi, 1898.
- 160 ——— Latest volcanic eruption on the Pacific coast.
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Describes material from Mount St. Helens, Washington.
- 161 ——— The educational series of rock specimens collected and distributed by the United States Geological Survey.
Abstract: Am. Geol., vol. xxiii, pp. 61-62, 1899.
- 162 **Domenech** (Manuel Victor). [Mineral resources of Porto Rico.]
Mines and Minerals, vol. xix, pp. 529-532, 1 fig., 1899.
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- 163 **Donald** (J. T.). A notable Canadian deposit of chromite.
Can. Min. Inst., Jour., vol. ii, pp. 25-27, 1899; Can. Min. Rev., vol. xviii, pp. 40-41, 1899.
Contains notes on occurrence.
- 164 **Douglas** (James). The Copper Queen mine, Arizona.
Min. and Sci. Press, vol. lxxix, pp. 432-433, 2 figs., 1899.
- 165 **Douvillé** (M. H.). Sur l'âge des couches traversées par le canal de Panama.
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- 166 **Eakle** (Arthur S.). Topaz crystals in the mineral collection of the U. S. National Museum.
U. S. Nat. Mus. Proc., vol. xxi, pp. 361-369, 22 figs., 1899; published in 1898.
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- 167 **Eastman** (C. R.). Descriptions of new species of *Diplodus* teeth from the Devonian of northeastern Illinois.
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- 168 **Eckel** (E. C.). Intrusives in the Inwood limestone of Manhattan Island.
Am. Geol., vol. xxiii, pp. 122-124, pl. iii, 1899.
Describes the relations of the formations and the character and occurrence of the intrusives.
- 169 **Ehrenfeld** (Frederick). A study of the igneous rocks at York Haven and Stony Brook, Pa., and their accompanying formations.
Thesis presented to the faculty of the department of philosophy of the University of Pennsylvania, 24 pp., 1 pl., 1898. (Not seen.)
- 170 **Eldridge** (George H.). The extreme southeastern coast. The coast from Lynn Canal to Prince William Sound [Alaska].
U. S. Geol. Surv., Expl. in Alaska, pp. 101-104, 1899.
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- 171 — The Sushitna drainage area [Alaska].
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- 174 — List of rock samples collected in northeastern Minnesota in 1895, 1896, and 1897 (prepared by U. S. Grant).
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- 189 — See **Ward** (L. F.), No. 690.

- 190 **Foote** (H. W.), **Penfield** (S. L.) and. Chemical composition of tourmaline.

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- 191 **Foote** (Warren M.). Note on a new meteoric iron found near the Tombigbee River, in Choctaw and Sumter counties, Alabama.

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- 201 — [Review of "Platinum and iridium in meteoric iron," by J. M. Davison.]
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- 202 — [Review of "Causes of variation in composition of igneous rocks," by T. L. Walker.]
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- 203 — [Review of "On the associated minerals of rhodolite," by W. E. Hidden and J. H. Pratt.]
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- 204 — [Review of "The alkaline reaction of some natural silicates," by F. W. Clarke.]
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- 205 — [Review of "Petroleum inclusions in quartz crystals," by Chas. L. Reese.]
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- 206 — [Review of "Mineral resources of Cuba," by Raimundo Cabrera.]
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- 207 — [Review of "The slate region of Pennsylvania," by Mansfield Merriam.]
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- 208 — [Review of "On the phenocrysts of intrusive igneous rocks," by L. V. Pirsson; "On the occurrence, origin, and chemical composition of chromite," by J. H. Pratt; "Some rock-forming biotites and amphiboles," by H. W. Turner; "On the occurrence of Paleotrochis in volcanic rocks in Mexico," by H. S. Williams; "Origin of Paleotrochis," by J. S. Diller; "Goldschmidtite, a new mineral," by W. H. Hobbs; and "On a hydromica from New Jersey," by F. W. Clarke and N. H. Darton.]
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- 255 — **Winchell** (H. V.) and. Preliminary report on the Rainy
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- 267 — Thames River in Connecticut.
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- 434 — The lower rapids of the Mississippi River.
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- 528 — [Reviews of "Pre-Cambrian igneous rocks of Fox River Valley, Wisconsin," by S. Weidman; and "West Virginia Geological Survey, vol. i."]
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- 529 — [Review of "Geological Survey of Michigan, vol. vi, 1893-1897," and "Report on gypsum and gypsum cement plasters," by G. P. Grimsley and E. H. S. Bailey.]
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- 530 **Post** (W. S.), **Spurr** (J. E.) and. Report on the Kuskokwim expedition [Alaska].
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- 531 **Pratt** (J. H.). Occurrence, origin, and chemical composition of chromite.
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- 532 — Separation of alumina from molten magmas, and the formation of corundum.
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- 533 — Notes on North Carolina minerals.
 Abstract: *Am. Geol.*, vol. xxiii, pp. 325-326 ($\frac{1}{2}$ p.), 1899.
- 534 — See **Judd** (J. W.) and **Hidden** (W. E.), No. 367.
- 535 **Prosser** (Charles S.). Correlation of Carboniferous rocks of Nebraska with those of Kansas.
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- 536 — Note on the distribution of the Cheyenne sandstone.
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- 537 **Purdue** (A. H.). [Review of "The Department of geology and natural resources of Indiana, Twenty-third Annual Report."]
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- 538 **Purington** (Chester Wells). Economic geology [of Telluride quadrangle, Colorado].

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- 539 **Rangel** (Manuel), **Ordoñez** (Ezequiel) and. El Real del Monte.

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- 540 **Ransome** (F. L.). New occurrence of nepheline syenite in New Jersey.

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- 541 — **Turner** (H. W.) and. Big Trees folio, California.

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- 542 **Reed** (F. R. Cowper). A new trilobite from Mount Stephen, Field, B. C.

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- 543 **Reese** (C. L.). Petroleum inclusions in quartz crystals.

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- 545 — The variations of glaciers, IV.

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- 547 — The ultimate and rational analysis of clays and their relative advantages.

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- 551 **Rogers** (Austin F.). Cupro-goslarite, a new variety of zinc sulphate.
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- 552 — Normal ankerite from Phelps County, Missouri.
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- 553 — **Beede** (J. W.) and. New and little known pelecypods from the Coal Measures.
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- 554 **Ropes** (Leverett S.). Corundum mining in North Carolina and Georgia.
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- 556 **Russell** (Israel C.). [Remarks on the use of the term plutonic plugs.]
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- 557 — [Review of "The physiography and geology of the Nicaraguan Canal route," by C. Willard Hayes.]
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- 558 — Geology of Cascade Mountains in Washington.
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- 563 — [Review of "Shoreline topography," by F. P. Gulliver.]
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- 567 — *Lichenaria typa* W. and S.
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- 568 — **Hall** (C. W.) and. Eolian deposits of eastern Minnesota.
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- 569 **Schmitz** (E. J.). Notes on a reconnaissance from Springfield, Mo., into Arkansas.
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- 572 — and **Mendenhall** (W. C.). [Notes on geology of portions of Alaska.]
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- 573 **Schuchert** (Charles). The fossil field's expedition to Wyoming.
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- 575 — **Safford** (J. M.) and. Camden chert of Tennessee and its Lower Oriskany fauna.
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- 578 — Formation of dikes and veins.
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- 579 — Spacing of rivers with reference to hypothesis of base-leveling.
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- 581 — and **Woodworth** (J. B.). Geology of the Richmond Basin, Virginia.
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- 584 **Shimek** (B.). The distribution of loess fossils.
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- 585 **Siebenthal** (C. E.). The Bedford oolitic limestone.
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- 586 **Simonds** (Frederic W.). Recent publications relating to the geology of Texas.
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- 587 — A consideration of the interpretation of unusual events in geologic records illustrated by recent examples.
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- 589 **Slichter** (C. S.). Theoretical investigations of the motion of ground waters.
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- 591 **Slosson** (E. E.), **Knight** (W. C.) and. The oil fields of Crook and Uinta counties, Wyoming.
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- 592 **Smith** (Alva J.). *Fusulina cylindrica* shell structure.
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- 593 **Smith** (G. O.), **Tower** (G. W., jr.) and. Geology and mining industry of the Tintic district, Utah.
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- 594 — **Willis** (B.) and. *Tacoma folio*, Washington.
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- 598 **Springer** (Frank). Notice of a new discovery concerning Uintacrinus.
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- 599 **Spurr** (Josiah Edward). Lakes Iliamna and Clark. The Nushagak River. The coast from Bristol Bay to the Yukon. The Kuskokwim drainage area. From the Yukon mouth to Point Barrow. The Kowak River, the Noatak River.
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- 603 **Stanton** (Timothy W.). Mesozoic fossils [Yellowstone National Park].
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- 604 **Stearns** (Robert E. C.). Description of a species of Actæon from the Quaternary bluffs at Spanish Bight, San Diego, Cal.
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- 610 — Notice of three new Cretaceous fishes, with remarks on the Saurodontidæ Cope.
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- 611 — Notes on the osteology of *Anognmius polymicrodus* Stewart.
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- 612 — *Leptichthys*, a new genus of fishes from the Cretaceous of Kansas.
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- 613 **Stone** (George H.). The glacial gravels of Maine and their associated deposits.
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- 614 — Granitic breccias of Grizzly Peak, Cal.
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- 615 — Dry gold placers of the arid regions.
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- 617 **Taff** (Joseph A.). Albertite-like asphalt in the Choctaw Nation, Indian Territory.

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- 618 — Changes in the Canadian River in western Choctaw Nation, Indian Territory.

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- 619 **Tarr** (Ralph S.). Physical geography of New York State. Part VII. The Great Lakes and Niagara.

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- 621 **Taylor** (Frank B.). The great ice dams of Lakes Maumee, Whittlesey, and Warren.

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- 622 — The Galt moraine and associated drainage.

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- 623 **Teller** (Edgar S.), **Monroe** (Charles E.) and. The fauna of the Devonian formation at Milwaukee, Wisconsin.

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- 624 **Todd** (James Edward). The moraines of southeastern South Dakota and their attendant deposits.

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- 625 — New light on the drift in South Dakota.

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- 626 — The geology of Hubbard County and northwestern portion of Cass County [Minnesota].

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- 628 — The geology of Marshall, Roseau, and Kittson counties [Minnesota].
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- 629 — The geology of Beltrami County [Minnesota].
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- 630 **Tolman** (C. F., jr.). The carbon dioxide of the ocean and its relation to the carbon dioxide of the atmosphere.
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- 631 — [Review of "The influence of the carbonic acid of the air upon the temperature of the ground," by Svante Arrhenius.]
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- 632 **Tower** (George Warren, jr.) and **Smith** (George Otis). Geology and mining industry of the Tintic district, Utah.
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- 633 **Turner** (Henry W.). Granitic rocks of the Sierra Nevada.
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- 634 — Replacement ore deposits in the Sierra Nevada.
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- 635 — Rock-forming biotites and amphibolites. With analyses by W. F. Hillebrand, H. N. Stokes, and William Valentine.
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- 636 **Turner** (Henry W.). The occurrence of roscoelite.
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- 637 — The geology of Yosemite National Park.
 Abstracts: Am. Geol., vol. xxiii, pp. 100-101; Science, new ser., vol. ix, p. 106 (9 l.), 1899.
- 638 — The occurrence and origin of diamonds in California.
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- 639 — and **Ransome** (F. L.). Big Trees folio, California.
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- 640 **Tyrrell** (J. Burr). Glacial phenomena in the Canadian Yukon district.
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- 641 — Gold mining in the Klondike district [Alaska].
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- 643 — The Sweetland Creek beds.
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- 644 — *Dipterus* in the American Middle Devonian.
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- 645 — Some Cretaceous drift pebbles in northern Iowa.
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- 646 — Diatomaceous earth in Muscatine County [Iowa].
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- 647 **Udden** (Johan August). The Pine Creek conglomerate [Iowa].
Iowa Acad. Sci., vol. vi, pp. 54-56, 1899.
Describes occurrence and discusses age.
- 648 **Upham** (Warren). The geology of Aitkin County [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rep., vol. iv., pp. 25-54, pl. lxii, figs. 2-6, 1899.
Describes the physiography, occurrence of eruptive and Cretaceous rocks, and glacial history of the county.
- 649 — The geology of Cass County and of the part of Crow Wing County northwest of the Mississippi River [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rep., vol. iv, pp. 55-81, figs. 7-8, 1899.
Describes the physiographic and geologic features and glacial history of the county.
- 650 — Geology of the region around Red Lake and southward to White Earth [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 155-165, pl. VV, 1899.
Describes physiographic and glacial features of the region.
- 651 — Evidence of epeirogenic movements causing and terminating the Ice age.
Geol. Soc. Am. Bull., vol. x, pp. 5-10, 1899.
Discusses evidences of high elevation and late glacial depression and its termination of the Ice age.
- 652 — Glacial and modified drift in Minneapolis, Minn.
Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlviii, p. 229 ($\frac{1}{2}$ p.); Science, new ser., vol. x, p. 490 ($\frac{1}{4}$ p.), 1899.
- 653 — Greatest area and thickness of the North American ice sheet.
Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlviii, pp. 230-231; Science, new ser., vol. x, p. 491, 1899.
- 654 — [Review of "South Dakota Geological Survey Bull. No. 2"].
Am. Geol., vol. xxiii, p. 192 ($\frac{1}{4}$ p.), 1899.
- 655 — [Review of "The loess of aqueous origin," by B. Shimek].
Am. Geol., vol. xxiii, pp. 192-193, 1899.
- 656 — Modified drift in the Champlain epoch.
Am. Geol., vol. xxiii, pp. 319-324, 1899.
Describes occurrence, character, and classification of drift deposits.
- 657 — [Review of "Iron making in Alabama," by W. B. Phillips.]
Am. Geol., vol. xxiii, pp. 328-329 ($\frac{1}{4}$ p.), 1899.
- 658 — [Review of "A guide to the study of the geological collections of the New York State Museum," by F. J. H. Merrill.]
Am. Geol., vol. xxiii, p. 329 ($\frac{1}{4}$ p.), 1899.

- 659 **Upham** (Warren). Englacial drift in the Mississippi Basin.
Am. Geol., vol. xxiii, pp. 369-374, 1899.
Describes occurrence and character of englacial drift in Hudson Bay and Upper Mississippi Valley regions.
- 660 — [Review of "Summary report of the Geological Survey department of Canada for the year 1898," by G. M. Dawson.]
Am. Geol., vol. xxiii, pp. 384-385, 1899.
- 661 — [Review of "Wells of northern Indiana," by Frank Leverett.]
Am. Geol., vol. xxiii, p. 385 ($\frac{1}{3}$ p.), 1899.
- 662 — [Review of "The fossil bison of North America," by Frederick A. Lucas.]
Am. Geol., vol. xxiii, p. 385 (5 l.), 1899.
- 663 — [Review of "West Virginia Geological Survey, vol. i," by I. C. White.]
Am. Geol., vol. xxiii, pp. 387-389, 1899.
- 664 — Glacial history of the New England Islands, Cape Cod, and Long Island.
Am. Geol., vol. xxiv, pp. 79-92, 1899.
Describes epeirogenic movements causing glaciation, the subsequent deformation of the region, and the character and distribution of the glacial deposits. Includes a bibliography of the subject.
- 665 — [Review of "Eighteenth Annual Report of the United States Geological Survey".]
Am. Geol., vol. xxiv, pp. 122-125, 1899.
- 666 — [Review of "Iowa Geological Survey, vol. ix".]
Am. Geol., vol. xxiv, pp. 182-184, 1899.
- 667 — [Review of "Nineteenth Annual Report of the United States Geological Survey" and "Geological Survey of New Jersey, Annual Report for the year 1898."]
Am. Geol., vol. xxiv, pp. 251-253, 1899.
- 668 — [Reviews of "Some Glacial wash-plains of southern New England," by J. B. Woodworth, and "The mechanical composition of wind deposits," by J. A. Udden.]
Am. Geol., vol. xxiv, pp. 381-382, 1899.

V.

- 669 **Van Hise** (C. R.). Introduction. [The Crystal Falls iron-bearing district of Michigan.]
U. S. Geol. Surv., Mon. XXXVI, pp. xvii-xxxvi; 19th Ann. Rept., Pt. III, pp. 9-18, 1899.
Describes the general character, occurrence, structure, and correlation of the Upper and Lower Huronian series in this region.

- 670 **Van Hise** (C. R.). The naming of rocks.
 Jour. of Geol., vol. vii, pp. 686-699, 1899.
 Discusses criteria and proposes a plan for naming rocks.
- 671 **Vaughan** (T. Wayland). Geologic notes on the Wichita Mountains, Oklahoma, and the Arbuckle Hills, Indian Territory.
 Am. Geol., vol. xxiv, pp. 41-55, 1899.
 Describes the physiographic features of the region, the character and occurrence of Silurian and Carboniferous strata and igneous rocks.
- 672 — Some Cretaceous and Eocene corals from Jamaica.
 Harvard Coll., Mus. Comp. Zool., Bull., vol. xxxiv, Appendix, pp. 227-250, 1899.
 Reviews the literature on the corals from this region, and describes material collected by R. T. Hill.
- 673 **Veatch** (Arthur C.). The Shreveport area [Louisiana].
 La. Exp. Stat., Part V, pp. 149-208, pls. xiv-xix, 1899.
 Describes the physiography of the region and the occurrence of Tertiary deposits.
- 674 — The five islands [Louisiana].
 La. Exp. Stat., Part V, pp. 209-262, pls. xx-xxxi, 1899.
 Describes the topographic and geologic features of the region and the occurrence of salt.
- 675 — **Harris** (G. D.) and. General geology [of Louisiana].
 See Harris (G. D.) and Veatch (A. C.). No. 283.
- 676 — — Historical review [of geological literature of Louisiana].
 See Harris (G. D.) and Veatch (A. C.). No. 282.
- 677 **Vermeule** (C. C.). Water supply from wells [New Jersey].
 N. J. Geol. Surv., Rept. for 1898, pp. 145-182, figs. 11-20, 1899.
 Describes conditions which produce flowing wells and the progress of inflow through material about a well.
- 678 **Vogdes** (A. W.). Biographical sketch of Issachar Cozzens, jr.
 Am. Geol., vol. xxiv, pp. 327-328, pl. xv, 1899.
 Gives a sketch of his life.

W.

- 679 **Wagner** (George). On *Tetracaulodon* (*Tetrabelodon*) *shepardii* Cope.
 Kan. Univ. Quart., vol. viii, pp. 99-103, pls. xxiv-xxv, 1899.
 Describes material from the Loup Fork beds of Kansas and reviews literature of the subject.
- 680 **Walcott** (Charles Doolittle). Report of the Director of the United States Geological Survey for the fiscal year ending June 30, 1899.
 U. S. Geol. Surv., 20th Ann. Rept., Pt. I., 551 pp., 2 pls., 1899.
 Gives a general review of the work undertaken by the Survey during the year 1898-99.

- 681 **Walcott** (Charles Doolittle). Pre-Cambrian fossiliferous formations.

Geol. Soc. Am., Bull., vol. x, pp. 199-244, pls. xxii-xxviii, 1899.
Reviews: Am. Jour. Sci., 4th ser., vol. viii, pp. 78-79; Science, new ser., vol. ix, p. 143 ($\frac{1}{3}$ p.), 1899.

Describes the character and occurrence of pre-Cambrian strata and the fossils collected.

- 682 — Cambrian fossils [Yellowstone National Park].

U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 440-478, pls. lx-lxv. 1899.

Gives a summary of the faunas and descriptions of the Cambrian fossils collected.

- 683 — Cambrian Brachiopoda, Obolus, and Lingulella, with description of new species.

U. S. Nat. Mus., Proc., vol. xxi, pp. 385-420, pls. xxvi-xxviii, 1899.
Published in 1898.

- 684 — Fossil Medusæ.

Abstracts: Am. Geol., vol. xxii, pp. 57-61; Jour. of Geol., vol. vii, p. 99, 1899.

See Bibliography and Index for 1898. No. 844.

- 685 **Walker** (T. L.). Crystal symmetry of the mica group.

Am. Jour. Sci., 4th ser., vol. vii, pp. 199-204, figs. 1-6, 1899.

Describes methods of study of crystal symmetry and discusses evidence of some of the micas belonging to the triclinic system.

- 686 — Causes of variation in the composition of igneous rocks.

Review: Am. Geol., vol. xxiii, pp. 327-328 ($\frac{1}{3}$ p.), 1899.

- 687 **Ward** (H. L.). New Kansas meteorite.

Am. Jour. Sci., 4th ser., vol. vii, p. 233, 1 fig., 1899.

Briefly describes the material.

- 688 — Notice of a new meteorite from Murphy, Cherokee County, North Carolina.

Am. Jour. Sci., 4th ser., vol. viii, pp. 225-226, pl. iv, 1899.

Describes occurrence and character of the material.

- 689 — Notice of an aerolite that recently fell at Allegan, Michigan.

Am. Jour. Sci., 4th ser., vol. viii, pp. 412-414, 1899.

Describes occurrence and character of the material.

- 690 **Ward** (Lester F.). The Cretaceous formation of the Black Hills as indicated by the fossil plants (with the collaboration of W. P. Jenney, W. M. Fontaine, and F. H. Knowlton).

U. S. Geol. Surv., 19th Ann. Rept., Pt. II, pp. 521-946, pls. liii-clxxii, figs. 117-122, 1899. Review: Jour. of Geol., vol. vii, pp. 814-815, 1899.

Reviews literature on the Black Hills, gives a historical sketch of the discovery of the fossils and numerous sections of the strata and descriptions of the fossils.

