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UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

BIBLIOGRAPHY AND INDEX

OF

NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY AND MINERALOGY

FOR

THE YEAR 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 ½ 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 pape. in which the fossil, mineral, or rock is described.

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64 **Brewer** (William M.). The copper deposits of Vancouver Island.
Can. Min. Rev., vol. xviii, pp. 270–271, 1899.

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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Describes the physiography and drainage, the general geologic features, and occurrence of gold.

70 —— The coast from Point Barrow to the Mackenzie [Alaska].
U. S. Geol. Surv., Expl. in Alaska, pp. 130–132, 1899.
Describes physiography of the region.

71 —— Notes on the geology of the Tanana and White river basins, Alaska.
Abstract: Science, new ser., vol. ix, p. 622, 1899.

72 —— **Peters** (W. J.) and. Report on the White River-Tanana expedition [Alaska].
See Peters (W. J.) and Brooks (A. H.), No. 524.

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.]
Jour. of Geol., vol. vii, pp. 206–209, 1899.

75 **Burr** (H. T.). A drainage peculiarity in Androscoggin County, Maine.

Am. Geol., vol. xxiv, pp. 369–371, 1899. Abstract: Science, new ser., vol. ix, p. 519 (¼ p.), 1899.

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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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Gives a section of the well.

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

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Describes character and distribution of the Iowan drift, and compares with other drift formations.

79 —— A notable ride. From driftless area to Iowan drift.

Am. Geol., vol. xxiv, pp. 372–376, 1899.

Describes the character and origin of certain topographic features in Iowa.

80 **Campbell** (Marius R.). Standingstone folio, Tennessee.

U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 53, 1899.

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81 **Carter** (O. C. S.). Coastal topography of the United States.

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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].

Ala. Ind. and Sci. Soc., Proc., vol. ix, pp. 13–18, 1899.

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

Abstract: Eng. and Min. Jour., vol. lxviii, pp. 157–158, 1899.

85 **Chamberlin** (T. C.). An attempt to frame a working hypothesis of the cause of Glacial periods on an atmospheric basis.
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Describes the characteristics of this hypothesis and its application to known Glacial and interglacial epochs.

86 —— [Review of "A preliminary report on the artesian well system of Georgia," by S. W. McCallie].
Jour. of Geol., vol. vii, p. 722 (½ p.), 1899.

87 —— Lord Kelvin's address on the age of the earth as an abode fitted for life.
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88 **Chalmers** (Robert). Report on the surface geology and auriferous deposits of southeastern Quebec.
Can. Geol. Surv., new ser., vol. x, Rept. J, 160 pp. 1 map, 2 pls., 1898.
Describes the physiography and drainage, the character and distribution of the glacial and superficial deposits, and the occurrence of gold.

89 **Charlton** (W. A., jr.). Goulais River to Dalton [Ontario].
Ont. Bur. of Mines, vol. viii, pp. 197–204, pls. 21–27, 1899.
Describes the general geologic and physiographic features.

90 **Clark** (W. B.). The relations of Maryland topography, climate, and geology to highway construction.
Md. Geol. Surv., vol. iii, pp. 47–106, pls. iii–xi, figs. 1–3, 1899.

91 —— [Review of "Revised text book on geology," by J. D. Dana, edited by Wm. North Rice].
Science, new ser., vol. ix, p. 147, 1899.

92 **Clarke** (F. W.). [Chemical composition of roscoelite.]
Am. Jour. Sci., 4th ser., vol. vii, pp. 454–455, 1899. Review: Am. Geol., vol. xxiv, p. 318 (¼ p.), 1899.

93 —— Constitution of tourmaline.
Am. Jour. Sci., 4th ser., vol. viii, pp. 111–121, 1899. Review: Am. Geol., vol. xxiv, pp. 318–319, 1899.

94 —— The alkaline reaction of some natural silicates.
Review: Am. Geol., vol. xxiii, p. 328 (7 l.), 1899.

95 —— and **Darton** (N. H.). Hydromica from New Jersey.
Am. Jour. Sci., 4th ser., vol. vii, pp. 365–366, 1899. Review: Am. Geol., vol. xxiv, p. 182 (¼ p.), 1899.
Describes occurrence of chemical characters of the material.

96 **Clarke** (John M.). The Naples fauna (fauna with Mantioceras intumescens) in western New York.
N. Y. Geol. Surv., 16th Ann. Rept., pp. 29–162, 9 pls., 106 figs., 1899.
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97 **Clarke** (John M.). Notes on the early stages of certain Goniatites.
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98 —— Upper Silurian fauna of the Rio Trombetas, State of Para, Brazil, and Devonian mollusks from the State of Para, Brazil.
Archivos do Museu Nacional do Rio de Janeiro, vol. x. Review: Am. Geol., vol. xxiv, pp. 311–317, 1899.

99 —— Geological time.
Science, new ser., vol. x, pp. 695, 1899.
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.
Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlviii, p. 226 (¼ p.); Science, new ser., vol. x, pp. 488–489 (⅓ p.), 1899.

101 —— and **Schuchert** (Charles). The nomenclature of the New York series of geological formations.
Science, new ser., vol. x, pp. 874–878, 1899.
Discusses the applications which have been made of the subdivisions of the New York series, and proposes a series of names derived from characteristic New York localities.