- 691 **Ward** (Lester F.). Descriptions of the species of Cycadeoidea or fossil Cycadean trunks thus far determined from the Lower Cretaceous rim of the Black Hills.
U. S. Nat. Mus., Proc., xxi, pp. 195-229, 1899. Published in 1898.
- 692 **Warren** (C. H.), **Penfield** (S. L.) and. Some new minerals from the zinc mines at Franklin, N. J., and note concerning the chemical composition of ganomalite.
See Penfield (S. L.) and Warren (C. H.), No. 522.
- 693 ——— Chemical composition of parisite and a new occurrence of it in Ravalli Co., Montana.
See Penfield (S. L.) and Warren (C. H.), No. 521.
- 694 **Washington** (Henry S.). The petrographical province of Essex County, Massachusetts, II.
Jour. of Geol., vol. vii, pp. 53-64, 1899.
Describes the megascopic, microscopic, and chemical characters of essexite, diorite, and gabbro.
- 695 ——— The petrographical province of Essex County, Massachusetts, III.
Jour. of Geol., vol. vii, pp. 105-121, 1899.
Describes the petrographic and chemical character of aplite, quartz-syenite-porphyr, paisanite, sölvbergite, tinguaita, and dike rocks.
- 696 ——— The petrographical province of Essex County, Massachusetts, IV.
Jour. of Geol., vol. vii, pp. 284-294, 1899.
Describes petrographic and chemical character of camptonite, diabase, rhyolite, and keratophyr.
- 697 ——— Petrographical province of Essex County, Massachusetts, V. (General discussion and conclusion.)
Jour. of Geol., vol. vii, pp. 463-482, pl. vi, 1899. Review: Am. Geol., vol. xxiv, pp. 255-257, 1899.
Gives a general summary of previous papers.
- 698 **Watson** (Thomas L.). Some notes on the lakes and valleys of the Upper Nugsuak Peninsula, North Greenland.
Jour. of Geol., vol. vii, pp. 655-666, 3 figs., 1899.
Describes physiographic features of the region and the occurrence and origin of the lake.
- 699 ——— Some further notes on the weathering of diabase in the vicinity of Chatham, Virginia.
Am. Geol., vol. xxiv, pp. 355-369, 1899.
Discusses the evidences of the cause of the considerable loss of alumina in the change from fresh to decomposed diabase. Includes many chemical analyses.
- 700 **Watts** (W. L.). Notes on the oil-yielding formations of California.
Min. and Sci. Press, vol. lxxix, pp. 144-146 (12 figs.), pp. 172-173 (3 figs.), 1899. Describes character and occurrence.

- 701 **Weed** (Walter Harvey). Fort Benton folio, Montana.
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 55, 1899.
Describes the general geologic features and the occurrence and character of the Archean, Cambrian, Silurian, Devonian, Carboniferous, Juratrias, Cretaceous, Pleistocene, and igneous rocks. Discusses the geologic history of the region, and describes the occurrence of coal, gold, and silver. Includes topographic maps and columnar sections.
- 702 — Little Belt Mountains folio, Montana.
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 56, 1899.
Describes the physiography, the occurrence, and character of the Archean, Algonkian, Cambrian, Silurian, Devonian, Carboniferous, Juratrias, Cretaceous, metamorphic, and igneous rocks, the general geologic relations and history of the region, and the occurrence of coal, silver, and sapphires. Includes topographic and geologic maps and columnar sections.
- 703 — Geology of the southern end of the Snowy Range [Yellowstone National Park].
U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 203-214, pl. xxvi, 1899.
Describes the general physiographic and geologic features of the region.
- 704 — Granite rocks of Butte, Montana, and vicinity.
Jour. of Geol., vol. vii, pp. 737-750, 1899.
Describes occurrence and petographic and chemical characters of the granitic rocks.
- 705 — Laccoliths and bysmaliths.
Abstract: Science, new ser., vol. x, pp. 25-26, 1899.
- 706 — **Iddings** (J. and P.) Descriptive geology of the northern end of the Teton Range [Yellowstone National Park].
See Iddings (J. P.) and Weed (W. H.). No. 355.
- 707 — — Descriptive geology of the Gallatin Mountains [Yellowstone National Park].
See Iddings (J. P.) and Weed (W. H.). No. 354.
- 708 **Weeks** (Fred Boughton). Bibliography and index of geology, paleontology, petrology, and mineralogy for 1898.
U. S. Geol. Surv., Bull., No. 162, 163 pp., 1899.
Contains list of titles of papers arranged alphabetically by authors' names and a subject index.
- 709 — The duplication of geologic formation names.
Jour. of Geol., vol. vii, pp. 297-299; Am. Geol., vol. xxii, pp. 266-267; Science, new ser., vol. ix, pp. 625-626, 1899.
Gives reference to literature showing the duplication of long-established names in recent publications.
- 710 — [A reconnaissance in Jackson Basin, northwest Wyoming.]
Abstract: Science, new ser., vol. ix, p. 454 ($\frac{1}{2}$ p.), 1899.

- 711 **Weller** (Stuart). Kinderhook faunal studies, I. The fauna of the Vermicular sandstone at Northview, Webster County, Missouri.
St. Louis Acad. Sci., Trans., vol. ix, No. 2, pp. 9-51, pls. ii-vi, 1899.
Describes the occurrence of the formation and the character of the fossils collected.
- 712 — [Review of "Fossil Medusæ," by C. D. Walcott.]
Jour. of Geol., vol. vii, p. 99, 1899.
- 713 — [Review of "Fifteenth Annual Report of the State Geologist [New York] for the year 1895, vol. i."]
Jour. of Geol., vol. vii, pp. 209-213, 1899.
- 714 — A peculiar Devonian deposit in northeastern Illinois.
Jour. of Geol., vol. vii, pp. 483-488, 3 figs., 1899.
Describes occurrence of a Devonian fauna in crevices of Niagara strata.
- 715 — A century of progress in Paleontology.
Jour. of Geol., vol. vii, pp. 496-508, 1899.
Gives a general historical sketch of the development of the science of Paleontology.
- 716 — [Review of "The Paleozoic reticulate sponges constituting the family Dictyospongidae," by James Hall and J. M. Clarke.]
Jour. of Geol., vol. vii, pp. 717-718, 1899.
- 717 **Westgate** (Lewis G.). A granite-gneiss in central Connecticut.
Jour. of Geol., vol. vii, pp. 638-654, 4 figs., 1899.
Describes occurrence, the associated rocks, and its megascopic and microscopic characters.
- 718 **Wheeler** (William Morton). George Baur's life and writings.
Am. Nat., vol. xxxiii, pp. 15-30, 1899.
Gives a sketch of his life and list of his publications.
- 719 **White** (David). Report on fossil plants from the McAlester coal field, Indian Territory, collected by Messrs. Taff and Richardson in 1897.
U. S. Geol. Surv., 19th Ann. Rept., Pt. III, pp. 457-534, pls. lxvii-lxviii, 1899.
Describes the geographic distribution of the fossil plants and their occurrence in the coal beds, and compares these floras with those from the coal field of Arkansas. Includes descriptions of the species collected.
- 720 — Fossil flora of the Lower Coal Measures of Missouri.
U. S. Geol. Surv., Mon. XXXVII, 467 pp., 73 pls., 1899.
Describes the stratigraphy of the plant-bearing beds, the characters of the fossils collected and the relations of the faunas.
- 721 — [Review of "Fossil plants, for students of botany and geology," by A. C. Seward.]
Am. Geol., vol. xxiii, pp. 195-197, 1899.
Bull. 172—6

- 722 **White** (I. C.). Petroleum and natural gas [West Virginia].
West. Va. Geol. Surv., vol. i, pp. 123-378, 1899. Review: Am. Geol., vol. xxiii, pp. 387-389, 1899.
Gives a historical sketch of the subject and describes the occurrence of petroleum and natural gas, including sections of many wells.
- 723 — Origin of grahamite.
Geol. Soc. Am., Bull., vol. x, pp. 277-284, pl. xxix, 1899. Reviews: Am. Geol., vol. xxiii, p. 101 ($\frac{1}{2}$ p.), vol. xxiv, pp. 253-254; Science, new ser., vol. ix, p. 138 ($\frac{1}{2}$ p.), 1899.
Describes occurrence and origin.
- 724 **White** (Theodore G.). Faunas of Upper Ordovician in Lake Champlain Valley.
Abstracts: Am. Geol., vol. xxiii, p. 96 ($\frac{1}{2}$ p.); Science, new ser., vol. ix, p. 102 ($\frac{1}{2}$ p.), 1899.
- 725 **Whiteaves** (J. F.). Postscript to "A description of new genus and species of Cystideans from the Trenton limestone at Ottawa."
Can. Rec. Sci., vol. vii, pp. 395-396, 1898.
Proposes generic name *Steganoblastus* for that of *Astrocystites canadensis*.
- 726 — On some remains of a sepia-like cuttlefish from the Cretaceous rocks of the South Saskatchewan.
Can. Rec. Sci., vol. vii, pp. 459-461, pl. ii, 1898.
Describes *Actinosepia canadensis* n. gen. et. sp.
- 727 — Note on a fish tooth from the Upper Arisaig series of Nova Scotia.
Can. Rec. Sci., vol. vii, pp. 461-462, 1 fig., 1898.
- 728 — A recent discovery of rocks of the age of the Trenton formation at Akpatok Island, Ungava Bay, Ungava.
Am. Jour. Sci., 4th ser., vol. vii, pp. 433-434, 1899.
Gives a list of the fossils collected and discusses their relation to the fauna of the Manitoba.
- 729 — The Devonian system in Canada.
Am. Assoc. Adv. Sci., Proc., vol. xlviii, pp. 193-233; Am. Geol., vol. xxiv, pp. 210-240; Science, new ser., vol. x, pp. 402-412, 430-438, 1899.
Gives a historical sketch of the study of Devonian strata occurring in the several provinces of Canada.
- 730 **Whitfield** (R. P.). Assisted by E. O. Hovey. Catalogue of the type figured specimens in the Paleontological collection of the geological department, American Museum of Natural History.
Am. Mus. Nat. Hist., Bull., vol. xi, pp. 74-188, 1899.
- 731 **Whittle** (Charles L.). The building and road stones of Massachusetts.
The Mineral Industry for 1898, vol. vii, pp. 637-642, 1899.
Describes character and occurrence of granite, sandstone, and other building stones.

- 732 **Whittle** (Charles L.) The Buffalo Hump Mining Camp, Idaho. Eng. and Min. Jour., vol. lxviii, pp. 215-216, 1899.
Describes general geologic structure of the region.
- 733 **Wieland** (G. R.). A study of some American fossil cycads, Part I. The male flower *Cycadeoidea*.
Am. Jour. Sci., 4th ser., vol. vii, pp. 219-226, 2 figs., pls. ii-iv, 1899.
Discusses age of the cycad-bearing beds and describes *Cycadeoides ingens* Ward. Includes references to literature.
- 734 — A study of some American fossil cycads, Part II. The leaf structure of *Cycadeoidea*.
Am. Jour. Sci., 4th ser., vol. vii, pp. 305-308, pl. vii, 1899.
- 735 — A study of some American fossil cycads. Part III. The female fructification of *Cycadeoidea*.
Am. Jour. Sci., 4th ser., vol. vii, pp. 383-391, pls. viii-x, 20 figs., 1899.
- 736 — The terminology of vertebral centra.
Am. Jour. Sci., 4th ser., vol. viii, pp. 163-164, 1899.
Gives a table of nomenclature of vertebrae.
- 737 — Cycadean Monœcism.
Am. Jour. Sci., 4th. ser., vol. viii, p. 164 ($\frac{2}{3}$ p.), 1899.
- 738 **Wilcox** (Walter D.). A certain type of lake formation in the Canadian Rocky Mountains.
Jour. of Geol., vol. vii, pp. 247-260, pl. ii, 6 figs., 1899.
Describes glacial phenomena in Rocky Mountains of British Columbia.
- 739 **Williams** (H. S.). [Review of "Maryland Geological Survey, vol. i;" "The Lower Cretaceous Gryphæas of the Texas region," by R. T. Hill and T. Wayland Vaughan; "Bibliographic Index of North American Carboniferous invertebrates," by Stuart Weller; "Contributions to the Tertiary fauna of Florida," by W. H. Dall; "Contributions to Canadian paleontology," by J. F. Whiteaves; "Geological Survey of Canada, vol. ix;" and "Report on the Doobaunt, Kogan, and Ferguson rivers and the northwest coast of Hudson Bay," etc., by J. B. Tyrrell.]
Am. Jour. Sci., 4th ser., vol. vii, pp. 69-72, 1899.
- 740 — [Review of "New facts regarding Devonian fishes. Dentition of Devonian *Ptyctodontidea*;" "Some new points in *Dinichthyid* osteology," by C. R. Eastman; "Geological sketch of San Clemente Island," by W. S. T. Smith; "Geology of Edwards Plateau and Rio Grande Plain," etc., by R. T. Hill and T. W. Vaughan, "South Dakota Geological Survey Bulletin No. 2."]
Am. Jour. Sci., 4th ser., vol. vii, pp. 314-316, 1899.

- 741 **Williams** (H. S.). Occurrence of *Paleotrochis* in volcanic rocks in Mexico.
Am. Jour. Sci., 4th ser., vol. vii, pp. 335-336, 1899. Review: Am. Geol., vol. xxiv, p. 181 ($\frac{1}{2}$ p.), 1899.
Describes material showing the origin of *Paleotrochis*.
- 742 — [Review of "The age of the Franklin white limestone of Sussex County, New Jersey," by J. E. Wolff and A. H. Brooks; "The development of *Lytoceras* and *Phylloceras*," by J. P. Smith.]
Am. Jour. Sci., 4th ser., vol. vii, pp. 397-398, 1899.
- 743 — Devonian interval in northern Arkansas.
Am. Jour. Sci., 4th ser., vol. viii, pp. 139-152, 1899.
Describes the fauna of a number of sections and the character and relations of the Devonian rocks of the region.
- 744 **Willis** (Bailey). The new Maryland Geological Survey.
Science, new ser., vol. ix, pp. 252-255, 1899.
Reviews vol. i of the Maryland Geological Survey.
- 745 — Work of the U. S. Geological Survey.
Science, new ser., vol. x, pp. 203-213, 1899.
- 746 — and **Smith** (George Otis). Tacoma folio, Washington.
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 54, 1899.
Describes the general physiographic and geologic relations, geologic history, the occurrence and character of the Tertiary and Pleistocene deposits and eruptive rocks, and the occurrence of coal. Includes topographic and geologic maps and structural and columnar sections.
- 747 **Williston** (S. W.). Some additional characters of the Mosasaurs.
Kan. Univ. Quart., vol. viii, pp. 39-41, pl. xii, 1899.
Describes characters of *Platecarpus*.
- 748 — A new genus of fishes from the Niobrara Cretaceous.
Kan. Univ. Quart., vol. viii, pp. 113-115, pl. xxvi, 1899.
- 749 — A new species of *Sagenodus* from the Kansas Coal Measures.
Kan. Univ. Quart., vol. viii, pp. 175-181, pls. xxviii, xxxv-xxxvii, 1899.
Gives a list of the species of this genus and describes *Sagenodus copeanus* n. sp.
- 750 — Notes on the coraco-scapula of *Eryops* Cope.
Kan. Univ. Quart., vol. viii, pp. 185-186, pls. xxvii-xxx, 1899.
Describes material from the Red beds of Indian Territory.
- 751 — [Review of "West Virginia Geological Survey, vol. i."]
Jour. of Geol., vol. vii, pp. 426-427, 1899.
- 752 — Prof. Benjamin F. Mudge.
Am. Geol., vol. xxiii, pp. 339-345, pl. xii, 1899.
Gives a sketch of his life and list of his publications.

- 753 **Williston** (S. W.) The Red beds of Kansas.
Science, new ser., vol. ix, p. 221 ($\frac{1}{2}$ p.), 1899.
Discusses the Permian age of these beds.
- 754 **Willmott** (A. B.), **Coleman** (A. P.) and. Michipicoton iron range.
See Coleman (A. P.) and Willmott (A. B.), No. 112.
- 755 **Wilson** (Herbert M.). Water resources of Puerto Rico.
U. S. Geol. Surv., Water-Supply Paper No. 32, 48 pp., 17 pls., 10 figs., 1899.
Describes the water resources and physiography of the island.
- 756 **Winchell** (Newton H.). Preface [to Final Rept., vol. iv, Minnesota Geological and Natural History Survey, pp. xiii-xx, 1899].
Gives an outline of a portion of the nomenclature of geologic formations employed in this publication.
- 757 — The geology of Carlton County [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 1-24, pl. lvi, A-B, 1899.
Describes the physiographic features and character and occurrence of the Archean and Cambrian rocks.
- 758 — The geology of the southern portion of St. Louis County [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 212-221, pl. lxxvi, and P-Q, FF-GG, 1899.
Describes occurrence of Archean rocks and glacial deposits.
- 759 — The geology of the northern portion of St. Louis County [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 222-265, pl. lxxvii, and R-W, figs. 22-37, 1899.
Describes the character and occurrence of the Archean rocks and glacial deposits.
- 760 — The geology of Lake County [Minnesota].
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24	152	212	399	512	726
47	159	275	417	604	727
73	165	276	445	639	799
88	166	334	451	683	
130	169	343	452	691	

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- El Real del Monte, Ordoñez and Rangel, No. 503.
- Gold resources of Mexico, Comely, No. 114.

Michigan.

- Coal in Michigan, Holmes, No. 330.
- Crystal Falls iron-bearing district, Clements and Smyth, No. 105.
- Michigan mineral waters, Lane, No. 419.
- Water resources of Michigan, Lane, No. 418.

Minnesota.

- Geology of Akeley Lake plate, Grant, No. 241.
- Geology of Mountain Iron plate, Winchell, No. 762.
- Geology of Mountain Lake plate, Grant, No. 244.
- Geology of Virginia plate, Winchell, No. 763.
- Rainy Lake gold region, Winchell and Grant, No. 780.

Missouri.

- Reconnaissance from Springfield into Arkansas, Schmitz, No. 569.

Montana.

- Fort Benton folio, Weed, No. 701.
- Little Belt Mountains folio, Weed, No. 702.

Nebraska.

- Geology of Nebraska, Darton, No. 139.
- Wells in Nebraska, Barbour, No. 29.

Nevada.

- Nevada sulphur deposits, Fulton, No. 210.

New Jersey.

- Artesian wells in New Jersey, Woolman, No. 794.
- Water supply from wells, Vermeule, No. 677.

New York.

- Brine springs and salt wells, Luther, No. 449.
- Fibrous tale in St. Lawrence County, Nevius, No. 496.
- Petroleum and natural gas in New York, Orton, No. 506.
- Slate belt of New York and Vermont, Dale, No. 134.
- Titaniferous iron ores of Adirondacks, Kemp, No. 370.

North Carolina.

- Corundum mining, Ropes, No. 554.

Economic geology—Continued.*North Dakota*.

- Coal in North Dakota, Babcock, No. 18.

Ohio.

- Jackson County coal mines, Roy, No. 555.
- Rock waters of Ohio, Orton, No. 504.

Oregon.

- Coal of Newport mine, Day, No. 154.
- Coos Bay coal field, Diller, No. 157.

Panama.

- Gold deposits of Panama, Hershey, No. 302.

Pennsylvania.

- Clays of Pennsylvania, Hopkins, No. 334.
- Feldspars and kaolins, Hopkins, No. 335.

Porto Rico.

- Mineral resources, Domenech, No. 162.
- Water resources of Porto Rico, Wilson, No. 755.

Tennessee.

- Standingstone folio, Campbell, No. 80.
- Tennessee phosphate fields, Hayes, No. 295.

Utah.

- Geology of Tintic mining district, Tower and Smith, No. 632.
- Old Telegraph mine, Lavagnino, No. 422.

Vermont.

- Slate belt of New York and Vermont, Dale, No. 134.

Virginia.

- Geology of Richmond Basin, Shaler and Woodworth, No. 581.

Washington.

- Tacoma folio, Willis and Smith, No. 746.

West Virginia.

- Petroleum and natural gas, White, No. 722.

Wisconsin.

- Building and ornamental stones, Buckley, No. 73.

Wyoming.

- Oil fields of Crook and Uinta counties, Knight, No. 390.

Economic products described.

- Asphalt, Day, No. 154.
- Asphalt, Taff, No. 616.
- Asphaltum, Cooper, Nos. 115, 116.
- Asphaltum, Lakes, No. 409.
- Artesian water, Fultz, No. 211.
- Artesian well, Bushong, No. 77.
- Artesian wells, McCallie, No. 451.
- Artesian wells, Matthew and Kain, No. 473.
- Artesian wells, Mosnat, No. 492.
- Artesian wells, Vermeule, No. 677.
- Artesian wells, Woolman, No. 794.
- Building stone, Beyer, No. 49.
- Building stone, Buckley, No. 73.
- Building stone, Norton, No. 501.
- Building stone, Siebenthal, No. 585.
- Building stones, Whittle, No. 731.
- Clay, Bain, No. 21.
- Clay, Beyer, No. 49.
- Clay, Hopkins, No. 334.
- Clay, Ladd, Nos. 399, 400.
- Clay, Norton, No. 501.
- Clay, Ries, No. 546.
- Coal, Ashley, No. 17.
- Coal, Babcock, No. 18.
- Coal, Bain, Nos. 21, 24.

Economic geology—Continued.*Economic products described—Continued.*

- Coal, Beyer, No. 49.
- Coal, Campbell, No. 80.
- Coal, Dawson, No. 148.
- Coal, Day, No. 154.
- Coal, Diller, No. 157.
- Coal, Eldridge, No. 170.
- Coal, Eldridge and Muldrow, No. 172.
- Coal, Gresley, No. 261.
- Coal, Hills, No. 319.
- Coal, Holmes, No. 330.
- Coal, Lakes, No. 408.
- Coal, Mendenhall, Nos. 475, 477.
- Coal, Norton, No. 501.
- Coal, Roy, No. 555.
- Coal, Shaler and Woodworth, No. 581.
- Coal, Shaler, Woodworth, and Foerste, No. 582.
- Coal, Taff, No. 616.
- Coal, Weed, No. 701.
- Coal, Willis and Smith, No. 746.
- Copper, Coleman, No. 111.
- Copper, Lindgren, No. 437.
- Copper, Peters and Brooks, No. 524.
- Copper, Schrader, No. 570.
- Corundum, Blue, Nos. 54, 55.
- Corundum, Gibson, No. 216.
- Corundum, Hunt, No. 344.
- Corundum, Miller, Nos. 486, 487, 488.
- Corundum, Ropes, No. 564.
- Feldspar, Hopkins, Nos. 335, 337.
- Gold, Barlow, No. 32.
- Gold, Barnard, No. 35.
- Gold, Bow, No. 57.
- Gold, Brock, No. 67.
- Gold, Brook, No. 68.
- Gold, Brooks, No. 69.
- Gold, Chalmers, No. 88.
- Gold, Comely, No. 114.
- Gold, Eldridge, No. 170.
- Gold, Eldridge and Muldrow, No. 172.
- Gold, Faribault, No. 182.
- Gold, Fowler, No. 194.
- Gold, Heilprin, No. 299.
- Gold, Hershey, Nos. 301, 304, 306.
- Gold, Heydon, No. 307.
- Gold, Lavagnino, No. 422.
- Gold, Ludloff, No. 447.
- Gold, McCallie, No. 462.
- Gold, McInnes, No. 466.
- Gold, Maguire, Nos. 458, 459.
- Gold, Mendenhall, Nos. 475, 477.
- Gold, Nordenskjöld, No. 499.
- Gold, Peters and Brooks, No. 524.
- Gold, Purington, No. 538.
- Gold, Rickard, No. 548.
- Gold, Schrader, No. 570.
- Gold, Spurr, No. 599.
- Gold, Spurr and Post, No. 601.
- Gold, Stone, No. 615.
- Gold, Tower and Smith, No. 632.
- Gold, Weed, Nos. 701, 702.
- Gold, Winchell and Grant, No. 780.
- Gold, Woodman, No. 784.
- Grahamite, White, No. 723.
- Hübnerite, Blake, No. 52.
- Iron, Castleman, No. 83.