102 —— **Hall** (J.) and. A memoir on the Paleozoic reticulate sponges constituting the family Dictyospongidæ, Part I.
See Hall (J.) and Clarke (J. M.), Nos. 275 and 276.

103 —— —— A memoir on the Paleozoic reticulate sponges constituting the family Dictyospongidæ, Part II.
See Hall (J.) and Clarke (J. M.), Nos. 275 and 277.

104 **Clements** (J. Morgan). Contributions to the study of contact metamorphism.
Am. Jour. Sci., 4th ser., vol. vii, pp. 81–90. Abstracts: Am. Geol., vol. xxiv, pp. 254–255; Am. Nat., vol. xxxiii, pp. 551–552, 1899.
Describes contact metamorphism of Mansfield slates in the upper peninsula of Michigan.

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.
U. S. Geol. Surv., Mon. XXXVI, 512 pp., 53 pls., 24 figs.; 19th Ann. Rept., Pt. III, pp. 19–151, pls. i–xi, figs. 1–6, 1899. Review: Am. Geol., vol. xxiv, pp. 308–311, 1899.
Describes the physiography of the region and the occurrence and character of the Archean and Algonkian formations and of the iron-ore deposits. Includes geologic maps.

106 **Coleman** (Arthur P.). Lake Iroquois and its predecessor at Toronto [Canada.]

Geol. Soc. Am. Bull., vol. x, pp. 165–176, 1899. Abstracts: Am. Geol., vol. xxxiii, pp. 103–104 (⅓ p.); Science, new ser., vol. ix, pp. 143–144, 1899.

Describes glacial features of the region.

107 —— A new analcite rock from Lake Superior.

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

Describes the occurrence and petrographic and chemical characters.

108 —— Corundiferous nepheline syenite from eastern Ontario.

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

Describes occurrence and petrographic character.

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

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

Describes the general physiographic and geologic features of the region and the character and occurrence of the Archean rocks and Algonkian and Pleistocene deposits. Includes notes on the petrographic characters of the igneous rocks.

110 —— Corundiferous nephelite syenite.

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

Describes character and occurrence in Ontario.

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

Ont. Bur. of Mines, vol. viii, pp. 259–262, 1899.

Describes character and occurrence of copper ores.

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

Ont. Bur. of Mines, vol. viii, pp. 254–258, 1899.

Describes occurrence of iron in the region.

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.

Eng. and Min. Jour., vol. lxvii, pp. 320–321, 348, 1899.

Describes general occurrence of auriferous veins and placers.

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.

Describes occurrence and discusses origin.

117 **Cooper** (A. S.). Phenomena accompanying the accumulations of bitumen.

Min. and Sci. Press, vol. lxxix, pp. 632–633 (3 figs.), 665 (3 figs.), 691 (1 fig.), 721, 1899.

Describes occurrences.

118 **Cope** (Edward D.). Vertebrate remains from Port Kennedy bone deposit [Pennsylvania].

Phil. Acad. Nat. Sci. Jour., 2nd ser., vol. xi, pt. ii, pp. 193–267, pls. xix–xxi, 1899.

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 (½ p.), 1899.

Describes the contact, the structural features, modes of erosion, and the relation of the form of the contacts and the character of the overlying sediments.

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, (½ 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.

126 **Crosby** (W. O.). [Review of "Origin of grahamite," by I. C. White; "A contribution to the study of contact metamorphism," by J. Morgan Clements; "The petrographical province of Essex County, Mass.," by H. S. Washington; and "A contribution to the geology of the pre-Cambrian igneous rocks of the Fox River Valley, Wisconsin," by Samuel Weidman.]

Am. Geol., vol. xxiv, pp. 253–257, 1899.

127 —— The glacial lake of Nashua Valley.

Abstracts: Am. Geol., vol. xxiii, pp. 102–103 (½ p.); Science, new ser., vol. ix, p. 106 (⅓ 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 (½ 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.

Describes the physiographic, glacial, and general geologic features of the region.

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.

Describes megascopic, microscopic, and chemical character of the gneiss and its occurrence in the petrographic provinces. Discusses sequence of eruptions in the Adirondacks.

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.

Describes the geologic history and local geologic features of the region.

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.
U. S. Geol. Surv., 19th Ann. Rept., Pt. IV, pp. 719–785, pls. lxxiv–cxviii, figs. 208–230, 1899.
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.
Nat. Geog. Mag., vol. x, pp. 339–343, 3 pls., 1899.
Describes the general geologic and physiographic features of the region.

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 (⅓ p.), 1899; Science, new ser., vol. ix, p. 103 (⅓ p.), 1899.

141*b* —— Relations of Tertiary formations in western Nebraska region.
Abstracts: Am. Geol., vol. xxiii, p. 94 (½ 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.
See Clarke (F. W.) and Darton (N. H.), No. 95.

143 **Davis** (H. J.). Modification in the Jonathan Creek drainage basin [Ohio.]
Denison Univ., Sci. Lab. Bull., vol. xi, art. viii, pp. 163–165, pls. xxv–xxvi, 1899.
Describes the physiographic features of the region.

144 **Davis** (W. M.). The peneplain.
Am. Geol., vol. xxiii, pp. 207–239, pl. vii, 1899.
Discusses evidences bearing on the existence of peneplains.

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.
Can. Geol Surv., new ser., vol. x, Rept. A, 156 pp. and map, 1898.
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 (⅓ 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.
Discusses use of the name Cache Creek formation.