Economic geology—Continued.*Economic products described—Continued.*

- Iron, Clements and Smyth, No. 105.
- Iron, Coleman and Willmot, No. 112.
- Iron, Grant, No. 241.
- Iron, titaniferous, Kemp, No. 370.
- Iron, McInnes, No. 456.
- Iron, Winchell, Nos. 762, 763.
- Kaolin, Hopkins, Nos. 335, 336.
- Lead, Bain, No. 23.
- Lead, Kendall, No. 375.
- Mica, Fuller, No. 197.
- Mica, Holmes, No. 331.
- Mineral waters, Lane, No. 419.
- Natural gas, Lakes, No. 404.
- Natural gas, Orton, No. 506.
- Natural gas, White, No. 722.
- Oil, Knight, No. 390.
- Oil, Orton, No. 505.
- Oil, Watts, No. 700.
- Onyx, Gorby, No. 227.
- Petroleum, Cooper, Nos. 115, 116.
- Petroleum, Fairbanks, No. 179.
- Petroleum, Orton, No. 506.
- Petroleum, White, No. 722.
- Phosphate, Hayes, No. 295.
- Pyrrhotite, Nicol, No. 498.
- Quicksilver, Colquhoun, No. 113.
- Salt, Luther, No. 449.
- Salt, Veatch, No. 674.
- Sapphire, Weed, No. 702.
- Silver, Barlow, No. 32.
- Silver, Brock, No. 67.
- Silver, Fowler, No. 194.
- Silver, Grant, No. 244.
- Silver, Lavagnino, No. 422.
- Silver, Kendall, No. 375.
- Silver, native, Kunz, No. 398.
- Silver, Purington, No. 538.
- Silver, Rickard, No. 548.
- Silver, Tower and Smith, No. 632.
- Silver, Weed, Nos. 701, 702.
- Sodium carbonate, Knapp, No. 386.
- Sulphur, Fulton, No. 210.
- Talc, Nevius, No. 496.
- Titaniferous magnetite, Kemp, No. 372.
- Water supply, Bain, No. 21.
- Water supply, Barbour, No. 29.
- Water supply, Darton, No. 139.
- Water supply, Lane, No. 418.
- Water supply, Leverett, Nos. 431, 432, 433.
- Water supply, Orton, No. 504.
- Water supply, Wilson, No. 755.
- Wolframite, Blake, No. 53.
- Zinc, Bain, No. 23.
- Zinc, Schmitz, No. 569.

Florida.

New Pliocene Polygyra, Johnson, No. 361.

Geologic formations described.

- Absarokite group, Hague, No. 268.
- Acadian, Clarke and Schuchert, No. 101.
- Admiralty till, Willis and Smith, No. 746.
- Ajibik quartzite, Van Hise, No. 669.
- Altamont moraine, Todd, No. 624.
- Animikie, Grant, Nos. 234, 238, 240, 242, 247.
- Animikie, McInnes, No. 456.
- Animikie, Winchell, Nos. 760, 763, 764, 765, 766.

Geologic formations described—Continued.

Animosa, Norton, No. 501.
 Apishapa formation, Hills, No. 319.
 Aquidneck shales, Shaler, Woodworth, and Foerste, No. 582.
 Arago formation, Diller, No. 157.
 Arikaree formation, Darton, No. 139.
 Ashton schists, Shaler, Woodworth, and Foerste, No. 582.
 Atchison shale, Keyes, No. 378.
 Atchison shale, Prosser, No. 535.
 Atlantosaurus beds, Marsh, No. 463.
 Attleboro sandstone, Shaler, Woodworth, and Foerste, No. 582.
 Avalon terrane, Walcott, No. 681.
 Ballard, Hill, 313.
 Barbican, Hill, No. 313.
 Barker formation, Weed, Nos. 701, 702.
 Barker porphyry, Weed, Nos. 701, 702.
 Barrington clays, Fuller, No. 195.
 Bassimanan lake granite, Winchell, No. 760.
 Becraft limestone, Clarke and Schuchert, No. 101.
 Bed-rock series, Turner and Ransome, No. 638.
 Beekmantown limestone, Clarke and Schuchert, No. 101.
 Belt formation, Weed, No. 702.
 Benton formation, Darton, No. 139.
 Bethany limestone, Keyes, No. 378.
 Berkshire schist, Dale, No. 134.
 Beulah clays, Ward, No. 690.
 Black Patch grit, Dale, No. 134.
 Black River limestone, Clarke and Schuchert, No. 101.
 Blackstone series, Shaler, Woodworth, and Foerste, No. 582.
 Bloomington moraine, Leverett, No. 431.
 Bluebird aplite, Weed, No. 704.
 Blue Hills shale, Logan, No. 439.
 Blue Mountain series, Hill, No. 313.
 Boggy shale, Taff, No. 616.
 Bogue Island formation, Hill, No. 313.
 Bohemia conglomerate, Hubbard, No. 343.
 Bonair conglomerate lentil, Campbell, No. 80.
 Bone Lake crystalline schists, Clements and Smyth, No. 105.
 Bowden formation, Hill, No. 313.
 Brito formation, Hayes, No. 296.
 Brule clay, Darton, No. 139.
 Brunswick beds, Kummel, No. 396.
 Buchanan gravels, Beyer, No. 49.
 Buff Bay beds, Hill, No. 313.
 Butte granite, Weed, No. 704.
 Cabotian, Grant, No. 234.
 Cabotian, Winchell, No. 769.
 Cabotian lavas, Winchell, No. 758.
 Cache Creek formation, Dawson, No. 150.
 Calaveras formation, Turner and Ransome, No. 639.
 Cambrie, Clarke and Schuchert, No. 101.
 Cambridge formation, Hill, No. 313.
 Camden chert, Safford and Schuchert, No. 559.
 Canadian, Clarke and Schuchert, No. 101.
 Cantwell conglomerate, Eldridge and Muldrow, No. 172.
 Cape John sandstones, Ami, No. 9.
 Carlile shale, Hills, No. 319.

Geologic formations described—Continued.

Cascade formation, Weed, Nos. 701, 702.
 Castle granite, Weed, No. 702.
 Catadupa beds, Hill, No. 313.
 Catskill sandstone, Clarke and Schuchert, No. 101.
 Cayugan, Clarke and Schuchert, No. 101.
 Cedar Valley limestone, Udden, No. 642.
 Cedar Valley stage, Norton, No. 501.
 Cerro Gordo moraine, Leverett, No. 431.
 Chadron formation, Darton, No. 139.
 Champaign moraine, Leverett, No. 431.
 Champlainic, Clarke and Schuchert, No. 101.
 Chapelton beds, Hill, No. 313.
 Chase formation, Prosser, No. 535.
 Chattanooga shale, Campbell, No. 80.
 Chautauquan, Clarke and Schuchert, No. 101.
 Chazy limestone, Clarke and Schuchert, No. 101.
 Chemung, Luther, No. 449.
 Chemung beds, Clarke and Schuchert, No. 101.
 Cherokee shales, Orton, No. 505.
 Cheshire quartzite, Emerson, No. 176.
 Chesterfield group, Shaler and Woodworth, No. 581.
 Cheyenne sandstone, Prosser, No. 536.
 Chuar terrane, Walcott, No. 681.
 Cincinnati, Clarke and Schuchert, No. 101.
 Clear Creek limestone, Safford and Schuchert, No. 559.
 Clinton, Gilbert, No. 217.
 Clinton beds, Clarke and Schuchert, No. 101.
 Clinton group, Luther, No. 449.
 Coaledo formation, Diller, No. 157.
 Coal Measures, Beede, No. 45.
 Coal Measures, White, No. 719.
 Coastal series, Hill, No. 313.
 Coasters Harbor Island arkose, Shaler, Woodworth, and Foerste, No. 582.
 Cobre formation, Hill, No. 313.
 Coeyaman limestone, Clarke and Schuchert, No. 101.
 Coldwater shales, Lane, No. 418.
 Coles Brook limestone, Emerson, No. 176.
 Colorado formation, Weed, No. 701.
 Conanicut arkose, Shaler, Woodworth, and Foerste, No. 582.
 Conception slate, Walcott, No. 681.
 Copper Mountain greenstone, Schrader, No. 570.
 Cottonwood limestone, Keyes, No. 378.
 Courtland quartzite, Hall, No. 272.
 Couthiching, Grant, No. 247.
 Couthiching, McInnes, No. 456.
 Couthiching, Winchell and Grant, No. 780.
 Cranston beds, Shaler, Woodworth, and Foerste, No. 582.
 Cumberland quartzite, Shaler, Woodworth, and Foerste, No. 582.
 Dakota, Bain, No. 21.
 Dakota formation, Cross, No. 128.
 Dakota formation, Weed, No. 701.
 Dakota sandstone, Darton, No. 139.
 Dakota sandstone, Hills, No. 319.
 Dakota sandstone, Ward, No. 690.
 Davenport beds, Norton, No. 501.
 Des Moines, Bain, No. 21.

Geologic formations described—Continued.

- Des Moines, Macbride, No. 450.
 Des Moines, Udden, No. 642.
 Des Moines stage, Beyer, No. 49.
 Devonian, Clarke and Schuchert, No. 101.
 Dielsma beds, Norton, No. 501.
 Dighton conglomerate group, Shaler, Woodworth, and Foerste, No. 582.
 Dolores formation, Cross, No. 128.
 Dundee limestone, Lane, No. 418.
 Eagle formation, Weed, No. 701.
 East Lee limestone, Emerson, No. 176.
 Eastern sandstone, Hubbard, No. 343.
 Ellis formation, Weed, Nos. 701, 702.
 Empire formation, Diller, No. 157.
 Empire shales, Walcott, No. 681.
 Erian, Clarke and Schuchert, No. 101.
 Esopus grit, Clarke and Schuchert, No. 101.
 Etcheminian terrane, Matthew, No. 469.
 Eureka limestone, Tower and Smith, No. 632.
 Falmouth formation, Hill, No. 313.
 Fayette breccia, Udden, No. 642.
 Flathead formation, Hague, No. 268.
 Fond du Lac sandstone, Winchell, No. 769.
 Forbes limestone, Keyes, No. 378.
 Fort Benton group, Logan, No. 439.
 Fort Hays limestone, Logan, No. 439.
 Franciscan series, Anderson, No. 16.
 Frankenfield, Hill, No. 313.
 Gale sand, Willis and Smith, No. 746.
 Gallatin limestone, Hague, No. 268.
 Gary moraine, Todd, No. 624.
 Genesee shale, Clarke and Schuchert, No. 101.
 Genesee slate, Luther, No. 449.
 Georgia slates, Clarke and Schuchert, No. 101.
 Georgian, Clarke and Schuchert, No. 101.
 Gering formation, Darton, No. 139.
 Godiva limestone, Tower and Smith, No. 632.
 Goose Pond limestone, Emerson, No. 176.
 Gower stage, Norton, No. 501.
 Grand Canyon series, Walcott, No. 681.
 Grand Gulf, Harris and Veatch, No. 283.
 Grand Portage graywacke, Winchell, No. 766.
 Graneros shale, Hills, No. 319.
 Grenville series, Barlow, No. 32.
 Greyson shale, Walcott, No. 681.
 Groveland formation, Clements and Smyth, No. 105.
 Groveland formation, Van Hise, No. 669.
 Guertie sand, Taff, No. 616.
 Guelph dolomite, Clarke and Schuchert, No. 101.
 Gunnison formation, Cross, No. 128.
 Hamilton beds, Clarke and Schuchert, No. 101.
 Hamilton group, Grabau, No. 230.
 Hamilton group, Luther, No. 449.
 Hartshorne sandstone, Taff, No. 616.
 Hay Creek coal formation, Ward, No. 690.
 Helderbergian, Clarke and Schuchert, No. 101.
 Helena limestone, Walcott, No. 681.
 Hemlock formation, Clements, No. 104.
 Hemlock formation, Clements and Smyth, No. 105.
 Highwood syenite, Weed, No. 701.
 Hill River moraine, Todd, No. 629.
 Hinckley sandstone, Winchell, No. 757.

Geologic formations described—Continued.

- Hinsdale gneiss and limestone, Emerson, No. 176.
 Hoosac schist, Emerson, No. 176.
 Hop Brook limestone, Emerson, No. 176.
 Hudson shale, Dale, No. 134.
 Hudson River group, Luther, No. 449.
 Humbug series, Tower and Smith, No. 632.
 Huronian, Barlow, No. 32.
 Huronian (Lower) series, Clements and Smyth, No. 105.
 Huronian series, Van Hise, No. 669.
 Illinoian drift, Calvin, No. 78.
 Illinoian drift, Leverett, No. 431.
 Illinoian till, Udden, No. 642.
 Independence shale, Norton, No. 501.
 Inwood limestone, Eckel, No. 168.
 Iola limestone, Keyes, No. 378.
 Iowan drift, Calvin, No. 78.
 Iowan drift, Leverett, No. 431.
 Ishpeming formation, Van Hise, No. 669.
 Itasca moraine, Todd, No. 629.
 Ithaca beds, Clarke and Schuchert, No. 101.
 Jackson, Harris and Veatch, No. 283.
 Jackson series, Lane, No. 418.
 Jefferson limestone, Hague, No. 268.
 Jerusalem, Hill, No. 313.
 Kansan drift, Bain, Nos. 21, 22.
 Kansan drift, Beyer, No. 49.
 Kansan drift, Calvin, No. 78.
 Kansan drift, Macbride, No. 450.
 Kansan till, Norton, No. 501.
 Kansan till, Udden, No. 642.
 Kearsarge conglomerate, Hubbard, No. 343.
 Keewatin, Grant, Nos. 239, 241, 247.
 Keewatin, McInnes, No. 456.
 Keewatin, Winchell, Nos. 760, 764, 767.
 Keewatin, Upper and Lower, Winchell, No. 756.
 Keewatin, Winchell and Grant, No. 780.
 Kenai series, Eldridge and Muldrow, No. 172.
 Kendal Green slate, Hobbs, No. 320.
 Keweenaw series, Lane, No. 417.
 Keweenaw series, Walcott, No. 681.
 Keweenawan, Grant, Nos. 234, 238, 240, 241, 242.
 Keweenawan, Winchell, Nos. 757, 766.
 Kinderhook limestone, Macbride, No. 450.
 Kingston beds, Clarke and Schuchert, No. 101.
 Kingston formation, Hill, No. 313.
 Kingstown series, Shaler, Woodworth, and Foerste, No. 582.
 Klutena series, Schrader, No. 570.
 Kona dolomite, Van Hise, No. 669.
 Ladentown trap, Kummel, No. 395.
 Lafayette, Harris and Veatch, No. 283.
 Lake Bonneville beds, Tower and Smith, No. 633.
 Lake Ketih moraine, Todd, No. 629.
 La Plata formation, Cross, No. 128.
 Laramie formation, Hills, No. 319.
 Laramie formation, Weed, No. 702.
 Laurentian, Barlow, No. 32.
 Laurentian, McInnes, No. 456.
 Laurentian, Winchell and Grant, No. 780.
 Lawrence shale, Keyes, No. 378.
 Le Claire beds, Norton, No. 501.

Geologic formations described—Continued.

Lee formation, Campbell, No. 80.
 Lee gneiss, Emerson, No. 176.
 Lignitic, Harris and Veatch, No. 283.
 Lincoln slate, Hobbs, No. 320.
 Little Compton shales, Shaler, Woodworth, and Foerste, No. 582.
 Livingston formation, Weed, No. 702.
 Lockatong group, Kummel, No. 396.
 Lockport limestone, Clarke and Schuchert, No. 101.
 Loco diorite, Weed, No. 702.
 Loess, Bain, No. 21.
 Loess, Beyer, No. 49.
 Loess, Hall and Sardeson, No. 274.
 Loess, Norton, No. 501.
 Loess, Shaler, No. 577.
 Loess, Todd, No. 624.
 Loess, Udden, No. 642.
 Loess formation, Sardeson, No. 566.
 Loess formation, Shimek, No. 583.
 Logie Green, Hill, No. 313.
 Lorraine beds, Clarke and Schuchert, No. 131.
 Lower Claiborne, Harris and Veatch, No. 283.
 Lower Helderberg, Girty, No. 222.
 Lower Magnesian limestone, Buckley, No. 73.
 Lower quartzite, Eckel, No. 168.
 Lowville limestone, Clarke and Schuchert, No. 101.
 McAlester shale, Taff, No. 616.
 McElmo formation, Cross, No. 128.
 Machuca formation, Hayes, No. 296.
 Madison limestone, Hague, No. 268.
 Madison limestone, Weed, Nos. 701, 702.
 Manchioneal formation, Hill, No. 313.
 Mancos shale, Cross, No. 128.
 Manhattan schist, Eckel, No. 168.
 Manitou, Grant, No. 234.
 Manitou series, Winchell, Nos. 760, 766.
 Manlius limestone, Clarke and Schuchert, No. 101.
 Mansfield formation, Clements, No. 104.
 Mansfield formation, Clements and Smyth, No. 105.
 Marcellus shale, Clarke and Schuchert, No. 101.
 Marion formation, Prosser, No. 535.
 Marseilles moraine, Leverett, No. 431.
 Marsh shales, Walcott, No. 681.
 Marshall series, Lane, No. 418.
 Marquette series, Van Hise, No. 669.
 Matanuska series, Mendenhall, No. 475.
 May Pen beds, Hill, No. 313.
 Medina, Gilbert, No. 217.
 Medina sandstone, Clarke and Schuchert, No. 101.
 Medina sandstone, Luther, No. 449.
 Mesnard quartzite, Van Hise, No. 669.
 Michigamme formation, Van Hise, No. 669.
 Michigan series, Lane, No. 418.
 Midland sands, Willis and Smith, No. 746.
 Midway, Harris and Veatch, No. 283.
 Millers River conglomerate, Shaler, Woodworth, and Foerste, No. 582.
 Minho beds, Hill, No. 313.
 Mississippian series, Beyer, No. 49.
 Mohawkian, Clarke and Schuchert, No. 101.

Geologic formations described—Continued.

Momable slate, Walcott, No. 681.
 Monarch formation, Weed, Nos. 701, 702.
 Moneague formation, Hill, No. 313.
 Monroe, Lane, No. 418.
 Montana formation, Hague, No. 268.
 Montana formation, Weed, No. 701.
 Montego formation, Hill, No. 313.
 Montpelier beds, Hill, No. 313.
 Naparima marls, Harrison and Jukes-Browne, No. 284.
 Naples beds, Clarke and Schuchert, No. 101.
 Nasina series, Peters and Brooks, No. 524.
 Natick conglomerate, Shaler, Woodworth, and Foerste, No. 582.
 Negaunee formation, Van Hise, No. 669.
 Neihart porphyry, Weed, No. 702.
 Neihart quartzite, Weed, No. 702.
 Neihart quartzite and sandstone, Walcott, No. 681.
 Newark system, Kummel, Nos. 395, 396.
 New Glasgow conglomerate, Ami, No. 9.
 Newland limestone, Walcott, No. 681.
 Newman limestone, Campbell, No. 80.
 Newport Neck shales, Shaler, Woodworth, and Foerste, No. 582.
 New Scotland beds, Clarke and Schuchert, No. 101.
 Niagara, Gilbert, No. 217.
 Niagara formation, Buckley, No. 73.
 Niagara group, Luther, No. 449.
 Niagaran, Clarke and Schuchert, No. 101.
 Nilkola formation, Peters and Brooks, No. 524.
 Niobrara formation, Darton, No. 139.
 Niobrara formation, Hills, No. 319.
 Niobrara group, Logan, No. 439.
 Normandy limestone, Campbell, No. 80.
 Nussbaum formation, Hills, No. 319.
 Oak Creek beds, Ward, No. 690.
 Oceanic series, Hill, No. 313.
 Ogallala formation, Darton, No. 139.
 Olive grit, Dale, No. 134.
 Oneida conglomerate, Clarke and Schuchert, No. 101.
 Oneida conglomerate, Luther, No. 449.
 Oneonta beds, Clarke and Schuchert, No. 101.
 Onondaga group, Luther, No. 449.
 Onondaga limestone, Clarke and Schuchert, No. 101.
 Ontarian, Winchell and Grant, No. 780.
 Ontaric, Clarke and Schuchert, No. 101.
 Orca series, Schrader, No. 570.
 Oriskanian, Clarke and Schuchert, No. 101.
 Oriskany beds, Clarke and Schuchert, No. 101.
 Oriskany sandstone, Luther, No. 449.
 Osceola till, Willis and Smith, No. 746.
 Oswegan, Clarke and Schuchert, No. 101.
 Otis limestone, Norton, No. 501.
 Otterdale sandstone, Shaler and Woodworth, No. 581.
 Panama formation, Hershey, No. 302.
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- Buried loess in Story County, Iowa, Beyer, No. 50.
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 Acacia lamarensis n. sp., Knowlton, No. 392.
 macrosperma n. sp., Knowlton, No. 392.
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 Acanthoclema Hall, Grabau, No. 229.
 scutulatum Hall, Grabau, No. 229.
 Acantholenus siniger Matt., Matthew, No. 468.
 Acer vivarium n. sp., Knowlton, No. 392.
 Aceratherium incisivum, Osborn, No. 511.
 Acerularia gracilis Billings sp., Lambe, No. 414.
 Acherontemys heckmani n. sp., Hay, No. 287.
 Actæodictya n. gen., Hall and Clarke, Nos. 275, 277.
 (?) eccentrica Hall (sp.), Hall and Clarke, Nos. 275, 277.
 marsipus n. sp., Hall and Clarke, Nos. 275, 277.

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Genera and species described—Continued.

- Acrogenia Hall, Grabau, No. 229.
 prolifera Hall, Grabau, No. 229.
 Acrotreta gemma Billings, Walcott, No. 682.
 Actæon cosmanni Ald., Harris, No. 281.
 idoneus Con., Harris, No. 281.
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 Actinopteria Hall, Grabau, No. 229.
 boydi Hall, Grabau, No. 229.
 decussata Hall, Grabau, No. 229.
 Actinosepia canadensis n. gen. et sp., Whiteaves, No. 726.
 Actinostroma Nicholson sp., Girty, No. 223.
 Adeorbis dalli n. sp., Harris, No. 281.
 liniferus Ald., Harris, No. 281.
 sylværupis n. sp., Harris, No. 281.
 Aechmina Jones and Holl, Grabau, No. 229.
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 Aesopus erectus, Harris, No. 281.
 Aglithodictya n. gen., Hall and Clarke, Nos. 275, 276.
 numulina n. sp., Hall and Clarke, Nos. 275, 276.
 Agnostus bidens Meek, Walcott, No. 682.
 interstrictus White, Walcott, No. 682.
 pisiformis Linn., Matthew, No. 468.
 tumidosus Hall and Whitfield, Walcott, No. 682.
 Agoniatites, Clarke, No. 98.
 Alethopteris ambigua Lx., White, No. 720.
 serlii (Brongn.) Goepp, White, Nos. 719, 720.
 var. missouriensis n. var., White, No. 720.
 Aloiopteris erosa (Guth.), White, No. 720.
 winslovii D. W., White, No. 719.
 (Corynepteris?) winslovii n. sp., White, No. 720.
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 nana Grabau, Grabau, No. 229.
 parva n. sp., Weller, No. 711.
 præumbona Hall, Grabau, No. 229.
 spinosa Clarke, Grabau, No. 229.
 umbonata (Conrad), Grabau, No. 229.
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 Amnicola ? cretacea n. sp., Stanton, No. 603.
 Amplexus Sowerby, Grabau, No. 229.
 hamiltoniæ Hall, Grabau, No. 229.
 (?) intermittens Hall, Grabau, No. 229.
 Ampullina recurva var., Harris, No. 281.
 Anaptoгония Cope, Cope No. 118.
 hiatidens Cope, Cope, No. 118.
 Anarcestes plebeiformis Hall (sp.), Clarke, No. 98.

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Genera and species described—Continued.

- Anatina (Cercomya) punctata n. sp., Stanton, No. 603.
- Ancilla (Olivula) staminea Con., Harris, No. 281.
- Ancyrocrinus Hall, Grabau, No. 229.
- bulbosus Hall, Grabau, No. 229.
- Andromeda delicatula Lx., Hollick, No. 328.
- eolignitica n. sp., Hollick, No. 328.
- Anisotrypa sp., Girty, No. 223.
- Annularia sphenophylloides (Zenk.) Guth., var. intermedia Lx., White, No. 719.
- stellata (Schloth.) Wood, White, Nos. 719, 720.
- var. angustifolia Lx. ?, White, No. 720.
- Anogmus polymicrodus Stewart, Stewart, No. 611.
- Anomocare stenotides Matt., Matthew, No. 468.
- Aparchites (?) robustus n. sp., Matthew, No. 468.
- Aphlebia cf. filiciformis (Guth.) Sterzel., White, No. 720.
- germani Zeill., White, No. 720.
- membranacea (Lx.), White, No. 720.
- spinosa (Lx.), White, No. 720.
- subgoldenbergii n. sp., White, No. 720.
- sp. White, No. 720.
- Apocynophyllum sapindifolium n. sp., Hollick, No. 328.
- Aporrhais gracilis Ald., Harris, No. 281.
- Arachnophyllum diffuens Milne-Edwards and Haime sp., Lambe, No. 414.
- eximium Billings sp., Lambe, No. 414.
- Aralia notata Lx., Knowlton, No. 392.
- serrulata n. sp., Knowlton, No. 392.
- whitneyi Lx., Knowlton, No. 392.
- wrightii n. sp., Knowlton, No. 392.
- Araucarioxylon hoptertonæ Knowlton n. sp., Ward, No. 690.
- virginianum Kn., Knowlton, No. 391.
- Araucarites cuneatus Ward n. sp., Fontaine, No. 188.
- wyomingensis n. sp., Fontaine, No. 188.
- Archimides sp., Girty, No. 223.
- Arctostaphylos elliptica n. sp., Knowlton, No. 392.
- Arionellus levis n. sp., Walcott, No. 682.
- sp. undet., Walcott, No. 682.
- Artocarpus dubia n. sp., Hollick, No. 328.
- lessigiana (Lx.) Kn., Hollick, No. 328.
- pungens Lx., Hollick, No. 328.
- quercoides n. sp., Knowlton, No. 392.
- Arystidictya n. gen., Hall and Clarke, Nos. 275, 276.
- elegans n. sp., Hall and Clarke, Nos. 275, 276.
- nodifera n. sp., Hall and Clarke, Nos. 275, 276.
- Aspidella terranova Billings, Walcott, No. 681.
- Asplenium dicksonianum Heer?, Fontaine, No. 188.
- dicksonianum Herr, Ward, No. 690.
- erosum? (Lx.) Kn., Knowlton, No. 392.
- haguei n. sp., Knowlton, No. 392.
- iddingsi n. sp., Knowlton, No. 392.

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Genera and species described—Continued.

- Asplenium magnum n. sp., Knowlton, No. 392.
- remotidens n. sp., Knowlton, No. 392.
- Astarte meeki n. sp., Stanton, No. 603.
- smithvillensis Har., Harris, No. 280.
- Asterophyllites equisetiformis (Schloth.) Brongn., White, Nos. 719, 720.
- longifolius (Stb.) Brongn., White, No. 720.
- Astroecenia conica n. sp., Logan, No. 438.
- Astrodapsis tumidus Rémond, Merriam, No. 480.
- whitneyi Rémond, Merriam, No. 480.
- Astyris subfraxa n. sp., Harris, No. 281.
- Athrotaxopsis tenuicaulis Fontaine, Fontaine, No. 188.
- Athyris McCoy, Grabau, No. 229.
- incrassata Hall (?), Girty, No. 223.
- lamellosa Léveillé, Girty, No. 223.
- lamellosa (Léveillé), Weller, No. 711.
- spiriferoides (Eaton), Grabau, No. 229.
- vitata var. triplicata n. var., Girty, No. 223.
- (Cleiothyris?) sp., Weller, No. 711.
- Atrypa Dalman, Grabau, No. 229.
- missouriensis Miller, Girty, No. 223.
- reticularis Linné, Girty, No. 223.
- reticularis (Linnæus), Grabau, No. 229.
- spinosa Hall, Grabau, No. 229.
- Atys robustoides Ald., Harris, No. 281.
- Aulopora Goldfuss, Grabau, No. 229.
- geometrica n. sp., Girty, No. 223.
- serpens Goldf., Grabau, No. 229.
- tubæformis Goldf., Grabau, No. 229.
- Autodetus Lindström, Grabau, No. 229.
- lindstroemi Clarke, Grabau, No. 229.
- Aveilana bullata Mort., Harris, No. 280.
- Avicula (Oxytoma) wyomingensis n. sp., Stanton, No. 603.
- Aviculopecten McCoy, Grabau, No. 229.
- exacutus Hall, Grabau, No. 229.
- insignis Hall, Grabau, No. 229.
- occidentalis (Shumard), Girty, No. 222.
- princeps (Conrad), Grabau, No. 229.
- Bactrites Sandberger, Grabau, No. 229.
- Bactrites G. Sandberger, Clarke, No. 96.
- aciculum Hall (sp.), Clarke, No. 96.
- aciculum (Hall), Grabau, No. 229.
- gracilior Clarke, Grabau, No. 229.
- gracilior n. sp., Clarke, No. 96.
- Baculites anceps, Harris, No. 280.
- Baieropsis adiantifolia Fontaine, Fontaine, No. 188.
- pluripartita Fontaine?, Fontaine, No. 188.
- Bairdia McCoy, Grabau, No. 229.
- leguminoides Ulrich, Grabau, No. 229.
- Barbatia cuculoides var., Harris, No. 280.
- Bathyuriscus Meek?, Walcott, No. 682.
- Bellerophon Montfort, Grabau, No. 229.
- Bellerophon (sensu stricto), Girty, No. 222.
- leda Hall, Grabau, No. 229.
- patulus Hall, Grabau, No. 229.
- Bellinurus grandævus Jones & Woodw., Jones and Woodward, No. 366.
- Beloceras Hyatt, Clarke, No. 96.
- lynx n. sp., Clarke, No. 96.
- (?) napelesense n. sp., Clarke, No. 96.

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Genera and species described—Continued.

- Beltina* n. gen., Walcott, No. 681.
danai n. sp., Walcott, No. 681.
Betula iddingsi n. sp., Knowlton, No. 392.
Beyrichia McCoy, Grabau, No. 229.
 hamiltonensis Jones, Grabau, No. 229.
 (?) *primæva* n. sp., Matthew, No. 468.
 tricolina Ulrich, Grabau, No. 229.
Billingsella coloradoensis Shumard, Walcott, No. 682.
Bison bison (Linnaeus), Lucas, No. 444.
 alleni Marsh, Lucas, No. 444.
 antiquus Leidy, Lucas, No. 444.
 crassicornis Richardson, Lucas, No. 444.
 ferox Marsh, Lucas, No. 444.
 latifrons (Harlan), Lucas, No. 444.
 occidentalis Lucas, Lucas, Nos. 444, 446.
Blarina simplicidens Cope, Cope, No. 118.
Botryllopora Nicholson, Grabau, No. 229.
 socialis Nicholson, Grabau, No. 229.
Botryodictya n. gen., Hall and Clarke, Nos. 275, 276.
 ramosa (sp.), Hall and Clarke, Nos. 275, 276.
Brittsia n. gen., White, No. 720.
 problematica n. sp., White, No. 720.
Bucania ? sp., Weller, No. 711.
Bucanopsis, Girty, No. 222.
Bucinanops ellipticum Whitf., Harris, Nos. 280, 281.
Bullia buccinoides Merriam, Merriam, No. 481.
Bullioopsis choctavensis Ald., Harris, No. 281.
Bunomeryx Wortman, Scott, No. 576.
Cadulus abruptus Ald. and M., Harris, No. 281.
Calamites Suckow, White, No. 720.
 cannæformis Schloth., White, No. 719.
 cistii Brongn., White, No. 720.
 ramosis Artis, White, No. 720.
Calamodendron approximatum (Schloth.) Brongn., White, No. 719.
Calamostachys ovalis Lx. ?, White, No. 720.
Calapoccia Billings, Lambe, No. 413.
 canadensis Billings, Lambe, No. 413.
Calathospongia n. gen., Hall and Clarke, Nos. 275, 277.
 amphorina n. sp., Hall and Clarke, Nos. 275, 277.
 carceralis n. sp., Hall and Clarke, Nos. 275, 277.
 carlin, n. sp., Hall and Clarke, Nos. 275, 277.
 (?) *magnifica*, n. sp., Hall and Clarke, Nos. 275, 277.
 redfieldi Hall (sp.), Hall and Clarke, Nos. 275, 277.
 (?) *sacculus* Hall (sp.), Hall and Clarke, Nos. 275, 277.
 tiffanyi n. sp., Hall and Clarke, Nos. 275, 277.
Callipteridium inæquale Lx., White, Nos. 719, 720.
 mansfieldi Lx., White, No. 719.
 membranaceum Lx., White, No. 720.
 sullivantii (Lx.) Weiss, White, Nos. 719, 720.
Calyptrea aperta Sol., Harris, No. 281.
Calyptrophorus trinodiferus Con., Harris, No. 280.

Paleontology—Continued.

Genera and species described—Continued.

- Camaphorpha ringens* Swallow, Girty, No. 223.
Camaratœchia Hall and Clarke, Grabau, No. 229.
 camarifera Winchell (?), Girty, No. 223.
 congregata (Conrad), Grabau, No. 229.
 dotis Hall, Grabau, No. 229.
 herrickana n. sp., Girty, No. 223.
 horsfordi Hall, Grabau, No. 229.
 metallica White, Girty, No. 223.
 sappho Hall, Grabau, No. 229.
 sappho Hall (?), Girty, No. 223.
 sp., Girty, No. 223.
Camelomeryx Scott, Scott, No. 576.
Campophyllum sp., Girty, No. 222.
Camptonectes burlingtonensis Gabb, Harris, No. 280.
 bellistriatus Meek, Stanton, No. 603.
 var. *distans* n. var., Stanton, No. 603.
 pertenuistriatus Hall and Whitfield, Stanton, No. 603.
 platessiformis White, Stanton, No. 603.
Cancellaria graciloides Ald., Harris, No. 281.
 var. *bella* n. var., Harris, No. 281.
 lanceolata Ald., Harris, No. 281.
 maricana, Harris, No. 281.
 quercollis var. *greggi*, Harris, Nos. 280, 281.
 sylværupis Har., Harris, No. 281.
 tortiplica Con., Harris, No. 281.
Canis priscolatrans Cope, Cope, No. 118.
Cannapora Hall, Lambe, No. 413.
 jubeiformis Hall, Lambe, No. 413.
Capulus expansus Whitf., Harris, No. 281.
 sp., Weller, No. 711.
Carbonia rankiniana, Dawson, No. 152.
Cardiocarpon (Samaropsis) branneri Fairch. and D. W., White, No. 720.
Cardiola Broderip, Grabau, No. 229.
 retrostriata von Buch, Grabau, No. 229.
Cardiopsis (?) *erectus* n. sp., Weller, No. 711.
 radiata Meek and Worthen, Weller, No. 711.
Cardium alabamense, Harris, No. 280.
 tuomeyi Ald., Harris, No. 280.
Caricaeus lavicornus Cope, Cope, No. 118.
 sp. Cope, No. 118.
Caricella podagrina Dall., Harris, No. 281.
Carpites pedunculatus n. sp., Knowlton, No. 392.
Carpolithus barrensis Ward n. sp., Fontaine, No. 188.
 fasciculatus Fontaine, No. 188.
 fenarius Ward, n. sp., Fontaine, No. 188.
 montium-nigrorum Ward, n. sp., Fontaine, No. 188.
 virginiensis Fontaine, Fontaine, No. 188.
Cassidaria brevidentata Ald. var., Harris, Nos. 280, 281.
 dubia Ald., Harris, No. 281.
Castanea pulchella n. sp., Knowlton, No. 392.
Castor fibre Linn, Cope, No. 118.
Celastrophyllyum pulchrum n. sp., Ward, No. 690.

Paleontology—Continued.

Genera and species described—Continued.

- Celastrus culveri* n. sp., Knowlton, No. 392.
ellipticus n. sp., Knowlton, No. 392.
inaequalis n. sp., Knowlton, No. 392.
taurinus Ward (?), Hollick, No. 328.
veatchi n. sp., Hollick, No. 328.
- Centronella* Billings, Grabau, No. 229.
impressa Hall, Grabau, No. 229.
- Cephalotaxopsis magnifolia* Fontaine, Fontaine, No. 188.
- Ceratodictya* n. gen., Hall and Clarke, Nos. 275, 276.
annulata Hall (sp.), Hall and Clarke, Nos. 275, 276.
carpenteriana n. sp., Hall and Clarke, Nos. 275, 276.
centeta n. sp., Hall and Clarke, Nos. 275, 276.
cincta Hall (sp.), Hall and Clarke, Nos. 275, 276.
zonata n. sp., Hall and Clarke, Nos. 275, 276.
- Ceratopora* n. gen., Grabau, Nos. 229, 231.
dichotoma n. sp., Grabau, Nos. 229, 231.
distorta n. sp., Grabau, No. 231.
jacksoni n. sp., Grabau, Nos. 229, 231.
- Cericroinus monticulatus* n. sp., Beede, No. 44.
- Cerithiopsis conica* Ald., Harris, No. 281.
fluvialis Ald., Harris, No. 281.
terebropsis n. sp., Harris, No. 281.
- Cerithium delicatulum* Ald., Harris, No. 281.
tombigbeense Ald., Harris, No. 281.
- Chonetes* Fischer de Waldheim, Grabau, No. 229.
coronatus (Conrad), Grabau, No. 229.
illinoisensis Worthen, Weller, No. 711.
lepidus Hall, Grabau, No. 229.
loganensis Hall and Whitfield, Girty, No. 223.
mesolobius Norwood and Pratten, Girty, No. 222.
mucronatus Hall, Grabau, No. 229.
ornatus Shumard, Girty, No. 223.
scitulus Hall, Grabau, No. 229.
setigerus (Hall), Grabau, No. 229.
vicinus (Castelnau), Grabau, No. 229. —
- Chonophyllum canadense* Billings sp., Lambe, No. 414.
nymphale Billings, sp., Lambe, No. 414.
- Chrysodomus engonata* Heilp., Harris, No. 281.
striata Ald., Harris, No. 281.
- Cinnamomum buchi* Heer, Hollick, No. 328.
scheuchzeri Heer (?), Hollick, No. 328.
sezannense Wat., Hollick, No. 328.
spectabile Heer, Knowlton, No. 392.
- Cissites ingens* Lx., Ward, No. 690.
salisburyi Lx., Ward, No. 590.
- Cissus haguei* n. sp., Knowlton, No. 392.
- Cladocora jamaicensis* n. sp., Vaughan, No. 672.
- Cladodus claypolei*, Hay, No. 286.
corriger, Hay, No. 286.
- Cladophleris parva* Fontaine ?, Fontaine, No. 188.
wyomingensis n. sp., Fontaine, No. 188.

Paleontology—Continued.

Genera and species described—Continued.

- Cladopora* Hall, Lambe, No. 413.
crassa Rominger, Lambe, No. 413.
cryptodens Billings (sp.), Lambe, No. 413.
fischeri Billings (sp.), Lambe, No. 413.
frondosa Nicholson (sp.), Lambe, No. 413.
labiosa Billings, Lambe, No. 413.
lichenoides Rominger, Lambe, No. 413.
multiopora Hall, Lambe, No. 413.
roemeri Billings (sp.), Lambe, No. 413.
turgida Rominger, Lambe, No. 413.
 sp., Girty, No. 223.
- Clathrosporgia* Hall, Hall and Clarke, Nos. 275, 276.
abacus Hall, Hall and Clarke, Nos. 275, 277.
caprodonta n. sp., Hall and Clarke, Nos. 275, 277.
 (?) *desmia* n. sp., Hall and Clarke, Nos. 275, 276.
fenestrata Hall (sp.), Hall and Clarke, Nos. 275, 276.
 (?) *hamiltonensis* Hall (sp.), Hall and Clarke, Nos. 275, 276.
 (?) *irregularis* Hall (sp.), Hall and Clarke, Nos. 275, 276.
 (?) *tomaculum* Hall (sp.), Hall and Clarke, Nos. 275, 276.
vascellum Hall (sp.), Hall and Clarke, Nos. 275, 276.
- Clavilithes kennedyanus* Har., Harris, No. 281.
- Clemmys insculpta* Le Conte, Cope, No. 118.
percussus Cope, Cope, No. 118.
- Cleodictya* Hall, Hall and Clarke, Nos. 275, 277.
claypolei n. sp., Hall and Clarke, Nos. 275, 277.
gloriosa Hall, Hall and Clarke, Nos. 275, 277.
mohri Hall, Hall and Clarke, Nos. 275, 277.
- Clepsydrosporgia matutina* n. sp., Hall and Clarke, Nos. 275, 276.
- Cliothyris crassicaudipalis* White, Girty, No. 223.
 var. *nana* n. var., Girty, No. 223.
roissyl Walcott (non Léveillé), Girty, No. 223.
- Clisiophyllum billingsi* Dawson sp., Lambe, No. 414.
teres, n. sp., Girty, No. 223.
- Clypeaster?* *brewerianus* Rémond, Merriam, No. 480.
- Cœnites* Eichwald, Lambe, No. 413.
juniperina Eichwald, Lambe, No. 413.
lunata Nicholson and Hinde, Lambe, No. 413.
selwynii Nicholson (sp.), Lambe, No. 413.
- Coleolus* Hall, Grabau, No. 229.
 (?) *gracilis* Hall, Grabau, No. 229.
tenuicinctum, Grabau, No. 229.
- Columnaria rugosa* Billings sp., Lambe, No. 414.
- Conocardium* Bronn, Grabau, No. 229.
crassifrons (Conrad), Grabau, No. 229.
eboraceum Hall, Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

Conocardium—Continued.

normale Hall, Grabau, No. 229.

pulchellum White and Whitfield (?), Girty, No. 223.

Conomitra tracyi n. sp., Harris, No. 281.

Conostichus broadheadi Lx., White, No. 720.
prolifer Lx., White, No. 720.

Conularia Miller, Grabau, No. 229.

undulata Conrad, Grabau, No. 229.

Corbula alabamensis var., Harris, No. 280.
sp., Logan, No. 440.

Cordaite Unger, White, No. 720.

communis Lx., White, No. 720.

diversifolius Lx.?, White, No. 720.

Cordianthus dichotomus Lx., White, No. 720.
ovatus Lx., White, No. 720.

Cornulina armigera, Harris, No. 281.

Cornulites Schlottheim, Grabau, No. 229.

hamiltoniae n. sp., Grabau, No. 229.

Cornus newberryi Hollick, Knowlton, No. 392.

wrightii n. sp., Knowlton, No. 392.

studerii Heer (?), Hollick, No. 328.

Corylus macquarryi (Forbes) Heer, Knowlton, No. 392.

Crania Retzius, Grabau, No. 229.

crenistriata Hall, Grabau, No. 229.

lævis Keyes, Girty, No. 223.

Craniella Oehlert, Grabau, No. 229.

hamiltoniae Hall, Grabau, No. 229.

Craspedophyllum Dybowski, Grabau, No. 229.

archiaci Billings, Grabau, No. 229.

subcaespitosum (Nicholson), Grabau, No. 229.

Crassatella vadosa Mort., Harris, No. 280.
sp., Harris, No. 280.

Credneria? pachyphylla n. sp., Knowlton, No. 392.

Crenipecten lævis n. sp., Weller, No. 711.

winchelli (Meek)?, Weller, No. 711.

Crepicephalus Owen, Grabau, No. 682.
texanus Shumard sp., Walcott, No. 682.