151 **Dawson** (Sir J. William). Note on an echinoderm collected by Dr. Ami at Bessrers, 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 Entomostraca 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.
Contains notes on the occurrence of fossils in these shales and recommendations as to the best part of the year to collect fossils from this region.

157 **Diller** (Joseph Silas). The Coos Bay coal field, Oregon.
U. S. Geol. Surv., 19th Ann. Rept., Pt. III, pp. 309–376, pls. xliii–liv, figs. 17–76, 1899.
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 (⅓ 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.
Science, new ser., vol. ix, pp. 639–640, 1899.
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.
Describes occurrence of gold, silver, copper, and iron.

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.
Soc. Géol de France, Bull., 3d ser., vol. xxvi, pp. 587–600, 1898.

E.

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.
Describes crystallographic characters.

167 **Eastman** (C. R.). Descriptions of new species of Diplodus teeth from the Devonian of northeastern Illinois.
Jour. of Geol., vol. vii, pp. 489–493, pl. vii, 1899.
Describes two new species of Diplodus.

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.
Describes occurrence of gold and coal in the region.

171 —— The Sushitna drainage area [Alaska].
U. S. Geol. Surv., Expl. in Alaska, pp. 111–112, 1899.
Describes general physiographic and geologic features.

172 —— and **Muldrow** (Robert). Report of the Sushitna expedition [Alaska].
U. S. Geol. Surv., Expl. in Alaska, pp. 15–27, 1899.
Describes the physiography, the character and occurrence of the granite and sedimentary formations, and the geologic structure and mineral resources of the region.

173 **Elftman** (Arthur H.). Preliminary report of field work during the summer 1895.
Minn. Geol. and Nat. Hist. Surv., 24th Ann. Rept., pp. 148–149, 1899.
Brief notes on the occurrence of anorthosytes.

174 —— List of rock samples collected in northeastern Minnesota in 1895, 1896, and 1897 (prepared by U. S. Grant).
Minn. Geol. and Nat. Hist. Surv., 24th Ann. Rept., pp. 150–170, 1899.

175 **Ells** (R. W.). Problems in Quebec geology.
Can. Rec. Sci., vol. vii, pp. 480–502, 1898.
Gives a general review of the publications on Quebec geology and discusses the problems involved.

176 **Emerson** (B. K.). The geology of eastern Berkshire County, Massachusetts.
U. S. Geol. Surv., Bull. No. 159, 139 pp., 9 pls., 16 figs., 1899.
Describes the occurrence, character, and structure of the pre-Cambrian, Cambrian, Silurian, Glacial, and post-Glacial deposits, and gives an account of the mineral resources and a mineral lexicon and bibliography of the region.

177 **Emerson** (B. K.). Differences of batholitic granites, according to depth of erosion.

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183 **Farrington** (Oliver C.). A fossil egg from South Dakota.

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184 **Finch** (J. W.). [Review of "Iowa Geological Survey, Ann. Rept. 1898, vol. ix."]

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185 **Fleming** (Mary A.). The potholes of Fosters Flats (now called Niagara Glen) on the Niagara River.

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187 —— **Shaler** (N. S.), **Woodworth** (J. B.), and. Geology of the Narragansett Basin.

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188 **Fontaine** (W. M.). Notes on Lower Cretaceous plants from the Hay Creek coal field, Crook County, Wyoming.
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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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197 —— The occurrence and uses of mica.
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198 —— [Review of "Mineralogical notes, analyses of tysonite, bastnasite, prosopite, jeffersonite, covellite," etc., by W. F. Hillebrand.]
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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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218 —— Dislocation at Thirtymile point, New York.
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219 —— Ripple marks and cross bedding.
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220 —— [Review of "The great ice dams of Lakes Maumee, Whittlesly, and Warren," by F. B. Taylor.]
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221 —— Recent earth movement in the Great Lakes region.
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223 —— Devonian and Carboniferous fossils. [Yellowstone National Park.]
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230 —— The faunas of the Hamilton group of Eighteen-mile Creek and vicinity, in western New York.
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232 —— Some modern stratigraphic problems.
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235 —— The geology of the Pokegama Lake plate [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 346–349, pl. lxx, 1899.
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236 —— The geology of the Grand Rapids plate [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 350–354, pl. lxxi, 1899.
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237 **Grant** (U. S.). The geology of the Swan Lake plate [Minnesota].
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238 —— The geology of the Gabbro Lake plate [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 399–419, pl. lxxxviii, and MM and PP, 1899.
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239 —— The geology of the Snowbank Lake plate [Minnesota].
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240 —— The geology of the Fraser Lake plate [Minnesota].
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242 —— The geology of the Gunflint Lake plate [Minnesota].
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243 —— The geology of the Rove Lake plate [Minnesota].
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246 —— List of rock samples collected in northeastern Minnesota in 1898.
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249 —— [Review of "Recent earth movement in the Great Lakes region," by G. K. Gilbert.]
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250 —— [Review of "Geology of Lake Placid region," by J. F. Kemp.]
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251 —— [Review of "The hardystonite, a new calcium zinc silicate from Franklin Furnace, New Jersey," by J. E. Wolff.]
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252 —— [Review of "Mineral resources of Kansas, 1898," by Erasmus Haworth; and "The Crystal Falls iron-bearing district of Michigan," by J. M. Clements and H. L. Smyth; with a chapter on the Sturgeon River tongue, by W. S. Bayley, and an introduction by C. R. Van Hise.]
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253 —— A possible driftless area in northeastern Minnesota.
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255 —— **Winchell** (H. V.) and. Preliminary report on the Rainy Lake gold region [Minnesota].
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267 —— Thames River in Connecticut.