Cryphaeus Green, Grabau, No. 229.

boothi Green, Grabau, No. 229.

var. calliteles Green, Grabau, No. 229.

Cryptocarya eolignitica n. sp., Hollick, No. 328.

Cryptodietya Hall, Hall and Clarke, Nos. 275, 276.

alleni Hall, Hall and Clarke, Nos. 275, 276.

Cryptonella Hall, Grabau, No. 229.

planirostris Hall, Grabau, No. 229.

rectirostris Hall, Grabau, No. 229.

Cryptozoon? occidentale Dawson, Walcott, No. 681.

Chuarina circularis n. gen., et sp., Walcott, No. 681.

Ctenobolbina Ulrich, Grabau, No. 229.

minima Ulrich, Grabau, No. 229.

Cucullea haguei Meek, Stanton, No. 603.

Cyathophyllum Goldfuss, Grabau, No. 229.

anticostiense Billings, Lambe, No. 414.

articulatum Wahlenberg, Lambe, No. 414.

caespitosum Goldfuss (?), Girty, No. 223.

conatum Hall, Grabau, No. 229.

dawsoni n. sp., Lambe, No. 414.

spenceri n. sp., Lambe, No. 414.

Paleontology—Continued.

Genera and species described—Continued.

Cycadeoidea Buckland, Ward, No. 690.

aspera n. sp., Ward, Nos. 690, 691.

colei n. sp., Ward, Nos. 690, 691.

colossal n. sp., Ward, Nos. 690, 691.

cicatricula n. sp., Ward, Nos. 690, 691.

dacotensis (McBride) Ward emend, Ward, Nos. 690, 691.

excelsa n. sp., Ward, Nos. 690, 691.

formosa n. sp., Ward, Nos. 690, 691.

furcata n. sp., Ward, Nos. 690, 691.

ingens n. sp., Ward, Nos. 690, 691.

ingens Ward, Wieland, Nos. 733, 734.

insolita n. sp., Ward, Nos. 690, 691.

jenneyana Ward, Ward, Nos. 690, 691.

marshiana n. sp., Ward, Nos. 690, 691.

mcbridei n. sp., Ward, Nos. 690, 691.

minnekahtensis n. sp., Ward, Nos. 690, 691.

nana n. sp., Ward, Nos. 690, 691.

occidentalis n. sp., Ward, Nos. 690, 691.

paynei n. sp., Ward, Nos. 690, 691.

pulcherrima n. sp., Ward, Nos. 690, 691.

stillwelli n. sp., Ward, Nos. 690, 691.

turrita n. sp., Ward, Nos. 690, 691.

wellsi n. sp., Ward, Nos. 690, 691.

wielandi n. sp., Ward, No. 690.

Cycadeospermum rotundatum Fontaine, Fontaine, No. 188.

Cyclocadia Lindley and Hutton, White, No. 720.

brittsii n. sp., White, No. 720.

Cyclostrema aldrichi n. sp., Harris, No. 281.

Cylichna aldrichi Lang., Harris, No. 281.

sylværupus n. sp., Harris, No. 281.

Cyllene bellana Har., Harris, No. 281.

Cyperacites giganteus n. sp., Knowlton, No. 392.

(?) sp., Knowlton, No. 392.

Cyperites sp., Hollick, No. 328.

Cyphaspis Burmeister, Grabau, No. 229.

ornata Hall, Grabau, No. 229.

Cyprea smithi Ald., Harris, No. 281.

Cypricardella Hall, Grabau, No. 229.

bellistriata (Conrad), Grabau, No. 229.

Cypricardia? haguei n. sp., Stanton, No. 603.

Cypricardinia Hall?, Grabau, No. 229.

indenta (Conrad), Grabau, No. 229.

Cyprina? cinnabarensis n. sp., Stanton, No. 603.

(?) iddingsi n. sp., Stanton, No. 603.

Cyrina Davidson, Grabau, No. 229.

hamiltonensis Hall, Grabau, No. 229.

var. recta Hall, Grabau, No. 229.

Cyrtyolymenia neapolitana Clarke, Clarke, No. 96.

Cystiphyllum Lonsdale, Grabau, No. 229.

aggregatum Billings, Lambe, No. 414.

americanum E. and H., Grabau, No. 229.

conifollis Hall, Grabau, No. 229.

niagarensis Hall sp., Lambe, No. 414.

varians Hall, Grabau, No. 229.

vesiculosum Goldfuss sp., Lambe, No. 414.

Cytheria (?) newcombei, Merriam, No. 481.

vancouverensis, Merriam, No. 481.

Czekanowskia nervosa Heer, Fontaine, No. 188.

Dalmanella subcarinata Hall, Girty, No. 222.

Paleontology—Continued.

Genera and species described—Continued.

- Dalmanites pleuroptyx* (Green), Girty, No. 222.
- Daphnogene kanii* (?) Heer, Hollick, No. 328.
- Deinodon Leidy*, Hay, No. 289.
- Dendracis cantabrigiensis* n. sp., Vaughan, No. 672.
- Dentalium microstria* Heilp., Harris, No. 281.
- multannulatum* Ald., Harris, No. 281.
- thalloides* Con., Harris, No. 281.
- Derbya keokuk* Hall (?), Girty, No. 223.
- Devallia* ? *montana* n. sp., Knowlton, No. 392.
- Dicellomus* Hall, Walcott, No. 682.
- nanus* M. and H. sp., Walcott, No. 682.
- Dicranophyllum* ? sp., White, No. 720.
- Dictyopteris carrii* (Lx.), White, No. 719.
- gilkersonensis* D. W., White, No. 719.
- Dictyospongia* n. gen., Hall and Clarke, Nos. 275, 276.
- almondensis* n. sp., Hall and Clarke, Nos. 275, 276.
- (?) *bacteria* n. sp., Hall and Clarke, Nos. 275, 276.
- charia* n. sp., Hall and Clarke, Nos. 275, 276.
- cylindrica* Whitfield (sp.), Hall and Clarke, Nos. 275, 277.
- eumorphia* n. sp., Hall and Clarke, Nos. 275, 276.
- haplea* n. sp., Hall and Clarke, Nos. 275, 276.
- lophura* n. sp., Hall and Clarke, Nos. 275, 276.
- (?) *marcellia* Clarke (sp.), Hall and Clarke, Nos. 275, 276.
- morini* Barrois (sp.), Hall and Clarke, Nos. 275, 276.
- sceptrum* Hall (sp.), Hall and Clarke, Nos. 275, 276.
- strea* n. sp., Hall and Clarke, Nos. 275, 276.
- (?) *stylina* n. sp., Hall and Clarke, Nos. 275, 277.
- (*Mastodictya*) *osculada* n. sp., Hall and Clarke, Nos. 275, 277.
- Dielasma* King, Grabau, No. 229.
- utah* Hall and Whitfield, Girty, No. 223.
- sp. ?, Weller, No. 711.
- (*Cranæna*) *romingeri* Hall, Grabau, No. 229.
- Diospyros haguei* n. sp., Knowlton, No. 392.
- lamarensis* n. sp., Knowlton, No. 392.
- Diphyphyllum cæspitosum* Hall sp., Lambe, No. 414.
- multicaule* Hall sp., Lambe, No. 414.
- simcoense* Billings sp., Lambe, No. 414.
- Diplodocus longus*, Osborn, No. 509.
- Diplodus politus* Newberry, Eastman, No. 167.
- priscus* n. sp., Eastman, No. 167.
- striatus* n. sp., Eastman, No. 167.
- Diploria* Milne-Edwards and Haime, Vaughan, No. 672.
- conferticostata* n. sp., Vaughan, No. 672.
- var. *columnaria* n. var., Vaughan, No. 672.

Paleontology—Continued.

Genera and species described—Continued.

- Dipterus calvini* Eastman, Udden, No. 644.
- contraversus, Hay, No. 286.
- Discochelix verrilli* n. sp. (by Aldrich), Harris, No. 281.
- Distyonema* Hall, Grabau, No. 229.
- Dombeyopsis platanoides* Lx., Knowlton, No. 392.
- Dorycrinus* Roemer, Grabau, No. 229.
- Dryophyllum longipetillatum* n. sp., Knowlton, No. 392.
- Dryopteris weedii* n. sp., Knowlton, No. 392.
- xantholithense* n. sp., Knowlton, No. 392.
- Dryptosaurus kenabekides*, Hay, No. 289.
- Duncanella fanningana* (Safford), Girty, No. 222.
- rudis* Girty, Girty, No. 222.
- Eccyliomphalus Portloch*, Grabau, No. 229.
- laxus* (Hall), Grabau, No. 229.
- Echinarachinus gibbsi* Rémond, Merriam, No. 480.
- excentricus* Eschscholtz, Merriam, No. 480.
- (?) *ectenodictya* Hall, Hall and Clarke, Nos. 275, 277.
- implexa* Hall, Hall and Clarke, Nos. 275, 277.
- Edmondia burlingtonensis* M. and W., Weller, No. 711.
- missouriensis* n. sp., Weller, No. 711.
- ? *reflexa* Meek, Girty, No. 222.
- subtruncata* Meek ?, Girty, No. 222.
- Elæodendron polymorpha* Ward, Knowlton, No. 392.
- Elymella* Hall, Grabau, No. 229.
- missouriensis* Miller and Gurley, Weller, No. 711.
- nuculoides* Hall, Grabau, No. 229.
- Empo lisbonensis* n. sp., Stewart, No. 610.
- Endothyra baileyi* var. *parva* n. var., Girty, No. 223.
- Entomis* Jones, Grabau, No. 229.
- rhomboidea* Jones, Grabau, No. 229.
- Equisetum canaliculatum* n. sp., Knowlton, No. 392.
- decidium* n. sp., Knowlton, No. 392.
- haguei* n. sp., Knowlton, No. 392.
- lesquereuxii* Kn. Knowlton, No. 392.
- virginicum* Fontaine, Fontaine, No. 188.
- Equus* Linn, Cope, No. 118.
- fraternus* Leidy, Cope, No. 118.
- phlegon*, Hay, No. 289.
- Eremopteris bolibata* n. sp., White, No. 720.
- missouriensis* Lx., White, No. 720.
- Eridopora* (?) sp., Girty, No. 223.
- Erisocrinus megalobrachus* n. sp., Beede, No. 44.
- Erithizon* ? *dorsatum* Linn, Cope, No. 118.
- Eryops* Cope, Williston, No. 750.
- Eulima exilis* Gabb, Harris, No. 281.
- (*Subularia*) *cainei* n. sp., Harris, No. 281.
- Eulimella tenua* Gabb, Harris, No. 281.
- Eumetria verneuilliana* Hall, Girty, No. 223.
- Euomphalus* n. sp., Girty, No. 222.

Paleontology—Continued.

Genera and species described—Continued.

- Eupachyrinus tuberculatus* Meek and Worthen, Girty, No. 222.
 sp., Girty, No. 222.
Euphemus, Girty, No. 222.
 (?) sp., Weller, No. 711.
Euthria dubia Ald., Harris, No. 281.
Excipulites callipterides (Schimp.) Kidst., White, No. 720.
Exilia pergracilis Harris, No. 281.
Exogyra costata Say, Harris, No. 280.
Fagus undulata n. sp., Knowlton, No. 392.
Fasciolaris sp., Logan, No. 438.
Favosites Lamarck, Grabau, No. 229.
Favosites Lamarck, Lambe, No. 413.
 alpenensis, Lambe, No. 413.
 argus Hall, Grabau, No. 229.
 aspera d'Orbigny, Lambe, No. 413.
 basaltica Goldfuss (sp.), Lambe, No. 413.
 billingsii Rominger, Lambe, No. 413.
 canadensis Billings (sp.), Lambe, No. 413.
 cervicornis Milne-Edwards and Haime, Lambe, No. 413.
 clausa Rominger, Lambe, No. 413.
 conicus Hall, Girty, No. 222.
 digitata Rominger, Lambe, No. 413.
 gaspensis n. sp., Lambe, No. 413.
 gothlandica Lamarck, Lambe, No. 413.
 hamiltoniae Hall, Grabau, No. 229.
 hemispherica Milne-Edwards and Haime, Lambe, No. 413.
 hisingeri Milne-Edwards and Haime, Lambe, No. 413.
 niagarensis Hall, Lambe, No. 413.
 nitella Winchell, Lambe, No. 413.
 radiciformis Rominger, Lambe, No. 413.
 turbinata Billings, Lambe, No. 413.
 sp., Girty, No. 223.
Feistmantelia oblonga Ward, n. sp., Fontaine, No. 188.
Felis eyra Desm., Cope, No. 118.
Fenestella Lonsdale, Girty, No. 223.
Fenestella Miller, Grabau, No. 229.
 emaciata Hall, Grabau, No. 229.
 planiramosa Hall, Grabau, No. 229.
Ficophyllum serratum Fontaine, Fontaine, No. 188.
Ficus artocarpoides ? Lx., Hollick, No. 328.
 deformata n. sp., Knowlton, No. 392.
 densifolia n. sp., Knowlton, No. 392.
 haguei n. sp., Knowlton, No. 392.
 harrisiana n. sp., Hollick, No. 328.
 planicostata Lx., Hollick, No. 328.
 ungeri Lx., Knowlton, No. 392.
 sp., Knowlton, No. 392.
Fissurella alabama n. sp., Harris, No. 281.
Fistulicella Simpson, Grabau, No. 229.
 plana Hall, Grabau, No. 229.
Fistuliporina Simpson, Grabau, No. 229.
 digitata (Hall), Grabau, No. 229.
 micropora (Hall), Grabau, No. 229.
 minuta (Rominger), Grabau, No. 229.
 scrobiculata (Hall), Grabau, No. 229.
 segregata (Hall), Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

- Fletcheria* Milne-Edwards and Haime, Lambe, No. 413.
 incerta Billings (sp.), Lambe, No. 413.
Fraxinus denticulata Heer, Knowlton, No. 392.
 johnstrupi (?) Heer, Hollick, No. 328.
 wrightii n. sp., Knowlton, No. 392.
Fulguroficus triserialis Whitf., Harris, No. 281.
Fusoficula juvenis Whitf., Harris, Nos. 280, 281.
Fusulina cylindrica, Smith, No. 592.
Fusus bellanus Har., Harris, No. 281.
 harrisi Ald., Harris, No. 280.
 interstriatus Heilp., Harris, No. 281.
 ottonis Ald., Harris, No. 281.
 rugatus Ald., Harris, No. 281.
 subtenuis Heilp., Harris, No. 281.
 sp., Logan, No. 438.
 (*Buccinofusus*) *harrisi* Ald., Harris, No. 281.
Geinitzia jenneyi n. sp., Fontaine, No. 188.
Gennæocrinus W. and S., Grabau, No. 229.
 eucharis (Hall), Grabau, No. 229.
 nyssa (Hall), Grabau, No. 229.
Gephyroceras Hyatt, Clarke, No. 96.
 perlatum Hall (sp.), Clarke, No. 96.
 (?) (*Probeloceras*?) *gunendewa* n. sp., Clarke, No. 96.
Glauconome Goldfuss, Grabau, No. 229.
 carinata Hall, Grabau, No. 229.
Gleichenia zippei (Corda) Heer?, Fontaine, No. 188.
Glossozamites fontaineanus Ward n. sp., Fontaine, No. 188.
Glyptostrobus brookensis (Fontaine) Ward, Fontaine, No. 188.
Gomphoceras Sowerby, Grabau, No. 229.
 lunatum Hall, Grabau, No. 229.
 manes Hall, Grabau, No. 229.
Gongylospongia n. gen., Hall and Clarke, No. 275, 276.
 complanatus Hall, Grabau, No. 229.
 marshi n. sp., Hall and Clarke, Nos. 275, 276.
 rhynchostoma Clarke, Grabau, No. 229.
 sororium Clarke, Grabau, No. 229.
Goniatites de Haan, Grabau, No. 229.
 (*Gephyroceras*) *holzapfeli* Clarke, Grabau, No. 229.
 (*Mantioceras*) *intumescens* Beyrich, Grabau, No. 229.
 (*Probeloceras*) *lutheri* Grabau, No. 229.
 (*Tornoceras*) *bicostatus* Hall, Grabau, No. 229.
 uniangularis Conrad, Grabau, No. 229.
Goniobasis ? (?) *increbescens* n. sp., Stanton, No. 603.
 pealei n. sp., Stanton, No. 603.
Goniophora Phillips, Grabau, No. 229.
 modiomorphoides n. sp., Grabau, Nos. 229, 230.
Gosseletia Barrios, Grabau, No. 229.
 retusa Hall, Grabau, No. 229.
Grammatodon M. and H., Woods, No. 793.
Grammysia de Verneuil, Grabau, No. 229.
 arcuata (Conrad), Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

- Grewiopsis ? aldersoni n. sp., Knowlton, No. 392.
 Griphodictya n. gen., Hall and Clarke, Nos. 275, 277.
 eliphanes n. sp., Hall and Clarke, Nos. 275, 277.
 Gryphæa galceola var. nebrascensis Meek and Hayden, Stanton, No. 603.
 planoconvexa Whitfield, Stanton, No. 603.
 vesicularis Lam., Harris, No. 280.
 Grypodon, Hay, No. 286.
 Gulo liscus Linn, Cope, No. 118.
 Habrocrinus d'Orb., Grabau, No. 229.
 pentadactylus n. sp., Grabau, No. 229.
 Hadrianus schucherti n. sp., Hay, No. 287.
 Hadrophyllyum, E. and H., Grabau, No. 229.
 woodi n. sp., Grabau, No. 229.
 Hagua n. gen., Walcott, No. 682.
 sphaerica n. sp., Walcott, No. 682.
 Hallodictya n. gen., Hall and Clarke, Nos. 275, 276.
 cottoniana n. sp., Hall and Clarke, Nos. 275, 276.
 sciensis n. sp., Hall and Clarke, Nos. 275, 276.
 Halysites Fischer, Lambe, No. 413.
 catenularia L., Lambe, No. 413.
 var. amplitubulata n. var., Lambe, No. 413.
 var. gracilis Hall, Lambe, No. 413.
 var. nitida n. var., Lambe, No. 413.
 var. quebecensis n. var., Lambe, No. 413.
 var. simplex n. var., Lambe, No. 413.
 compacta Rominger, Lambe, No. 413.
 micropora Whitfield, Lambe, No. 413.
 Hederella Hall, Grabau, No. 229.
 canadensis (Nicholson), Grabau, No. 229.
 filiformis (Billings), Grabau, No. 229.
 Helicodictya n. gen., Hall and Clarke, Nos. 275, 276.
 (?) concordia n. sp., Hall and Clarke, Nos. 275, 276.
 (?) scio n. sp., Hall and Clarke, Nos. 275, 276.
 trypania n. sp., Hall and Clarke, Nos. 275, 276.
 Heliolites Dana, Lambe, No. 413.
 inordinata Lonsdale (sp.), Lambe, No. 413.
 interstincta L., Lambe, No. 413.
 subtubulata McCoy (sp.), Lambe, No. 413.
 Heliophyllyum Hall, Grabau, No. 229.
 confuens Hall, Grabau, No. 229.
 halli, E. and H. Grabau, No. 229.
 Helminthoidichnites meeki n. sp., Walcott, No. 681.
 (?) neiheartensis n. sp., Walcott, No. 681.
 (?) spiralis n. sp., Walcott, No. 681.
 Helodus wortheni, Hay, No. 286.
 Heteroceras sp., Harris, No. 280.
 Hicoria crescentia n. sp., Knowlton, No. 392.
 culveri n. sp., Knowlton, No. 392.
 Hindia sphaeroidalis Duncan, Girty, No. 222.

Paleontology—Continued.

Genera and species described—Continued.

- Hipponyx sylværupis n. sp., Harris, No. 281.
 Holasterella wrighti var. americana n. var., Girty, No. 223.
 Homalonotus Koenig, Grabau, No. 229.
 dekayi (Green), Grabau, No. 229.
 Homomya gallatinensis n. sp., Stanton, No. 603.
 Hybodus copei, Hay, No. 286.
 Hydnoceras Conrad, Hall and Clarke, Nos. 275, 276.
 anthracis n. sp., Hall and Clarke, Nos. 275, 276.
 avoca n. sp., Hall and Clarke, Nos. 275, 276.
 barroisi nom. nov., Hall and Clarke, Nos. 275, 276.
 bathense n. sp., Hall and Clarke, Nos. 275, 276.
 botroedema n. sp., Hall and Clarke, Nos. 275, 276.
 eumeces n. sp., Hall and Clarke, Nos. 275, 276.
 euthales n. sp., Hall and Clarke, Nos. 275, 276.
 gracile n. sp., Hall and Clarke, Nos. 275, 276.
 hyastrum n. sp., Hall and Clarke, Nos. 275, 276.
 jeumontense n. sp., Hall and Clarke, Nos. 275, 276.
 legatum, Hall and Clarke, Nos. 275, 276.
 lutheri n. sp., Hall and Clarke, Nos. 275, 276.
 multinodosum n. sp., Hall and Clarke, Nos. 275, 276.
 nodosum Hall (sp.), Hall and Clarke, Nos. 275, 276.
 phymatodes n. sp., Hall and Clarke, Nos. 275, 276.
 rhopalum n. sp., Hall and Clarke, Nos. 275, 276.
 tuberosum Conrad, Hall and Clarke, Nos. 275, 276.
 var. glossema n. var., Hall and Clarke, Nos. 275, 276.
 variabile n. sp., Hall and Clarke, Nos. 275, 276.
 Hydriodictya n. gen., Hall and Clarke, Nos. 275, 276.
 cylix n. sp., Hall and Clarke, Nos. 275, 276.
 nephelia n. sp., Hall and Clarke, Nos. 275, 276.
 patula Hall, Hall and Clarke, Nos. 275, 276.
 Hyolithes primordialialis Hall, Walcott, No. 682.
 Hyomeryx Marsh, Scott, No. 576.
 Hypertragulus Cope, Scott, No. 576.
 Hyphantania Vanuxem (emendata), Hall and Clarke, Nos. 275, 276.
 chemungensis Vanuxem, Hall and Clarke, Nos. 275, 276.
 Hysterites cordaitis Gr. 'Ey., White, No. 720.
 Icanodus ? limitaris, Hay, No. 286.
 Ilex ? affinis (?) Lx., Hollick, No. 328.
 sp., Hollick, No. 328.

Paleontology—Continued.

Genera and species described—Continued.

- Inoceramus acuteplicatus n. sp., Stanton, No. 603.
 barabini Mort., Harris, No. 280.
 Iphidea sculptis Meek, Walcott, No. 682.
 sp. undet., Walcott, No. 682.
 Isochilina Jones, Grabau, No. 229.
 fabacea Jones, Grabau, No. 229.
 Isopholis, Hay, No. 286.
 Juglans crescentia n. sp., Knowlton, No. 392.
 laurifolia n. sp., Knowlton, No. 392.
 rugosa Lx., Hollick, No. 328.
 schimperi Lx., Hollick, No. 328.
 Kellia prima Ald., Harris, No. 280.
 Labechua huronensis Billings sp., Lambe, No. 416.
 Lælaps incrassatus, Hay, No. 289.
 Lagomys palatinus Cope, Cope, No. 118.
 Lapparia dumosa Con. var., Harris, No. 281.
 Latirus tortilis var. nanafalius n. var., Harris, No. 281.
 Laurinoxylon pulchrum n. sp., Knowlton, No. 392.
 Laurus grandis Lx., Knowlton, No. 392.
 montana n. sp., Knowlton, No. 392.
 perdita n. sp., Knowlton, No. 392.
 princeps Heer., Knowlton, No. 392.
 primigenia Ung., Hollick, No. 328.
 primigenia? Ung., Knowlton, No. 392.
 pseudo-carolinensis Lx., Knowlton, No. 392.
 Laxispira imbricalis, Harris, No. 280.
 Lebedictya n. gen., Hall and Clarke, Nos. 275, 277.
 crinita n. sp., Hall and Clarke, Nos. 275, 277.
 Leda aldrichiana Har. var., Harris, No. 280.
 corpulentoides Ald. var., Harris, No. 280.
 Legumen planulatum Con., Harris, No. 280.
 Leguminosites lamarensis n. sp., Knowlton, No. 392.
 lesquereuxiana Kn., Knowlton, No. 392.
 Leiopteria Hall, Grabau, No. 229.
 conradi Hall, Grabau, No. 229.
 rafinesquii Hall, Grabau, No. 229.
 Leiorhynchus Hall, Grabau, No. 229.
 dubium Hall, Grabau, No. 229.
 limitare (Vanuxem), Grabau, No. 229.
 multicostus Hall, Grabau, No. 229.
 quadricostatum (Vanuxem), Grabau, No. 229.
 Leiostoma (?) ludoviciana n. sp., Harris, No. 280.
 Leperditia Ronault, Grabau, No. 229.
 hudsonica Hall, Grabau, No. 229.
 Lepidocystis vesicularis Lx., White, No. 719.
 Lepidodendron Sternberg, White, No. 720.
 brittsli Lx., White, No. 720.
 choctavense n. sp., White, No. 719.
 clypeatum Lx., White, No. 720.
 lanceolatum Lx., White, No. 720.
 modulatum Lx., White, No. 719.
 rimosum var. recorticatedum n. var., White, No. 720.
 scutatum Lx., White, No. 720.

Paleontology—Continued.

Genera and species described—Continued.

- Lepidophloios Sternberg, White, No. 720.
 van ingeni n. sp., White, No. 720.
 (?) cf. van ingeni, White, No. 720.
 Lepidophyllum brevifolium Lx., White, No. 719.
 jenneyi n. sp., White, No. 720.
 lanceolatum L. and H., White, No. 719.
 cf. mansfieldi Lx., White, No. 719.
 missouriense n. sp., White, No. 720.
 truncatum Lx., White, No. 719.
 Lepidostrobus princeps Lx., White, No. 720.
 Lepidoxylon anomalum Lx., White, No. 720.
 Leptæna rhomboidalis Wilkens, Girty, Nos. 222, 223.
 Leptecodon rectus n. gen. et sp., Williston, No. 748.
 Leptichthys n. gen., Stewart, No. 612.
 agilis n. sp., Stewart, No. 612.
 Leptomeryx Leidy, Scott, No. 576.
 Leptophyllia agassizi n. sp., Vaughan, No. 672.
 Leptoreodon Wortman, Scott, No. 576.
 Leptostrobus (?) alatus Ward n. sp., Fontaine, No. 188.
 longifolius Fontaine, Fontaine, No. 188.
 Leptotragulus Scott and Osborn, Scott, No. 576.
 Lepus sylvaticus Bachm., Cope, No. 118.
 Levibuccinum lineatum Con., Harris, No. 281.
 Levifusus indentus n. sp., Harris, Nos. 280, 281.
 pagoda Heilp., Harris, Nos. 280, 281.
 supraplanus n. sp., Harris, Nos. 280, 281.
 trabeatus Con., Harris, No. 281.
 trabeatus Con. var.?, Harris, No. 280.
 Lichenalia Hall, Grabau, No. 229.
 stellata Hall, Grabau, No. 229.
 Lichenaria typa W. and S., Sardeson, No. 567.
 Lima pelagica Mort., Harris, No. 280.
 Limnocyon riparius, Marsh, No. 464.
 Linearia metastrata, Harris, No. 280.
 Lingula Bruguière, Grabau, No. 229.
 delia Hall, Grabau, No. 229.
 mytiloides Sowerby?, Girty, No. 222.
 spatulata Vanuxem, Grabau, No. 229.
 (Glossina) leana Hall, Grabau, No. 229.
 Lingulella subgenus of Obolus, Walcott, No. 683.
 Linopteris gilkersonensis n. sp., White, No. 720.
 Liorhynchus haguei n. sp., Girty, No. 223.
 Liostracus parvus n. sp., Walcott, No. 682.
 Liotia granulata Lea, Harris, No. 281.
 Lithostrotion macounii n. sp., Lambe, No. 414.
 sp., Girty, No. 223.
 Litsea cuneata n. sp., Knowlton, No. 392.
 Loculipora Hall, Grabau, No. 229.
 perforata Hall, Grabau, No. 229.
 Lonsdaleia pictoense Billings sp., Lambe, No. 414.
 Loxonema Phillips, Grabau, No. 229.
 attenuatum Hall?, Girty, No. 222.
 breviculum Hall, Grabau, No. 229.
 ? coapta Hall, Grabau, No. 229.
 delicatum n. sp., Girty, No. 223.
 delphicola Hall, Grabau, No. 229.
 hamiltoniæ Hall, Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

Loxonema—Continued.

(?) sp., Girty, No. 223.

sp., Weller, No. 711.

Lucina ozarkana Har., Harris, No. 280.

Lunulicardium Munster, Grabau, No. 229.

curtum Hall, Grabau, No. 229.

fragile Hall, Grabau, No. 229.

Lutra rhoadsii Cope, Cope, No. 118.

Lyellia Milne-Edwards and Haime, Lambe, No. 413.

affinis Billings, Lambe, No. 413.

americana Milne-Edwards and Haime, Lambe, No. 413.

decipiens Rominger, Lambe, No. 413.

exigua Billings (sp.), Lambe, No. 413.

superba Billings, Lambe, No. 413.

Lygodium kaulfussii Heer, Knowlton, No. 392.

Lynx calcaratus Cope, Cope, No. 118.

Lyopora Nich. and Eth. jun., Lambe, No. 413.

goldfussi Billings (sp.), Lambe, No. 413.

Lyrodietya Hall, Hall and Clarke, Nos. 275, 277.

(?) burlingtonensis Hall (sp.), Hall and Clarke, Nos. 275, 277.

romingeri Hall, Hall and Clarke, Nos. 275, 277.

Lysactinella Girty, Hall and Clarke, Nos. 275, 276.

Machærodus Kaupp, Cope, No. 118.

gracilis Cope, Cope, No. 118.

Macrodon Lycett, Grabau, No. 229.

Macrodon Lycett, Woods, No. 793.

hamiltonia Hall, Grabau, No. 229.

sp., Weller, No. 711.

Macron philadelphicus n. sp., Harris, No. 281.

Mactra bistrata Har., Harris, No. 280.

Magnolia culveri n. sp. Knowlton, No. 392.

hilgardiana Lx., Hollick, No. 328.

lanceolata Lx., Hollick, No. 328.

microphylla n. sp., Knowlton, No. 392.

(?) pollardi n. sp., Knowlton, No. 392.

spectabilis n. sp., Knowlton, No. 392.

Malapoenna lamarensis n. sp., Knowlton, No. 392.

Manticeras accelerans n. sp., Clarke, No. 96.

apprimatum n. sp., Clarke, No. 96.

contractum n. sp., Clarke, No. 96.

fasciculatum n. sp., Clarke, No. 96.

nodifer Clarke, Clarke, No. 96.

oxy n. sp., Clarke, No. 96.

pattersoni Hall (sp.), Clarke, No. 96.

var. styliophilum, n. var., Clarke, No. 96.

rhynchostoma n. sp., Clarke, No. 96.

simulator Hall (sp.), Clarke, No. 96.

sororium n. sp., Clarke, No. 96.

tardum n. sp., Clarke, No. 96.

vagans n. sp., Clarke, No. 96.

Mariopteris capitata n. sp., White, No. 719.

muricata (Schloth) Zeill., White, No. 719.

cf. nervosa (Brongn.) Zeill., White, No. 720.

occidentalis n. sp., White, No. 719.

villosa n. var., White, No. 719.

sillimanni (Brongn.), White, No. 719.

Paleontology—Continued.

Genera and species described—Continued.

Mariopteris—Continued.

phenopteroides (Lx.) Zeill., White, No. 720.

sp., White, No. 720.

n. sp. ? White, No. 720.

Martinia rostrata n. sp., Girty, No. 223.

Mastodon americanus Leidy, Cope, No. 118.

Mathilda leana Ald., Harris, No. 281.

Matonidium althausii (Dunker) Ward n. comb., Fontaine, No. 188.

Mazzalina plena Ald., Harris, No. 280.

var. plenus, Harris, No. 281.

Megalichthys, Hay, No. 286.

Megalonyx loxodon Cope, Cope, No. 118.

scalper Cope, Cope, No. 118.

tortulus Cope, Cope, No. 118.

wheatleyi Cope, Cope, No. 118.

Megambonia lata Hall, Girty, No. 222.

Melania sylværupis n. sp., Harris, No. 281.

trigemmata Con., Harris, No. 281.

Melanopsis anita Ald., Harris, No. 281.

planoidea Ald., Harris, No. 281.

Menophyllum (?) excavatum n. sp., Girty, No. 223.

Mephitis Linn., Cope, No. 118.

fossidens Cope, Cope, No. 118.

leptops Cope, Cope, No. 118.

obtusatus Cope, Cope, No. 118.

orthostichus Cope, Cope, No. 118.

Meristella Hall, Grabau, No. 229.

arcuata var. atoka n. var., Girty, No. 222.

barrisi Hall, Grabau, No. 229.

haskinsi Hall, Grabau, No. 229.

rostrata Hall, Grabau, No. 229.

Mesalia pumila var. alabamensis Whitf., Harris, No. 281.

Mesogaulus ballensis n. gen et sp., Riggs, No. 550.

Mesomorpha catadupensis n. sp., Vaughan, No. 672.

Matadoxides magnificus n. sp., Matthew, No. 470.

Metula sylværupis n. sp., Harris, No. 281.

Michelinia de Koninck, Lambe, No. 413.

clappii Milne-Edwards and Haime, Lambe, No. 413.

convexa d'Orbigny, Lambe, No. 413.

favositoidea Billings em. (favosioidea), Lambe, No. 413.

placenta White, Girty, No. 223.

Micmacca van ingeni Matt., Matthew, No. 468.

Microtus dideltus Cope, Cope, No. 118.

diluvianus Cope, Cope, No. 118.

involutus Cope, Cope, No. 118.

speothen Cope, Cope, No. 118.

Mitra hatchetigbeensis Ald., Harris, No. 281.

pergracilis Con., Harris, No. 281.

Mitrella alabamensis Ald. and M., Harris, No. 281.

mississippiensis Ald., Harris, No. 281.

Modiella Hall, Grabau, No. 229.

Modiola alabamensis Ald., Harris, No. 280.

pygmæa (Conrad), Grabau, No. 229.

stubbis n. sp., Harris, No. 280.

sp., Logan, No. 440.

Paleontology—Continued.*Genera and species described—Continued.*

- Modiomorpha Hall, Grabau, No. 229.
 alata (Conrad), Grabau, No. 229.
 concentrica (Conrad), Grabau, No. 229.
 northviewensis n. sp., Weller, No. 711.
 subalata (Conrad), Grabau, No. 229.
 Monilopora Nich. and Eth. jr., Grabau, No. 231.
 antiqua Whiteaves, Grabau, No. 231.
 beecheri n. sp., Grabau, No. 231.
 crassa (McCoy), Grabau, No. 231.
 Moniloporidæ n. fam., Grabau, No. 341.
 Monopteris ? subalata n. sp., Beede and Rogers, No. 46.
 Monotrypa Nicholson, Grabau, No. 229.
 amplexens n. sp., Grabau, No. 229.
 fructicosa (Hall), Grabau, No. 229.
 (?) furcata (Hall), Grabau, No. 229.
 Moorea Jones and Kirby, Grabau, No. 229.
 bicornuta Ulrich, Grabau, No. 229.
 Moultonia northviewensis n. sp., Weller, No. 711.
 Multicolumnastrea n. gen., Vaughan, No. 672.
 cyathiformis (Duncan), Vaughan, No. 672.
 Murchisonia marcouiana Geinitz, Girty, No. 222.
 Muricidea imbricatula, Harris, No. 281.
 Musophyllum complicatum Lx., Knowlton, No. 392.
 Mustela diluviana Cope, Cope, No. 118.
 Myalina ? exasperata n. sp., Beede, No. 44.
 Myliobatis leidy, Hay, No. 286.
 Mylodon ? harlanii Owen, Cope, No. 118.
 Mylohyus Cope, Cope, No. 118.
 nasutus Leidy, Cope, No. 118.
 pennsylvanicus Leidy, Cope, No. 118.
 tetragonus Cope, Cope, No. 118.
 Myrica bolanderi ? Lx., Knowlton, No. 392.
 lamarensis n. sp., Knowlton, No. 392.
 wardii n. sp., Knowlton, No. 392.
 Nageiopsis angustifolia Fontaine ?, Fontaine, No. 188.
 longifolia Fontaine, Fontaine, No. 188.
 Nassa cancellata Lea, Harris, No. 281.
 exilis Con., Harris, No. 280.
 newcombei Merriam, Merriam, No. 481.
 Natica alabamiensis, Harris, No. 280.
 aperta Whitf., Harris, Nos. 280, 281.
 eminula Har., Harris, No. 280.
 eminula Har. var., Harris, No. 281.
 magno-umbilicata Lea, Harris, No. 281.
 (Neverita) onusta Whitf., Harris, No. 281.
 (Lacunaria) alabamiensis Whitf., Harris, No. 281.
 erecta Whitf., Harris, No. 281.
 semilunata, Harris, No. 281.
 (Stigaticus) clarkeana Ald., Harris, No. 281.
 Naticopsis (?) sp., Girty, No. 223.
 Nautilus Breynius, Grabau, No. 229.
 magister Hall, Grabau, No. 229.
 (Centroceras) marcellensis (Vanuxem), Grabau, No. 229.
 Neitheia quinquecostata ? (Sow.) Mort., Harris, No. 280.
 Neritina wyomingensis n. sp., Stanton, No. 603.

Paleontology—Continued.*Genera and species described—Continued.*

- Néuropteris Brongniart, 1822, White, No. 720.
 caudata D. W., White, No. 719.
 dilatata (L. and H.) Lx., White, No. 720.
 griffithii Lx., White, No. 719.
 harrisi n. sp., White, No. 719.
 jenneyi D. W., White, No. 719.
 missouriensis Lx., White, Nos. 719, 720.
 var. nervosa n. var., White, No. 719.
 scheuchzeri Hoffm., White, Nos. 719, 720.
 Niso umbilicata Lea, Harris, No. 281.
 Nucleospira Hall, Grabau, No. 229.
 concinna Hall, Grabau, No. 229.
 Nucula Lamarek, Grabau, No. 229.
 corbuliformis Hall, Grabau, No. 229.
 pulchella n. sp., Beede and Rogers, No. 46.
 Nuculana-arata (Hall), Girty, No. 222.
 Nuculites Conrad, Grabau, No. 229.
 nyssa Hall, Grabau, No. 229.
 oblongatus Hall, Grabau, No. 229.
 tryqueter Conrad, Grabau, No. 229.
 Nyctopora Nicholson, Lambe, No. 413.
 billingsi Nicholson, Lambe, No. 413.
 Obolella gamagei n. sp., Hobbs, No. 320.
 loperi n. sp., Walcott, No. 683.
 mickwitzii n. sp., Walcott, No. 683.
 namouna n. sp., Walcott, No. 683.
 pandemia n. sp., Walcott, No. 683.
 rhea n. sp., Walcott, No. 683.
 Obolus Eichwald, Walcott, No. 683.
 anceps n. sp., Walcott, No. 683.
 (Lingulella) argutus n. sp., Walcott, No. 683.
 auga n. sp., Walcott, No. 683.
 bellus n. sp., Walcott, No. 683.
 bellulus n. sp., Walcott, No. 683.
 desideratus n. sp., Walcott, No. 683.
 dubius n. sp., Walcott, No. 683.
 ellsi n. sp., Walcott, No. 683.
 euglyphus n. sp., Walcott, No. 683.
 franklinensis n. sp., Walcott, No. 683.
 hayesi n. sp., Walcott, No. 683.
 helena n. sp., Walcott, No. 683.
 ino sp., Walcott, No. 683.
 lamborni var. minimus n. var., Walcott, No. 683.
 leos n. sp., Walcott, No. 683.
 lineolatus n. sp., Walcott, No. 683.
 mosia var. osceola n. var., Walcott, No. 683.
 nanno n. sp., Walcott, No. 683.
 oweni n. sp., Walcott, No. 683.
 phaon n. sp., Walcott, No. 683.
 pogonipensis n. sp., Walcott, No. 683.
 prindlei n. sp., Walcott, No. 683.
 punctatus n. sp., Walcott, No. 683.
 rogersi n. sp., Walcott, No. 683.
 rotundatus n. sp., Walcott, No. 683.
 similis n. sp., Walcott, No. 683.
 sinoe n. sp., Walcott, No. 683.
 tarpa n. sp., Walcott, No. 683.
 willisi n. sp., Walcott, No. 683.
 zetis n. sp., Walcott, No. 683.
 (Lingulepis) Hall, Walcott, No. 682.
 acuminatus var. meeki, Walcott, No. 682.

Paleontology—Continued.

Genera and species described—Continued.

- Odontoperis* ? *bradleyi* Lx., White, No. 720.
wortheni Lx., White, No. 719.
Oligocarpia cf. *gutbieri* Goepf., White, No. 720.
missouriensis n. sp., White, No. 720.
Oligoporus ? *minutus* n. sp., Beede, No. 44.
Olivella *mediavia*, Harris, No. 281.
Omphalophloios cyclostigma (Lx.) D. W., White, No. 720.
Omphyma eriphyle Billings sp., Lambe, No. 414.
Onoclea minima n. sp., Knowlton, No. 392.
Oppelia ? sp. Stanton, No. 603.
Orbiculoidea d'Orbigny, Grabau, No. 229.
doria Hall, Grabau, No. 229.
iodiensis Vanuxem, Grabau, No. 229.
media Hall, Grabau, No. 229.
(?) *Oromeryx* Marsh, Scott, No. 576.
Orthis ? *remnicha* Winchell, Walcott, No. 682.
(?) *sandbergi* Winchell, Walcott, No. 682.
Orthoceras Breynius, Grabau, No. 229.
aulax Hall, Grabau, No. 229.
chemungense Swallow, Weller, No. 711.
constrictum Vanuxem, Grabau, No. 229.
emaceratum Hall, Grabau, No. 229.
eriense Hall, Grabau, No. 229.
exile Hall, Grabau, No. 229.
nuntium Hall, Grabau, No. 229.
rude Hall, Girty, No. 222.
subulatum Hall, Grabau, No. 229.
telamon Hall, Grabau, No. 229.
Orthonota Conrad, Grabau, No. 229.
(?) *parvula* Hall, Grabau, No. 229.
Orthothropia strophomenoides Hall, Girty, No. 222.
Orthothetes Fischer de Waldheim, Grabau, No. 229.
arctostriatus Hall, Grabau, No. 229.
chemungensis (Conrad), Weller, No. 711.
inæqualis Hall, Girty, No. 223.
perversus Hall, Grabau, No. 229.
Oryctocephalus reynoldsi n. sp., Reed, No. 542.
Osmotherium Cope, Cope, No. 118.
spelæum Cope, Cope, No. 118.
Osmunda affinis Lx., Knowlton, No. 392.
Ostrea attenuata n. sp., Logan, No. 440.
beloiti n. sp., Logan, No. 438.
canonensis n. sp., Logan, No. 440.
congesta Conrad, Logan, No. 440.
crenula n. sp., Logan, 440.
crenulimarginata, Harris, No. 280.
exogyroidea n. sp., Logan, No. 440.
incurva n. sp., Logan, No. 440.
jewellensis n. sp., Logan, No. 440.
kansasensis n. sp., Logan, No. 440.
larva, Harris, No. 280.
lata n. sp., Logan, No. 440.
leclii n. sp., Logan, No. 440.
plumosa, Harris, No. 280.
pulaskensis, Harris, No. 280.
thiræ, Harris, No. 280.
strigilecula White, Stanton, No. 603.
welleri n. sp., Logan, No. 440.
willistoni n. sp., Logan, No. 440.
Pachyphyllum sp., Girty, No. 223.

Paleontology—Continued.

Genera and species described—Continued.