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269 —— Descriptive geology of Huckleberry Mountain and Big Game Ridge [Yellowstone National Park].

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279 **Harris** (Gilbert D.). Natchitoches area [Louisiana].
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296 —— Physiography and geology of region adjacent to the Nicaragua Canal route.
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Describes physiographic features, climate, the geology of the region, the processes of rock decay, and the recent geologic history.

297 —— Physiography of the Nicaragua Canal route.
Nat. Geog. Mag., vol. x, pp. 233–246, map, 2 pls., 1 fig., 1899.
Describes the physiographic features of the region.

298 —— The Nicaragua Canal route.
Science, new ser., vol. x, pp. 97–104, 1 fig., 1899.
Contains an account of the general physiographic and geologic features of the region.

299 **Heilprin** (Angelo). Geology of the Klondike gold fields.
Pop. Sci. Mo., vol. lv, pp. 300–317, 5 figs., 1899.

300 **Hershey** (Oscar H.). Observations on dirtstorms.
Am. Geol., vol. xxiii, pp. 380–382, 1899.
Describes the occurrence and phenomena accompanying dirtstorms in the Mississippi Valley.

301 —— Origin and age of certain gold "pocket" deposits in northern California.
Am. Geol., vol. xxiv, pp. 38–43, 1899.
Describes the geologic features of the region, and the character, age, and origin of the gold deposits.

302 —— Age and origin of certain gold deposits on the Isthmus of Panama.
Am. Geol., vol. xxiv, pp. 73–77, 1899.
Describes the character, occurrence, and age of the gold-bearing formations.

303 —— Correlations in the Ozark region, a correction.
Am. Geol., vol. xxiv, pp. 190–192, 1899.
Discusses correlation of the Carboniferous and Devonian formations of the region.

304 —— The gold-bearing formations of Stephenson County, Illinois.
Am. Geol., vol. xxiv, pp. 240–244, 1899.
Describes occurrence of gold in the Utica formation of Illinois.

305 **Hershey** (Oscar H.). Archæological notes on central Minnesota.
Am. Geol., vol. xxiv, pp. 283–294, 1899.
Describes glacial phenomena of the region and the occurrence of the implement-bearing beds.

306 —— The Upper Coffee Creek mining district [California].
Min. and Sci. Press, vol. lxxix, p. 689, 1899.
Describes the geologic features and occurrence of gold in the region.

307 **Heydon** (A. Thurston). The headwaters of the Lewis River [British Columbia.]
Min. and Sci. Press, vol. lxxviii, p. 65, 1899.
Describes occurrence of gold in the region.

308 —— Glacial agency in lake formation.
Min. and Sci. Press, vol. lxxviii, p. 265, 1 fig., 1899.

309 **Hidden** (W. E.), **Judd** (J. W.) and. New mode of occurrence of ruby in North Carolina.
See Judd (J. W.) and Hidden (W. E.). No. 367.

310 **Hilgard** (E. W.). The subdivision of genera.
Science, new ser., vol. x, pp. 649–650, 1899.

311 **Hill** (Benj. F.). Notes on a set of rocks from Wyoming, collected by Prof. Wilbur C. Knight, of the University of Wyoming.
School of Mines Quart., vol. xx, pp. 357–364, 5 figs., 1899.
Describes the petrographic characters of the rocks collected.

312 **Hill** (Robert T.). Cuba and Porto Rico, with the other islands of the West Indies; their topography, climate, flora, products, industries, cities, people, political conditions, etc.
New York, The Century Company, 1898, pp. 28–429, 2 maps, 79 plates. Review: Science, new ser., vol. ix, pp. 65–66, 1899.
Includes an account of the physiography and general geologic features of the West Indian Islands.

313 —— The geology and physical geography of Jamaica; study of a type of Antillean development, based upon surveys made for Alexander Agassiz.
Harvard Coll., Mus. of Comp. Zool., Bull., vol. xxxiv, pp. 1–256, 41 pls., 40 figs. Review: Jour. of Geol., vol. vii, pp. 815–824, 1899.
Describes the topographic and geologic features, the occurrence, character, distribution, and fauna of the Cretaceous, Tertiary, and Pleistocene formations and discusses their relation to formations in adjacent islands and the history of the physiographic changes of the West Indies. Contains petrographic notes on igneous rocks by Whitman Cross.

314 —— Porto Rico.
Nat. Geog. Mag., vol. x, pp. 93–112, 13 figs., 1899.
Describes the general physiographic and geologic features of the island.

315 **Hillebrand** (W. F.). Chemical notes on the composition of the roofing slates of eastern New York and western Vermont.
U. S. Geol. Surv., 19th Ann. Rept., Pt. III, pp. 301–305, 1899.

316 —— Mineralogical notes, analyses of tysonite, bastnasite, prosopite, jeffersonite, covellite, etc.
Am. Jour. Sci., 4th ser., vol. vii, pp. 51–57, 1899. Abstract: Am. Geol., vol. xxiii, pp. 324–325 (½ p.), 1899.

317 —— Analysis and composition [of roscoelite].
Am. Jour. Sci., 4th ser., vol. vii, pp. 451–454, 1899. Review: Am. Geol., vol. xxiv, p. 317 (⅛ p.), 1899.
Describes methods of analysis and chemical composition of the material.