- Pachyrhizodus minimus*, Stewart, No. 609.
Palaoneilo Hall, Grabau, No. 229.
constricta (Conrad), Grabau, No. 229.
constricta (Conrad) ?, Weller, No. 711.
emarginata (Conrad), Grabau, No. 229.
fecunda Hall, Grabau, No. 229.
muta Hall, Grabau, No. 229.
tennistriata Hall, Grabau, No. 229.
truncata Hall, Weller, No. 711.
Paleotrochis, Williams, No. 741.
Paleschara Hall, Grabau, No. 229.
amplectens Hall, Grabau, No. 229.
intercella Hall, Grabau, No. 229.
reticulata Hall, Grabau, No. 229.
Paliurus columbi Heer, Knowlton, No. 392.
minimus n. sp., Knowlton, No. 392.
zizyphoides ? Lx., Knowlton, No. 392.
Parabatrachus, Hay, No. 286.
Paracyclas Hall, Grabau, No. 229.
lirata (Conrad), Grabau, No. 229.
Parazyga Hall and Clarke, Grabau, No. 229.
hirsuta Hall, Grabau, No. 229.
Patella geometrica Merriam, Merriam, No. 481.
Patellostium, Girty, No. 222.
nodocostatum (Gurley), Girty, No. 222.
Pecopteris cf. *arborescens* (Schloth.) Brongn., White, No. 720.
borealis Brongn., Fontaine, No. 188.
clintoni Lx., White, No. 720.
dentata Brongn. (non Will.), White, No. 719.
geyleriana Nathorst, Fontaine, No. 188.
jenneyi n. sp., White, No. 720.
lesquereuxii D. W., White, No. 719.
oreopteridia (Schloth.) Stb., White, No. 719.
polymorpha Brongn., White, No. 719.
pseudovestita n. sp., White, No. 720.
richardsoni n. sp., White, No. 719.
squamosa Lx., White, No. 720.
unita Brongn., White, No. 719.
vestita Lx., White, No. 720.
var. minor n. var., White, No. 719.
(Asterotheca) hemitelioides Brongn. ?, White, No. 720.
(Asterotheca) squamosa Lx., White, No. 719.
(Dactylothea) dentata Brongn. (non Will.), White, No. 720.
Pelycictis lobulatus Cope, Cope, No. 118.
Pentacrinus asteriscus Meek and Hayden, Stanton, No. 603.
Pernopecten cooperensis (Shumard), Weller, No. 711.
Persea speciosa Heer, Hollick, No. 328.
Phacops Emmrich, Grabau, No. 229.
hudsonicus Hall, Girty, No. 222.
rana (Green), Grabau, No. 229.
Phaethonides Angelin, Grabau, No. 229.
gemmaeus Hall and Clarke, Grabau, No. 229.
Phanerotinus paradoxus Winchell, Weller, No. 711.
Philline alabamensis Ald., Harris, No. 281.

Paleontology—Continued.

Genera and species described—Continued.

- Phillipsastræa billingsi* Calvin, Lambe, No. 414.
verneuili Milne-Edwards and Haime, Lambe, No. 414.
Pholadella Hall, Grabau, No. 229.
radiata (Conrad), Grabau, No. 229.
Pholadomya inæquiplcata n. sp., Stanton, No. 603.
kingi Meek, Stanton, No. 603.
Pholas alatoideus, Harris, No. 280.
Pholidops Hall, Grabau, No. 229.
hamiltoniæ Hall, Grabau, No. 229.
linguloides Hall, Grabau, No. 229.
Phragmites falcata n. sp., Knowlton, No. 392.
? latissima n. sp., Knowlton, No. 392.
Phragmodictya Hall, Hall and Clarke, Nos. 275, 277.
catelliformis Whitfield (sp.), Hall and Clarke, Nos. 275, 277.
(?) crebristriata Hall, Hall and Clarke, Nos. 275, 277.
(?) lineata Hall, Hall and Clarke, Nos. 275, 277.
patelliformis Hall, Hall and Clarke, Nos. 275, 277.
Phyllites crassifolia n. sp., Knowlton, No. 392.
Phyllonotus morulus Har., Harris, No. 281.
Phynchostegium knowltoni, n. sp., Britton, No. 65.
Physospongia Hall, Hall and Clarke, Nos. 275, 277.
alternata Hall, Hall and Clarke, Nos. 275, 277.
colletti Hall, Hall and Clarke, Nos. 275, 277.
dawsoni Whitfield (sp.) Hall and Clarke, Nos. 275, 277.
multibursaria n. sp., Hall and Clarke, Nos. 275, 277.
Pinna peracuta Shumard, Girty, No. 222.
 sp., Harris, No. 280.
Pinus gracilistrobis n. sp., Knowlton, No. 392.
iddingsi n. sp., Knowlton, No. 392.
macrolepis n. sp., Knowlton, No. 392.
premurrayana n. sp., Knowlton, No. 392.
susquaensis Dawson, Fontaine, No. 188.
wardii n. sp., Knowlton, No. 392.
Pityoxylon aldersoni n. sp., Knowlton, No. 392.
amethystinum n. sp., Knowlton, No. 392.
Planolites corrugatus n. sp., Walcott, No. 681.
superbus n. sp., Walcott, No. 681.
Plasmopora Milne-Edwards and Haime 1849, Lambe, No. 413.
foliis Milne-Edwards and Haime, Lambe, No. 413.
petaliformis Lonsdale (sp.), Lambe, No. 413.
Plataninium haydeni Felix, Knowlton, No. 392.
Platanus cissoides Lesquereux ?, Ward, No. 690.
guillelmæ Goepp, Knowlton, No. 392.
montana n. sp., Knowlton, No. 392.
Platecarpus, Williston, No. 747.

Paleontology—Continued.

Genera and species described—Continued.

- Platyceras* Conrad, Girty, No. 223.
 Conrad, Grabau, No. 229.
bucculentum Hall, Grabau, No. 229.
carinatum Hall, Grabau, No. 229.
erectum Hall, Grabau, No. 229.
symmetricum, Grabau, No. 229.
thetis Hall, Grabau, No. 229.
primordialis Hall ?, Walcott, No. 682.
(Orthonychia) attenuatum Hall, Grabau, No. 229.
Platycrinus Miller, Grabau, No. 229.
erianis Hall, Grabau, No. 229.
symmetricus Wachsmuth and Springer, Girty, No. 223.
Platystoma Conrad, Grabau, No. 229.
lineata Conrad, Grabau, No. 229.
 var. *emarginata* n. var., Grabau, No. 229.
minutum n. sp., Girty, No. 223.
Platyschisma missouriensis n. sp., Weller, No. 711.
Platyxytrodus striatus, Hay, No. 286.
Plethomytilus Hall, Grabau, No. 229.
oviformis (Conrad), Grabau, No. 229.
Plethospira ? n. sp., Girty, No. 222.
Pleurodictyum Goldfuss, Grabau, No. 229.
stylopura (Eaton), Grabau, No. 229.
Pleuromya subcompressa Meek, Stanton, No. 603.
Pleurophorus taffi n. sp., Girty, No. 222.
Pleurotoma cainei n. sp., Harris, No. 281.
capax Whitf., Harris, No. 281.
carlottæ, n. sp., Harris, No. 281.
denticulata Edw. var., Harris, No. 281.
exilloides Ald., Harris, No. 281.
georgei n. sp., Harris, No. 281.
huppertzi var., Harris, No. 280.
langdoni Heilp., Harris, No. 281.
mediavia Har. var., Harris, No. 281.
 var. *equiseta* n. var., Harris, 281.
moniliata Heilp., Harris, No. 281.
moorei Gabb, Harris, No. 281.
nebulosa n. sp., Harris, No. 281.
roscoei n. sp., Harris, No. 281.
servatoidea Ald., Harris, No. 281.
silicata Ald., Harris, Nos. 280, 281.
(?) siphus Ald., Harris, No. 281.
terebialis Ald. var., Harris, No. 281.
tombigbeensis Ald., Harris, No. 281.
vaughani var. *sylværupis*, Harris, No. 281.
veatchi n. sp., Harris, No. 281.
(Mangilia) infans Har., Harris, No. 281.
Pleurotomaria de France, Grabau, No. 229.
capillaria Conrad, Grabau, No. 229.
isaacsi Hall and Whitfield (?), Girty, No. 223.
ityis Hall, Grabau, No. 229.
lucinia Hall, Grabau, No. 229.
planidorsalis Hall, Grabau, No. 229.
regulata Hall, Grabau, No. 229.
(?) sp., Girty, No. 223.
Pleurotomella sigma, n. sp., Harris, No. 281.
veatchi n. sp., Harris, No. 280.
Poacites sp., Hollick, No. 328.

Paleontology—Continued.

Genera and species described—Continued.

- Polygnathus* Hinde, Grabau, No. 229.
crassus Hinde, Grabau, No. 229.
cristatus Hinde, Grabau, No. 229.
dubius Hinde, Grabau, No. 229.
linguiformis Hinde, Grabau, No. 229.
nasutus Hinde, Grabau, No. 229.
palmatus Hinde, Grabau, No. 229.
pennatus Hinde, Grabau, No. 229.
princeps Hinde, Grabau, No. 229.
punctatus Hinde, Grabau, No. 229.
solidus Hinde, Grabau, No. 229.
truncatus Hinde, Grabau, No. 229.
tuberculatus Hinde, Grabau, No. 229.
 (?) *simplex* Hinde, Grabau, No. 229.
Polygyra caloosaensis n. sp., Johnson, No. 361.
Polypora McCoy, Grabau, No. 229.
 multiplex Hall, Grabau, No. 229.
Polypsephis, Hay, No. 286.
Populus balsamoides Goepp, Knowlton, No. 392.
 daphnogenoides Ward, Knowlton, No. 392.
 glandulifera Heer, Knowlton, No. 392.
 speciosa Ward, Knowlton, No. 392.
 (?) *vivaria* n. sp., Knowlton, No. 392.
 xantholithensis n. sp., Knowlton, No. 392.
Porcellia cf., *P. rectinoda* Win., Weller, No. 711.
Porites reussiana Duncan, Vaughan, No. 672.
Posidonomya? *spertenuis* n. sp., Beede, No. 44.
recurva n. sp., Beede, No. 44.
Potamides fulvarupis n. sp., Harris, No. 281.
Probeloceras n. gen., Clarke, No. 96.
 lutheri Clarke, 1885, Clarke, No. 96.
Primitia Jones and Hall, Grabau, No. 229.
 pyriformis n. sp., Matthew, No. 468.
 semniculum Jones, Grabau, No. 229.
Primitiopsis Jones, Grabau, No. 229.
 punctulifera (Hall), Grabau, No. 229.
Prioniodus Pander, Grabau, No. 229.
 abbreviatus Hinde, Grabau, No. 229.
 acicularis Hinde, Grabau, No. 229.
 (?) *alatus* Hinde, Grabau, No. 229.
 angulatus Hinde, Grabau, No. 229.
 armatus, Hinde, Grabau, No. 229.
 clavatus Hinde, Grabau, No. 229.
 erraticus Hinde, Grabau, No. 229.
 panderi Hinde, Grabau, No. 229.
 spicatus Hinde, Grabau, No. 229.
Prionotropis woolgari Meek, Logan, No. 438.
Prismodictya n. gen., Hall and Clarke, Nos. 275, 276.
 allegania n. sp., Hall and Clarke, Nos. 275, 276.
 amicitiæ n. sp., Hall and Clarke, Nos. 275, 276.
 aulophia n. sp., Hall and Clarke, Nos. 275, 276.
 baculum Hall (sp.), Hall and Clarke, Nos. 275, 276.
 banana n. sp., Hall and Clarke, Nos. 275, 276.
 cercidea n. sp., Hall and Clarke, Nos. 275, 276.

Paleontology—Continued.

Genera and species described—Continued.

- Prismodictya choanae* n. sp., Hall and Clarke, Nos. 275, 276.
cithara n. sp., Hall and Clarke, Nos. 275, 276.
conradi Hall (sp.), Hall and Clarke, Nos. 275, 276.
corynia n. sp., Hall and Clarke, Nos. 275, 276.
filitextilis Hall (sp.), Hall and Clarke, Nos. 275, 276.
narthecia n. sp., Hall and Clarke, Nos. 275, 276.
palea n. sp., Hall and Clarke, Nos. 275, 276.
parallela Hall (sp.), Hall and Clarke, Nos. 275, 276.
polyhedra n. sp., Hall and Clarke, Nos. 275, 277.
prismatica Hall (sp.), Hall and Clarke, Nos. 275, 276.
ptionia n. sp., Hall and Clarke, Nos. 275, 276.
spectabilis n. sp., Hall and Clarke, Nos. 275, 276.
telum Hall (sp.), Hall and Clarke, Nos. 275, 276.
Productella Hall, Grabau, No. 229.
 alifera n. sp., Girty, No. 223.
 cooperensis Swallow, Girty, No. 223.
 navicella Hall, Grabau, No. 229.
 spinulicosta Hall, Grabau, No. 229.
Productus burlingtonensis Hall?, Girty, No. 222.
 gallatinensis n. sp., Girty, No. 223.
 laevicosta White, Girty, No. 223.
 parviformis n. sp., Girty, No. 223.
 scabriculus Martin, Girty, No. 223.
 semireticulatus (Martin)?, Girty, Nos. 222, 223.
Proetus Steining, Grabau, No. 229.
 curvimarginatus Hall, Grabau, No. 229.
 loganensis Hall and Whitfield, Girty, No. 223.
 macrocephalus Hall, Grabau, No. 229.
 peroccidens Hall and Whitfield, Girty, No. 223.
 protuderans Hall, Girty, No. 222.
 rowi (Green), Grabau, No. 229.
Promacrus cuneatus Hall, Weller, No. 711.
 websterensis n. sp., Weller, No. 711.
Protagraules priscus Matt., Matthew, No. 468.
Protagriochorus n. gen., Scott, No. 576.
Protarea Milne-Edwards and Haime, Lambe, No. 413.
 vetusta Hall, Lambe, No. 413.
Protoceras Marsh, Scott, No. 576.
Protogaulus hippodus n. gen. (sp. Cope), Riggs, No. 550.
Protoreodon Scott and Osborn, Scott, No. 576.
Protosalvinia (Sporangites) *huronensis*, Ami, No. 10.
Protosiphon kempanum Matt., Matthew, No. 468.
Protospyraena gigas n. sp., Stewart, No. 610.

Paleontology—Continued.*Genera and species described—Continued.*

- Protylopus* Wortman, Scott, No. 576.
Pseudocopteris Lx., White, No. 720.
 obtusiloba (Brongn.) Lx., White, No. 720.
 squamosa Lx. sp., White, No. 720.
 sp., White, No. 720.
Pseudoliya scalina Heilp., Harris, No. 281.
 tuberculifera Con., Harris, No. 281.
 vetusta, Harris, No. 281.
 vetusta var., Harris, No. 280.
Pseudomonotis (?) cf. *hawni* Meek, Beede, No. 43.
 var. *equistriata* ? sp. ? nov., Beede No. 43.
 robusta sp. ? var. ? nov., Beede, No. 43.
 tenuistriata sp. ? var. ? nov., Beede, No. 43.
Pseudocopteris *macilenta* (L. and H.) Lx., White, No. 719.
 squamosa, Lx., White, No. 719.
Pseudo-perna n. gen., Logan, No. 440.
 attenuata n. sp., Logan, No. 440.
 orbicularis n. sp., Logan, No. 440.
 rugosa n. sp., Logan, No. 440.
 torta n. sp., Logan, No. 440.
 wilsoni n. sp., Logan, No. 438.
Pterinea Goldfuss, Grabau, No. 229.
 flabella (Conrad), Grabau, No. 229.
Pterinopecten Hall, Grabau, No. 229.
 conspicuosus Hall, Grabau, No. 229.
 hermes Hall, Grabau, No. 229.
 undodus Hall, Grabau, No. 229.
Pteris *pseudopennaeformis*, Hollick, No. 328.
Pterosperrmites *haguei* n. sp., Knowlton, No. 393.
Pterosphenus *schucherti* n. gen. et sp., Lucas, No. 445.
Ptilodictya Lonsdale, Grabau, No. 229.
 plumbea Hall, Grabau, No. 229.
Ptilopora sp., Girty, No. 223.
Ptychoceras *near crassum*, Harris, No. 280.
Ptychodesma cf. *P. minor* Hall, Weller, No. 711.
Ptychoparia (E.) *affinis* Walcott, Walcott, No. 682.
 antiqua Salter sp., Walcott, No. 682.
 (?) *diademata* Hall sp., Walcott, No. 682.
 llanoensis Walcott (?), Walcott, No. 682.
 penfieldi n. sp., Walcott, No. 682.
 (*Lonchocephalus*) *wisconsensis* Owen sp., Walcott, No. 682.
 sp. undet., Walcott, No. 682.
Pychnodus *phaseolus*, Hay, No. 286.
Pyriopecten Hall, Grabau, No. 229.
 orbiculatus Hall, Grabau, No. 229.
Pyropsis *perula* Ald., Harris, No. 281.
Quercinium *lamarensis* n. sp., Knowlton, No. 392.
Quercophyllum *wyomingense* n. sp., Fontaine, No. 188.
 culveri n. sp., Knowlton, No. 392.
Quercus *consimilis* ? Newby., Knowlton, No. 392.
 ellisiana Lx., Knowlton, No. 392.
 furcinervis americana Kn., Knowlton, No. 392.
 grossidentata n. sp., Knowlton, No. 392.

Paleontology—Continued.*Genera and species described—Continued.**Quercus—Continued.*

- hesperia* n. sp., Knowlton, No. 392.
 (?) *magnifolia* n. sp., Knowlton, No. 392.
 microdentata n. sp., Hollick, No. 328.
 wardiana Lx. ?, Ward, No. 690.
 weedii n. sp., Knowlton, No. 392.
 yanceyi n. sp., Knowlton, No. 392.
 sp., Knowlton, No. 392.
Reptaria Rolle, Grabau, No. 229.
 stolonifera Rolle, Grabau, No. 229.
Reteporina d'Orbigny, Grabau, No. 229.
 striata Hall, Grabau, No. 229.
Reticularia *cooperensis* Swallow, Girty, No. 223.
 cooperensis var., Girty, No. 223.
 (?) *peculiaris* Shumard, Girty, No. 223.
 perplexa (McChesney), Girty, No. 222.
 (?) *subrotunda* Hall, Girty, No. 223.
Rhabdocarpus *multistriatus* (Presl.) Lx., White, No. 720.
 (*Pachytesta*) *mansfieldi* Lx., White, No. 720.
Rhabdospongia n. gen., Hall and Clarke, Nos. 275, 276.
 amalthea Hall (sp.), Hall and Clarke Nos. 275, 276.
 condroziana n. sp., Hall and Clarke, Nos. 275, 277.
Rhamnacinium *radiatum* Felix, Knowlton No. 392.
Rhamnus *cleburni* Lx., Hollick, No. 328.
Rhipidomella Oehlert, Grabau, No. 229.
 burlingtonensis (Hall), Weller, No. 711.
 cyclas Hall, Grabau, No. 229.
 idonea Hall, Grabau, No. 229.
 leucosia Hall, Grabau, No. 229.
 micellini Léveillé, Girty, No. 223.
 oblata Hall, Girty, No. 222.
 var. *emarginata* Hall, Girty, No. 222.
 penelope Hall, Grabau, No. 229.
 vanuxemi Hall, Grabau, No. 229.
Rhizodus, Hay, No. 286.
Rhombopora Meek, Grabau, No. 229.
 hexagona (Hall), Grabau, No. 229.
 immersa Hall, Grabau, No. 229.
 lineata Hall, Grabau, No. 229.
 polygona (Hall), Grabau, No. 229.
 reticulata (Hall), Grabau, No. 229.
 tortalina, Grabau, No. 229.
 (?) *transversa* (Hall), Grabau, No. 229.
Ringicula *butleriana* Ald., Harris, No. 281.
 butleriana var. *lignitifera* Ald., Harris, No. 281.
Röemerispongia n. gen., Hall and Clarke, Nos. 275, 276.
 gerolsteinensis F. Roemer (sp.), Hall and Clarke, Nos. 275, 276.
Romingeria Nicholson, Lambe, No. 413.
 umbellifera Billings (sp.), Lambe, No. 413.
Rhynchonella *gnathopora* Meek, Stanton, No. 603.
 myrina Hall and Whitfield, Stanton, No. 603.
Rhynchospira *formosa* (Hall), Girty, No. 222.
Sagenodus *copeanus* n. sp., Williston, No. 749.
 textilis, Hay, No. 286.

Paleontology—Continued.

Genera and species described—Continued.

- Salix varians* Heer, Knowlton, No. 392.
Sandbergeroceras Hyatt, Clarke, No. 96.
 syngonum n. sp., Clarke, No. 96.
Sanguinolites websterensis n. sp., Weller, No. 711.
Sapindopsis variabilis Fontaine, Fontaine, No. 188.
Sapindus affinis Newby., Knowlton, No. 392.
 angustifolius Lx., Hollick, No. 328.
 grandifoliolus Ward, Knowlton, No. 392.
 grandifolioloides n. sp., Knowlton, No. 392.
 wardii n. sp., Knowlton, No. 392.
Sapotacites americanus Lx., Hollick, No. 328.
Sassafras mudgii Lx., Ward, No. 690.
Saurocephalus lanciformis, Hay, Nos. 288, 293.
 pamphagus, n. sp., Hay, Nos. 288, 293.
Scala, Harris, No. 281.
 exquisita Ald., Harris, No. 281.
Scalarituba missouriensis n. gen. et. sp., Weller, No. 711.
Scaphander alabamensis Ald., Harris, No. 281.
 ligniticus Ald., Harris, No. 281.
Scaphella demissa Con. var., Harris, No. 281.
 heilprini, Harris, No. 281.
Scaphiocrinus sp., Girty, No. 223.
Scaphites, Logan, No. 438.
 nodosus, Logan, No. 438.
 warreni, Logan, No. 438.
Schizaster lecontei n. sp., Merriam, No. 480.
Schizobolus Ulrich, Grabau, No. 229.
 truncatus Hall, Grabau, No. 229.
Schizodus King, Girty, No. 222.
Schizodus King, Grabau, No. 229.
 æqualis Hall, Weller, No. 711.
 affinis Herrick, Girty, No. 222.
 appressus (Conrad), Grabau, No. 229.
 meckanus, n. sp., Girty, No. 222.
 pandatus, n. sp., Girty, No. 222.
 telliniformis, n. sp., Girty, No. 222.
Schizophoria swallowi (Hall), Weller, No. 711.
Sciurus calycinus Cope, Cope, No. 118.
Scleropteris distantifolia n. sp., Fontaine, No. 188.
 rotundifolia n. sp., Fontaine, No. 188.
Scutella gabbi Rémond, Merriam, No. 480.
 interlineata Stimpson, Merriam, No. 480.
Seminula humulis n. sp., Girty, No. 223.
 immatura n. sp., No. Girty, 223.
 madisonensis n. sp., Girty, No. 223.
 var. *pusilla* n. var., Girty, No. 223.
Sequoia couttsie Heer, Knowlton, No. 392.
 gracilis Heer, Fontaine, No. 188.
 langsdorffii (Brongn.) Heer, Knowlton, No. 392.
 magnifica n. sp., Knowlton, No. 392.
 reichenbachii (Geinitz) Heer, Fontaine, No. 198.
 sp. Fontaine, No. 188.
Serpulorbis sylværupis n. sp., Harris, No. 281.
Sigaretus bilix Con., Harris, No. 281.
 declivus Con., Harris, Nos. 280, 281.
Sigillaria sigillarioides (Lx.), White, No. 720.
 (Asolanus) *camptotænia* H. C. Wood, White, No. 720.

Paleontology—Continued.

Genera and species described—Continued.

- Sipho tuomeyi* Ald., Harris, No. 281.
Siphonalia subscalarina Heilp., Harris, No. 281.
 sp. Harris, No. 281.
Smilax lamarensis n. sp., Knowlton, No. 392.
Smilodon mercerii Cope, Cope, No. 118.
Solariella louisiana Dall., Harris, No. 281.
Solarium bellense n. sp., Harris, Nos. 280, 281.
 cupola Heilp., Harris, No. 281.
 elaboratum Con., Harris, No. 281.
 var. *delphinuloides* Heilp., Harris, No. 281.
 var. *intusum* n. var., Harris, No. 281.
 huppertzii Har. var., Harris, No. 281.
 greggi Har., Harris, No. 281.
 leanum Dall., Harris, No. 281.
 sylværupis Har., Harris, No. 281.
Solenomya parallela n. sp., Beede and Rogers, No. 46.
Solenopleura? *weedi*, Walcott, No. 682.
Somphospongia n. gen., Beede, No. 44.
 multiformis, n. sp., Beede, No. 44.
Sphenolepidium kurrianum (Dunker) Heer, Fontaine, No. 188.
 parceramosum Fontaine, Fontaine, No. 188.
Sphenophyllum cuneifolium (Stb.) Zeill., White, No. 719.
 emarginatum Brongn., White, No. 720.
 lescurianum n. sp., White, No. 720.
 majus Brongn., White, No. 720.
 suspectum n. sp., White, No. 719.
 (Asterophyllites?) *fasciculatum* (Lx.), White, No. 720.
Sphenopteris brittsii Lx., White, No. 720.
 canneltonensis n. sp., White, No. 720.
 capitata n. sp., White, No. 720.
 cherophyllioides (Brongn.) Presl., White, No. 720.
 cristata (Brongn.) Presl., White, No. 720.
 illinoisensis n. sp., White, No. 720.
 lacoei D. W., White, No. 720.
 missouriensis n. sp., White, No. 720.
 mixta Schimp., White, No. 720.
 pinnatifida (Lx.), White, No. 720.
 plurinervia Heer?, Fontaine, No. 188.
 suberenulata (Lx.), White, No. 720.
 suspecta n. sp., White, No. 720.
 sp., White, No. 720.
Sphenopteris taffii n. sp., White, No. 719.
 van ingeni n. sp., White, No. 720.
 wardiana, n. sp., White, No. 720.
 (Crossothea) *ophioglossoides* (Lx.), White, No. 720.
 (Hymenotheca) *broadheadi* n. sp., White, No. 720.
Sphenotus Hall, Grabau, No. 229.
 truncatus (Conrad), Grabau, No. 229.
Spirialis choctawensis Ald., Harris, No. 281.
 elongatoidea Ald., Harris, No. 281.
Spirifer Sowerby, Grabau, No. 229.
 angustus Hall, Grabau, No. 229.
 asper Hall, Grabau, No. 229.
 audaculus (Conrad), Grabau, No. 229.
 var. *eatonii* Hall, Grabau, No. 229.

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Genera and species described—Continued.

Spirifer—Continued.

- centronatus Winchell, Girty, No. 223.
 var. semifurcatus n. var., Girty, No. 223.
 consobrinus d'Orbigny, Grabau, No. 229.
 engelmanni Meek, Girty, No. 223.
 granulatus (Conrad), Grabau, No. 229.
 var. clintoni Hall, Grabau, No. 229.
 macronotus Hall, Grabau, No. 229.
 marionensis Shumard (?) Girty, No. 223.
 marionensis Shumard, Weller, No. 711.
 mucronatus Conrad, Grabau, No. 229.
 rockymontanus Marcou, Girty, No. 222.
 striatus var. madisonensis n. var., Girty, No. 223.
 subattenuatus Hall, Girty, No. 223.
 tullius Hall, Grabau, No. 229.
 (Delthyris) sculptilis (Hall), Grabau, No. 229.
 (Martinia) subumbonus Hall, Grabau, No. 229.
 (Reticularia) fimbriatus (Conrad), Grabau, No. 229.
 sp. Girty, No. 223.
 Spiriferina solidirostris White, Girty, No. 223.
 Spirophyton sp., Weller, No. 711.
 Spirorbis Lamarck, Grabau, No. 229.
 angulatus Hall, Grabau, No. 229.
 Stearoceras gibbosum Hyatt, Girty, No. 222.
 Steganoblastus canadensis, White, No. 725.
 Stemmattia bicristatus, Hay, No. 286.
 bifurcatus, Hay, No. 286.
 cheiriformis, Hay, No. 286.
 compactus, Hay, No. 286.
 keokuk, Hay, No. 286.
 symmetricus, Hay, No. 286.
 Stiboriopsis n. gen., Vaughan, No. 672.
 jamaicensis n. sp., Vaughan, No. 672.
 Stictopora Hall, Grabau, No. 229.
 palmipes Hall, Grabau, No. 229.
 permarginata Hall, Grabau, No. 229.
 recta Hall, Grabau, No. 229.
 sinuosa Hall, Grabau, No. 229.
 Stictoporella (?) sp., Girty, No. 223.
 Stigmara evenii Lx., White, No. 720.
 verrucosa (Martin) S. A. Miller, White, No. 720.
 Straparollus Montfort, Grabau, No. 229.
 rudis Hall, Grabau, No. 229.
 utahensis Hall and Whitfield, Girty, No. 223.
 ? sp., Weller, No. 711.
 Streblotrypa Ulrich, Grabau, No. 229.
 hamiltonense (Nicholson), Grabau, No. 229.
 Streptelasma Hall, Grabau, No. 229.
 rectum, Hall, Grabau, No. 229.
 ungula Hall, Grabau, No. 229.
 waynense (Safford), White, No. 222.
 Strepula Jones and Hall, Grabau, No. 229.
 sigmoidalis Jones, Grabau, No. 229.
 Striatopora Hall, Lambe, No. 413.
 flexuosa Hall, Lambe, No. 413.
 linneana Billings, Lambe, No. 413.

Paleontology—Continued.

Genera and species described—Continued.

- Strophalosia King, Grabau, No. 229.
 truncata (Hall), Grabau, No. 229.
 Stropheodonta, Hall, Grabau, 229.
 demissa Conrad, Grabau, No. 229.
 concava Hall, Grabau, No. 229.
 plicata Hall, Grabau, No. 229.
 (Leptostrophia) perplana Conrad, Grabau, No. 229.
 (Donvillina) inaequistriata (Conrad), Grabau, No. 229.
 (Pholidostrophia) naerea (Hall), Grabau, No. 229.
 (Leptostrophia) junia Hall, Grabau, No. 229.
 Strophocrinus dicyclicus n. gen. et sp., Sardeson, No. 565.
 Stylarea von Seebach, Lambe, No. 413.
 parva Billings (sp.), Lambe, No. 413.
 Styliolina Karpinsky, Grabau, No. 229.
 fissurella Hall, Grabau, No. 229.
 spica (Hall), Grabau, No. 229.
 Stylocenia duerdeni n. sp., Hill, No. 672.
 Surcula nasuta Whitf., Harris, No. 281.
 Sycium cloacinum Cope, Cope, No. 118.
 Syringolites Hinde 1879, Lambe, No. 413.
 huronensis Hinde, Lambe, No. 413.
 Syringopora Goldfuss, Lambe, No. 413.
 aculeata n. sp., Girty, No. 223.
 bifurcata Lonsdale, Lambe, No. 413.
 compacta Billings, Lambe, No. 413.
 dalmanii Billings, Lambe, No. 413.
 hisingeri Billings, Lambe, 413.
 infundibula Whitfield, Lambe, No. 413.
 intermedia Billings, Lambe, No. 413.
 maclurei Billings, Lambe, No. 413.
 nobilis Billings, Lambe, No. 413.
 perelegans Billings, Lambe, No. 413.
 ramulosa Goldfuss, Lambe, No. 413.
 reticulata Goldfuss, Lambe, No. 413.
 retiformis Billings, Lambe, No. 413.
 surcularia n. sp., Girty, No. 223.
 verticillata Goldfuss, Lambe, No. 413.
 Syringotheris carteri (Hall), Weller, No. 711.
 carteri Hall, Girty, No. 223.
 Synnola dalli Coss. var., Harris, No. 281.
 trapaquara Har. n. sp., Harris, No. 281.
 Taniophyllum latifolium n. sp., White, No. 720.
 Taniopteris ? missouriensis D. W., White, No. 720.
 Tanipora Nicholson, Grabau, No. 229.
 exigua Nicholson, Grabau, No. 229.
 Tapirus haysii Leidy, Cope, No. 118.
 Taxites olriki Heer, Knowlton, No. 392.
 Taxocrinus Phillips, Grabau, No. 229.
 nuntius Hall, Grabau, No. 229.
 Tancredia ? knowltoni n. sp., Stanton, No. 603.
 Tefnostoma subangulatus Meyer, Harris, No. 281.
 Teleopternus Cope, Cope, No. 118.
 orientalis Cope, Cope, No. 118.
 Tellinopsis Hall, Grabau, No. 229.
 subemarginata (Conrad), Grabau, No. 229.
 Telmaticyon n. gen., Marsh, No. 464.

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Genera and species described—Continued.

- Tentaculites Schlotheim, Grabau, No. 229.
bellulus Hall, Grabau, No. 229.
gracilistriatus Hall, Grabau, No. 229.
Terebratulina sp., Harris, No. 280.
Terebrifusus amoenus Con., Harris, No. 281.
Testudo gilbertii, Hay, No. 289.
Tetracaulodon (Tetrabelodon) shephardii Cope, Wagner, No. 679.
Tetradium Dana, Lambe, No. 413.
fibratum Safford, Lambe, No. 413.
Tetranthera precursoria Lx., Hollick, No. 328.
Thamnodictya Hall, Hall and Clarke, Nos. 275, 277.
newberryi Hall, Hall and Clarke, Nos. 275, 277.
ortoni n. sp., Hall and Clarke, Nos. 275, 277.
Thetis sp., Harris, No. 280.
Thracia weedi n. sp., Stanton, No. 603.
? montanaensis (Meek) ?, Stanton, No. 603.
Thrysopteris brevifolia Fontaine, No. 188.
brevipennis Fontaine, Fontaine, No. 188.
crassinervis Fontaine, Fontaine, No. 188.
dentifolia n. sp., Fontaine, No. 188.
elliptica Fontaine, No. 188.
pecopteroides Fontaine, Fontaine, No. 188.
pinnatifida Fontaine, Fontaine, No. 188.
Thysanodictya n. gen., Hall and Clarke, Nos. 275, 276, 277.
apleta n. sp., Hall and Clarke Nos. 275, 276.
edwin-halli nom. nov., Hall and Clarke, Nos. 275, 276.
hermenia n. sp., Hall and Clarke, Nos. 275, 276.
johnstoni n. sp., Hall and Clarke, Nos. 275, 276.
pocillus n. sp., Hall and Clarke, Nos. 275, 276.
quasillum n. sp., Hall and Clarke, Nos. 275, 276.
randalli Hall (sp.), Hall and Clarke, Nos. 275, 276.
rudis Hall (sp.), Hall and Clarke, Nos. 275, 276.
saccus n. sp., Hall and Clarke, Nos. 275, 276.
scyphina n. sp., Hall and Clarke, Nos. 275, 276.
turricula n. sp., Hall and Clarke, Nos. 275, 276.
?Titanophyllum brittsii n. sp., White, No. 720.
Tornatella bella Con., Harris, No. 281.
Tornatina leai Ald., Harris, No. 281.
Tornoceras Hyatt, Clarke, No. 96.
bicostatum Hall (sp.), Clarke, No. 96.
peracutum Hall (sp.), Clarke, No. 96.
rhysum n. sp., Clarke, No. 96.
uniangulare Conrad (sp.), Clarke, No. 96.
var. compressum n. var., Clarke, No. 96.
var. obesum n. var., Clarke, No. 96.
Toxaspis anguillulatus Cope, Cope, No. 118.
Toxylon longipetiolatum n. sp., Hollick, No. 328.
Trachypora Milne-Edwards and Haime, Lambe, No. 413.
Trachypora E. and H., Grabau, No. 229.
elegantula Billings, Lambe, No. 413.
limbasa (Eaton), Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

- Trapa microphylla Lx., Knowlton, No. 392.
Trematospira Hall, Grabau, No. 229.
gibbosa, Grabau, No. 229.
(Billings) ?, Girty, No. 222.
Triboloceras digonum (M. and W.) ?, Weller, No. 711.
Trigeria Bayle, Grabau, No. 229.
(?) lepida Hall, Grabau, No. 229.
Trigonia elegantissima Meek, Stanton, No. 603.
eufaulensis Harris, No. 280.
montanaensis Meek, Stanton, No. 603.
Triton tuomeyi Ald., Harris, No. 281.
(Epidromus) otopsis Con., Harris, No. 281.
(Ranularia) cocensis Ald., Harris, No. 281.
Tritonidea johnsoni Ald., Harris, No. 281.
pachecoi n. sp., Harris, No. 280.
Triumphis hatchetigbeensis Ald., Harris, No. 281.
Trochoseris catadupensis n. sp., Vaughan, No. 672.
Trochomilia hilli n. sp., Vaughan, No. 672.
Trophon caudatoides Ald., Harris, No. 281.
elegantissimus Ald., Harris, No. 281.
gracilis Ald., Harris, No. 281.
sublevis n. sp., Harris, No. 281.
Tropidodiscus cyrtolites (Hall), Weller, No. 711.
Tropidoleptus Hall, Grabau, No. 229.
carinatus (Conrad), Grabau, No. 229.
Tuba antiquata Con., Harris, No. 281.
Turbinella (Glyptostyla) baculus Ald., Harris, No. 281.
Turbinoserie Duncan, Vaughan, No. 672.
cantabridgiensis n. sp., Vaughan, No. 672.
jamaicaensis n. sp., Vaughan, No. 672.
Turbonilia sp., Harris, No. 281.
Turritella clevelandia Ald. var., Harris, No. 281.
humerosa Con., Harris, Nos. 280, 281.
mortoni Con., Harris, Nos. 280, 281.
precincta Con., Harris, No. 281.
Tylodictya n. gen., Hall and Clarke, Nos. 275, 277.
(?) tenuis Hall (sp.) Hall and Clarke, Nos. 275 and 277.
warrenensis n. sp., Hall and Clarke, Nos. 275 and 277.
Tylosaurus dyspelo, Cope, Osborn, No. 508.
Typodus, Hay, No. 286.
Ulmiphyllum densinerve n. sp., Fontaine, No. 188.
Ulmus minima ? Ward, Knowlton, No. 392.
pseudo-fulva ? Lx., Knowlton, No. 392.
tenuinervis, Hollick, No. 328.
Umbrella sylværupis n. sp., Harris, No. 281.
Uintacrinus, Springer, No. 598.
Uncia inexpectata Cope, Cope, No. 118.
Uncinulus? acutiplicatus (Hall), Girty, No. 222.
pyramidatus Hall ?, Girty, No. 222.
Unitrypa Hall, Grabau, No. 229.
scalaris Hall, Grabau, No. 229.
Ursus americanus Pallas, Cope, No. 118.
haplodon Cope, Cope, No. 118.
Venericardia planicosta, Harris, No. 280.
Veniella sp., Harris, No. 280.
Viburnites evansanus Ward, Ward, No. 690.

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- Viburnum rotundifolium* Lx., Knowlton, No. 392.
Vitulina Hall, Grabau, No. 229.
 pustulosa Hall, Grabau, No. 229.
Voluta clare n. sp., Harris, No. 281.
 newcombiana Whitf., Harris, No. 281.
 sp., Harris, No. 281.
Volutilithes petrosus Con., Harris, Nos. 280, 281.
Volvaria (*Volvariella*) *alabamensis* Ald., Harris, No. 281.
Vulpes cinereoargentatus, Cope, No. 118.
 latidentatus, n. sp., Cope, No. 118.
Weichselia reticulata (Stokes & Webb) Ward n. comb., Fontaine, No. 188.
Williamsonia? *phoenicopsoides* Ward n. sp., Fontaine, No. 188.
Woodwardia preareolæa n. sp., Knowlton, No. 392.
Xenodus hertzeri, Hay, No. 286.
Xenophora conchyliophora Born., Harris, No. 281.
Xiphactinus Leidy, Stewart, No. 608.
 brachygnathus n. sp., Stewart, No. 610.
Yoldia glabra n. sp., Beede and Rogers, No. 46.
Zacanthoides sp. undet., Walcott, No. 682.
Zamenis acuminatus Cope, Cope, No. 118.
Zamites borealis Heer, No. 188.
 brevipennis Heer, Fontaine, No. 188.
 (?) sp., Fontaine, No. 188.
Zaphrentis Rafinesque, Grabau, No. 229.
 gigantea Lesueur sp., Lambe, No. 414.
 minas Dawson, Lambe, No. 414.
 mirabilis Billings sp., Lambe, No. 414.
 simplex Hall, Grabau, No. 229.
Zephyroceras cataphractum n. sp., Clarke, No. 96.
 holzapfeli n. sp., Clarke, No. 96.
Zizyphus serrulata Ward, Knowlton, No. 392.

Panama.

- Gold deposits of Panama, Hershey, No. 302.
 Sur l'âge des couches traversées par le canal de Panama, Douvillé, No. 165.

Pennsylvania.

- Bone cave at Port Kennedy, Mercer, No. 479.
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- Building and ornamental stones, Buckley, No. 73.
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 Dike rocks, Bascom, No. 37.
 Granites of Rhode Island, Kemp, No. 371.
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- Plea for popular exposition of lithology, Gratacap, No. 258.
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- Report of Sushitna expedition, Eldridge and Muldrow, No. 172.

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- Big Trees folio, Turner and Ransome, No. 639.
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 Granitic rocks of the Sierra Nevada, Turner, No. 633.
 Replacement ore deposits, Turner, No. 634.

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- A new analcite rock, Coleman, No. 107.
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 Geology of Nipissing and Temiscaming map sheets, Barlow, No. 32.

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- Elmoro folio, Hills, No. 319.
 Granite breccias of Grizzly Peak, Stone, No. 614.
 Telluride folio, Cross, No. 128.
 Tourmaline-schists, Patton, No. 517.

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- Granite-gneiss in Connecticut, Westgate, No. 717.

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- Geologic notes on Wichita Mountains, Vaughan, No. 671.

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- Geology of Jamaica, Hill, No. 313.

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- Andesite of Aroostook volcanic area, Gregory, No. 260.
 Dikes of Johns Bay, Bascom, No. 39.

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- Geology of eastern Berkshire County, Emerson, No. 176.
 Geology of Wachusett dam and tunnel, Crosby, No. 121.
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Mexico.

- El Real del Monte, Ordoñez and Rangel, No. 503.
 Geología de los Alrededores de Orizaba, Böse, No. 56.

Michigan.

- Crystal Falls iron-bearing district, Clements and Smyth, No. 105.
 Felsites and associated rocks, Hubbard, No. 343.
 Report on Isle Royale, Lane, No. 417.

Minnesota.

- Geology of Hibbing plate, Winchell, No. 761.
 Gneisses, gabbro-schists, and associated rocks, Hall, No. 272.

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Report of field work, Elftman, No. 173.

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Granite rocks of Butte, Weed, No. 704.

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New Hampshire.

Unusual orientation in phenocrysts, Fuller, No. 196.

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Occurrence of nepheline-syenite, Ransome, No. 540.

Palisade diabase, Irving, No. 357.

Structure and composition of trap, Phillips, No. 525.

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Augite-syenite-gneiss, Cushing, No. 132.

Geology of Adirondack region, Smyth, No. 596.

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Geology of Tintic district, Tower and Smith, No. 632.

Virginia.

Geology of Richmond Basin, Shaler and Woodworth, No. 581.

Washington.

Tacoma folio, Willis and Smith, No. 746.

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Absaroka folio, Hague, No. 268.

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Geology of Gallatin Mountains, Iddings and Weed, No. 354.

Igneous rocks of Absaroka Range, Iddings, No. 348.

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The rhyolites, Yellowstone National Park, Iddings, No. 350.

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Andesite, Hague, No. 268.

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Andesite, Tower and Smith, No. 632.

Andesite-porphyr, Weed, No. 702.

Andesitic tuff, Turner and Ransome, No. 639.

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Aplite, Turner, No. 633.

Aplite, Washington, No. 695.

Aplite, Weed, No. 704.

Augite-andesite, Lord, No. 442.

Augite-syenite-gneiss, Cushing, No. 182.

Banakite, Cushing, No. 132.

Banakite, Iddings, No. 349.

Basalt, Hague, No. 268.

Basalt, Iddings, Nos. 347, 351.

Basalt, Lord, No. 442.

Basalt, Turner and Ransome, No. 639.

Basalt, Weed, Nos. 701, 702.

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Biotite-granite, Turner, Nos. 633, 635.

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Diabase, Lane, No. 417.

Diabase, Washington, No. 696.

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Diorite, Crosby, No. 121.

Diorite, Iddings, No. 347.

Diorite, Washington, No. 694.

Diorite-monzonite, Cross, No. 128.

Diorite-porphyr, Lord, No. 442.

Diorite, porphyritic, Washington, No. 694.

Essexite, Washington, No. 694.

Gabbro, Barlow, No. 32.

Gabbro, Clements and Smyth, No. 105.

Gabbro, Iddings, No. 347.

Gabbro, Turner, No. 635.

Gabbro, Turner and Ransome, No. 639.

Gabbro, Washington, No. 694.

Gabbro-diorite, Cross, No. 128.

Gabbro-diorite, Lord, No. 442.

Gabbro-schist, Hall, No. 272.

Gneiss, Barlow, No. 32.

Gneiss, Hall, No. 272.

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Granite, Buckley, No. 73.

Granite, Clements and Smyth, No. 105.

Granite, Eldridge and Muldrow, No. 172.

Granite, Lord, No. 442.

Granite, Kemp, No. 371.

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