318 —— Mineralogical notes, melonite (?), coloradoite, petzite, hessite.
Am, Jour. Sci., 4th ser., vol. viii, pp. 295–298, 1899. Review: Am. Geol., vol. xxiv, p. 321 (8 l.), 1899.

319 **Hills** (Richard Charles). Elmoro folio, Colorado.
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 58, 1899.
Describes the physiography, the occurrence, and character of the Cretaceous, Neocene, and igneous rocks, and the occurrence of coal and other economic products. Includes topographic and geologic maps, structure, and columnar sections, and special illustrations.

320. **Hobbs** (Walter E.). Some new fossils from eastern Massachusetts.
Am. Geol., vol. xxiii, pp. 109–115, 1 fig., 1899.
Describes character and occurrence of Algonkian and Cambrian rocks, the occurrence of organic remains in the Algonkian strata and the character of a new species from the Middle Cambrian.

321. **Hobbs** (W. H.). The diamond field of the Great Lakes.
Jour. of Geol., vol. vii, pp. 375–388, 1899.
Gives historical sketch of the discovery of diamonds in this region and describes their character, occurrence, and origin.

322 —— Goldschmidtite, a new mineral.
Am. Jour. Sci., 4th ser. vol. vii, pp. 357–364, 1899. Review: Am. Geol., vol. xxiv, p. 182 (⅓ p.) 1899.
Describes the chemical and crystallographic characters of goldschmidtite and sylvanite.

323 —— Spiral fulgurite from Wisconsin.
Am. Jour. Sci., 4th ser., vol. viii, pp. 17–20, 1899.
Describes character and occurrence of the material.

324 **Hoffmann** (G. Christian). An occurrence of polycrase in Canada.
Am. Jour. Sci., 4th ser., vol. vii, p. 243 (½ p.), 1899.
Describes occurrence and chemical composition.

325 **Hollick** (Arthur). Some features of the Staten Island drift, New York.
Abstract: Geol. Soc. Am., Bull., vol. x, pp. 2–4, 1899.
Describes general geology and character of the glacial moraines.

326 **Hollick** (Arthur). The relation between forestry and geology in New Jersey.
Am. Nat., vol. xxxiii, pp. 1–14, 109–116, 1899.

327 —— Geology and geography of the American Association for the Advancement of Science.
Science, new ser., vol. x, pp. 487–491, 1899.
Contains brief abstracts of papers read.

328 —— A report on a collection of fossil plants from northwestern Louisiana.
La. Exp. Stat., Part V, pp. 276–288, pls. 32–48, 1899.

329 —— Notes on deep wells at Princes Bay and Huguenot [Staten Island, New York].
Staten Island Nat. Sci. Assoc., Proc., vol. vii, p. 19, 1899.

330 **Holmes** (Chas.). Coal and coal mining in Michigan.
Abstract: Eng. and Min. Jour., vol. lxviii, pp. 335–336, 1899.
Describes occurrence and character of the coal.

331 **Holmes** (J. A.). Mica deposits in the United States.
U. S. Geol. Surv., 20th Ann. Rept., Pt. VI (cont.), pp. 691–707, 1899.
Abstracts: The Mineral Industry for 1898, vol. vii, pp. 510–511; Science, new ser., vol. ix, p. 142 (¼ p.); Am. Geol., vol. xxiii, pp. 106–108; Eng. and Min. Jour., vol. lxvii, p. 174, 1899.
Describes the occurrence, character, structure, and origin of mica deposits.

332 —— Some geologic conditions favoring water-power developments in the South Atlantic region.
Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlviii, p. 226 (¼ p.); Science, new ser., vol. x, p. 488 (¼ p.), 1899.

333 **Holmes** (W. H.), **McGee** (W J) and. The geology and archeology of California.
See McGee (W J) and Holmes (W. H.), No. 455.

334 **Hopkins** (T. C.). Clays and clay industries of Pennsylvania. I. Clays of western Pennsylvania (in part).
Pa. State Coll., Ann. Rept. for 1897, appendix, pp. 1–183, 6 pls., 57 figs., 1898.
Describes the general features of clay and their products manufactured in the State.

335 —— Feldspars and kaolins of southeastern Pennsylvania.
Franklin Inst., Jour., vol. cxlviii, pp. 1–31, 1899.
Describes character, occurrence, and distribution in the region.

336 —— Kaolin: Its occurrence, technology, and trade.
The Mineral Industry for 1898, vol. vii, pp. 148–160, 1899.
Describes occurrence and distribution in the United States.

337 —— Feldspar: The occurrence, mining, and uses.
The Mineral Industry for 1898, vol. vii, pp. 262–268, 1899.
Describes occurrence and distribution in the United States.

338 **Hopkins** (T. C.). [Review of "Geology of the Yellowstone National Park, Part II, Descriptive geology, petrography, and paleontology," by Arnold Hague, J. P. Iddings, W. H. Weed, C. D. Walcott, G. H. Girty, T. W. Stanton, and F. H. Knowlton.]
Jour. of Geol., vol. vii, pp. 709–713, 1899.

339 —— The Conshohocken plastic clays [Pennsylvania].
Abstracts: Am. Geol., vol. xxiii, p. 102 (7 l.); Science, new ser., vol. ix, p. 139 (7 l.), 1899.

340 **Hovey** (E. O.). Eleventh winter meeting of the Geological Society of America.
Am. Geol., vol. xxiii, pp. 86–109; Sci. Am. Suppl., vol. xlvii, pp. 19288–19290, 1899.
Gives a summary of the papers read.

341 —— See **Whitfield** (R. P.), No. 730.

342 **Hovey** (Horace C.). The life and work of James Hall, LL. D.
Am. Geol., vol. xxiii, pp. 137–168, pls. iv–v, 1899.
Gives a sketch of his life and work and a list of his publications.

343 **Hubbard** (Lucius L.). Keweenaw Point, with particular reference to the felsites and their associated rocks [Michigan].
Mich. Geol. Surv., vol. vi, Part II, 155 pp., 10 pls., 11 figs., 1898.
Describes the character, occurrence, and relations of the sedimentary and volcanic rocks of the region.

344 **Hunt** (Alfred E.). Corundum in Ontario.
Am. Inst. Min. Engrs., Trans., vol. xxviii, p. 875, 1899.
In discussion of paper by Archibald Blue on the same subject.

I.

345 **Iddings** (Joseph P.). The intrusive rocks of the Gallatin Mountains, Bunsen Peak, and Mount Everts [Yellowstone National Park].
U. S. Geol. Surv., Mon. XXXII, Pt. II., pp. 60–88, pls. xi–xii, 1899.
Describes the petrographic and chemical characters of the rocks.

346 —— The igneous rocks of Electric Peak and Sepulchre Mountain [Yellowstone National Park].
U. S. Geol. Surv. Mon. XXXII, Pt. II, pp. 89–148, pls. xiii–xxii, figs. 1–3, 1899.
Describes the geologic features of the region and the character of the intrusive and volcanic rocks.

347 —— The dissected volcano of Crandall Basin, Wyoming.
U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 215–268, pls. xxvii–xxxiv, 1899.
Describes the general geology of the region, the occurrence and character of the breccias, the intrusive rocks, and the granular core and dikes. Includes chemical analyses.

348 **Iddings** (Joseph P.). The igneous rocks of the Absaroka Range and Two Ocean Plateau and of outlying portions of the Yellowstone National Park.

U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 269–325, pl. xxxv, 1899.

Describes the petrographic characters of the breccias, flows, and dike rocks.

349 —— Absarokite-shoshonite-banakite series [Yellowstone National Park].

U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 326–355, pls. xxxvi–xxxviii, 1899.

Describes petrographic and chemical characters.

350 —— The rhyolites [Yellowstone National Park].

U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 356–432, pls. xxxix–lvii, fig. 4, 1899.

Describes the megascopical and microscopical characters of the rhyolites and their distribution in the park.

351 —— Recent basalts [Yellowstone National Park].

U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 433–440, pls. lvii–lix, 1899.

Describes their distribution and petrographic characters.

352 —— [Remarks on the use of the term plutonic plugs.]

Jour. of Geol., vol. vii, pp. 96–97 (⅓ p.), 1899.

353 —— [Review of "Geological report on Isle Royale, Michigan," by A. C. Lane.]

Jour. of Geol., vol. vii, pp. 718–720, 1899.

354 —— and **Weed** (W. H.). Descriptive geology of the Gallatin Mountains [Yellowstone National Park.]

U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 1–59, pls. i–x, 1899.

Describes the character and occurrence of the Cambrian, Silurian, Devonian, Carboniferous, Juratrias, and Cretaceous strata and igneous rocks of the region.

355 —— —— Descriptive geology of the northern end of the Teton Range [Yellowstone National Park].

U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 149–164, pl. xxiii, 1899.

Describes the structure and the character and occurrence of the Cambrian, Silurian, Devonian, Carboniferous, Juratrias, and Cretaceous rocks of the region.

356 **Ingall** (Elfric Drew). Section of mineral statistics and mines. Annual report for 1897.

Can. Geol. Surv., new series, vol. x, Rept. S, 232 pp., 1898.

357 **Irving** (John D.). Some contact phenomena of the Palisade diabase [New Jersey].

School of Mines Quart., vol. xx, pp. 213–223, 3 figs., 1899.

Describes the effects of the intrusive on the diabase and sedimentary rocks.

J.

358 **Jaggar** (T. A., jr.). [Review of "Maryland Geological Survey, vols. i and ii."]
Am. Nat., vol. xxxiii, pp. 277–279, 1899.

359 **Jefferson** (M. S. W.) Beach cusps.
Jour. of Geol., vol. vii, pp. 237–246, 5 figs., 1899.
Describes mode of formation on Massachusetts coast.

360 **Jenney** (W. P.). See **Ward** (L. F.), No. 690.

361 **Johnson** (Charles W.). A new Pliocene Polygyra from Florida.
Nautilus, vol. xiii, pp. 679–681, 1899.
Describes Polygyra caloosaensis n. sp.

362 **Johnson** (W. D.). An unrecognized process in glacial erosion.
Abstracts: Am. Geol., vol. xxiii, pp. 99–100; Science, vol. ix, p. 106 (½ p.), 1899.

363 —— The work of glaciers in high mountains.
Abstract: Science, new ser., vol. ix, pp. 112–113, 1899.

364 —— Subsidence basins of the high plains.
Abstract: Science, new ser., vol. ix, pp. 152–153, 1899.

365 **Jones** (A. W.). New developments of the Mentor beds.
Kan. Acad. Sci., Trans., vol. xvi, pp. 65–66, 1899.
Gives notes on occurrence and fauna in Kansas.

366 **Jones** (T. Rupert) and **Woodward** (Henry). Contributions to fossil Crustacea.
Geol. Mag., dec. iv, vol. vi, pp. 388–395, pl. xv, 1899.
Describes Bellinurus grandævus from Nova Scotia.

367 **Judd** (J. W.) and **Hidden** (W. E.). New mode of occurrence of ruby in North Carolina. With crystallographic notes by J. H. Pratt.
Am. Jour. Sci., 4th ser., vol. viii, pp. 370–381, 1899.
Describes occurrence, character, mineral associates, and crystallography of the material.

367*a* **Jukes-Browne** (A. J.), **Harrison** (J. B.) and. The Oceanic deposits of Trinidad [British West Indies].
See Harrison (J. B.) and Jukes-Browne (A. J.), No. 284.

K.

368 **Kain** (S. W.), **Matthew** (G. F.) and. On artesian and fissure wells in New Brunswick.
See Matthew (G. F.) and Kain (S. W.), No. 473.

369 **Kelvin** (Lord). The age of the earth as an abode fitted for life.
Science, new ser., vol. ix, pp. 665–674 and 704–711, 1899.

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

U. S. Geol. Surv., 19th Ann. Rept., Pt. III, pp. 377–422, pls. lv–lxiii, 1899.

Describes the chemical composition, geologic features, local occurrence, and origin of the titaniferous ores of the region. Reviews the general occurrence of these ores in other regions.

371 —— Granites of southern Rhode Island and Connecticut with observations on Atlantic coast granites in general.

Geol. Soc. Am. Bull., vol. x, pp. 361–382, pls. xxxv–xli, 1899. Abstracts: Am. Geol., vol. xxiii, pp. 105–106 (⅓ p.); Science, new ser., vol. ix, pp. 140–141, 1899.

Describes petrographic character of the Rhode Island granites and the occurrence and character of the granites in the States and Provinces of the Atlantic coast.

372 —— A brief review of the titaniferous magnetites.

School of Mines Quart., vol. xx, pp. 323–356, vol. xxi, pp. 56–65, 1899.

Describes occurrence and chemical characters of the magnetite ores of the United States and other countries.

373 —— Metamorphosed basic dikes in the Manhattan schists, New York City.

Abstracts: Am. Geol., vol. xxiii, p. 105 (6 l.); Science, new ser., vol. ix, p. 140 (⅓ p.), 1899.

374 —— Eleventh Annual Meeting of the Geological Society of America. December 28, 29, and 30 [1898], New York.

Science, new ser., vol. ix, pp. 100–106, 138–145, 1899.

Contains abstracts of papers presented at the meeting.

375 **Kendall** (J. D.). The silver-lead deposits of the Slocan, British Columbia.

Can. Min. Rev., vol. xviii, pp. 172–186, 42 figs., 1899.

Describes the occurrence and character of the deposits.

376 **Keyes** (Charles R.). American homotaxial equivalents of the original Permian.

Jour. of Geol., vol. vii, pp. 321–341, 1899.

Describes character, occurrence, and faunas of probable Permian strata and discusses their homotaxial relations to the Permian of Europe.

377 —— Some physical aspects of general geological correlation.

Iowa Acad. Sci., Proc., vol. vi, pp. 131–154, pl. vi, 1899.

Discusses methods and criteria to be employed in geologic correlation.

378 —— The Missourian series of the Carboniferous.

Am. Geol., vol. xxiii, pp. 298–316, 1899.

Gives a historical review of the literature on this series, and a description of the character, distribution, and geologic structure of the subdivisions of the series.

379 —— [Review of a review of Wachsmuth and Springer's Monograph on Crinoids, by F. A. Bather.]

Am. Geol., vol. xxiv, pp. 56–58, 1899.

380 **Keyes** (Charles R.). On stratification planes.
Am. Geol., vol. xxiv, pp. 294–300, 1899.
Describes bedding planes, terranal planes, great planes of sedimentation, and erosion planes.

381 —— [Review of "Geology of the Aspen mining district, Colorado," by J. Edward Spurr.]
Am. Geol., vol. xxiv, pp. 307–308, 1899.

382 **Kimball** (James P.). The granites of Carbon County, Montana: A division and glacier field of the Snowy Range.
Am. Geog. Soc. Bull., vol. xxxi, pp. 109–215, pls. i–v, fig. 1, 1899.
Describes the physiographic features of the region and the occurrence of glaciers.

383 **Kindle** (Edward M.). The Devonian and Lower Carboniferous faunas of southern Indiana and central Kentucky.
Am. Pal. Bull., No. 12, 112 pp., 1899.
Describes briefly the stratigraphy of the region and gives notes on the fauna of various sections and a list showing range and distribution of the species. Discusses correlation of the faunas.

384 **King** (Francis H.). Principles and conditions of the movements of ground water.
U. S. Geol. Surv. 19th Ann. Rept., Pt. II, pp. 59–294, pls. vi–xvi, figs. 2–53, 1899.

385 **King** (Helen Dean). Edward Drinker Cope.
Am. Geol., vol. xxiii, pp. 1–41, pl. i, 1899.
Gives a brief sketch of Professor Cope's life and bibliographic list of his publications.

386 **Knapp** (S. A.). Occurrence and recovery of sodium carbonate in the Great Basin.
The Mineral Industry for 1898, vol. vii, pp. 626–634, 1899.

387 **Knight** (Wilbur C.). The Nebraska Permian.
Jour. of Geol., vol. vii, pp. 357–374, 1899.
Describes character, occurrence, and faunas of the Kansas and Nebraska Permian strata.

388 —— Some new data for converting geological time into years.
Science, new ser., vol. x, pp. 607–608, 1899.
Describes the method adopted of estimating the time of the erosion of certain Miocene beds in Wyoming.

389 —— and **Barbour** (E. H.). The discovery of new invertebrates in the Dinosaur beds of Wyoming.
See Barbour (E. H.) and Knight (W. C.), No. 31.

390 —— and **Slosson** (E. E.). The oil fields of Crook and Uinta counties, Wyoming.
Wyoming Univ. School of Mines, Bull., No. 3, 1899. (Not seen.)

391 **Knowlton** (Frank Hall). Report on some fossil wood from the Richmond Basin, Virginia.

U. S. Geol. Surv., 19th Ann. Rept., Pt. II, pp. 516–519, pl. lii, 1899.

Describes two species of Araucarioxylon.

392 —— Fossil flora [Yellowstone National Park].

U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 651–882, pls. lxxvii–cxxi, 1899.

Describes the fossil flora collected in the region and their relations, and the occurrence and character of the fossil forests.

393 —— Catalogue of Cretaceous and Tertiary plants of North America.

Review: Am. Jour. Sci., 4th ser., vol. vii, p. 168 (⅓ p.), 1899.

See Bibliography and Index for 1898, No. 450.

394 —— See **Ward** (L. F.). No. 690.

395 **Kümmel** (Henry B.). The extension of the Newark system of rocks.

N. J. Geol. Surv., Rept. for 1898, pp. 43–57, pl. ii, figs. 9–10, 1899. Abstracts: Am. Geol., vol. xxiii, p. 83 (⅓ p.); Science, new ser., vol. ix, pp. 102–103, 1899.

Describes the extension of the Newark system into New York.

396 —— The Newark rocks of New Jersey and New York.

Jour. of Geol., vol. vii, pp. 23–52, 4 figs., 1899.

Describes the occurrence, character, structure, and relation of the Newark sedimentary and trap rocks of the region. Includes geologic maps.

397 **Kuntze** (Otto). On the occurrence of quenstedtite near Montpelier, Iowa.

Am. Geol., vol. xxiii, pp. 119–121, 1899.

Describes occurrence, mode of formation, and chemical character.

398 **Kunz** (George F.). Native silver in North Carolina.

Am. Jour. Sci., 4th ser., vol. vii, pp. 242–243, 1899.

L.

399 **Ladd** (George E.). A preliminary report on a part of the clays of Georgia.

Ga. Geol. Surv. Bull., No. 6A, 204 pp., 28 pls., 1898.

Describes properties, occurrence, and distribution of clay deposits in Georgia.

400 —— Notes on the Cretaceous and associated clays of middle Georgia.

Am. Geol., vol. xxiii, pp. 240–249, 1899.

Describes the relations of the Cretaceous and Tertiary strata and character of the clays of the Potomac formation.

401 **Lakes** (Arthur). The Mother Lode of California.
Mines and Minerals, vol. xix, pp. 248–250, 5 figs., 1899.
Describes the structure and occurrence of the veins.

402 —— Boulder region, Colorado.
Mines and Minerals, vol. xix, pp. 252–253, 1899.
General notes on the region.

403 —— Placer mining in California.
Mines and Minerals, vol. xix, pp. 297–298, 2 figs., 1899.

404 —— Natural gas in Colorado.
Mines and Minerals, vol. xix, pp. 339–340, 1899.
Describes occurrence and origin.

405 —— New Almaden mines of Santa Clara County, California.
Mines and Minerals, vol. xix, pp. 346–349, 3 figs., 1899.

406 —— Observations on some prospects and mines around Breckenridge, South Park, Colorado.
Mines and Minerals, vol. xix, pp. 440–441, 2 figs., 1899.
Contains notes on the geology of the region.

407 —— California gold mines.
Mines and Minerals, vol. xix, pp. 444–446, 6 figs., 1899.

408 —— Coal fields of Colorado.
Mines and Minerals, vol. xix, pp. 541–543, 4 figs., 1899.

409 —— California asphaltum.
Mines and Minerals, vol. xx, pp. 108–109, 4 figs., 1899.
Describes occurrence and character of the material.

410 —— Grand River coal field of Colorado.
Mines and Minerals, vol. xx, pp. 110–111, 3 figs., 1899.
Describes geological occurrence of coal in this region.

411 —— Description of Raven Hill, Cripple Creek, and its ore deposits [Colorado].
Mines and Minerals, vol. xx, pp. 154–155, 1 fig., 1899.

412 —— Calaveras County mines [California].
Mines and Minerals, vol. xx, pp. 198–200, 6 figs., 1899.

413 **Lambe** (Lawrence M.). A revision of the genera and species of Canadian Paleozoic corals. The Madreporaria perforata and Alcyonaria.
Can. Geol. Surv., Cont. to Can. Pal., vol. iv, Pt. I, 96 pp., 5 pls., 1899.

414 —— On some species of Canadian Paleozoic corals.
Ottawa Nat., vol. xii, pp. 217–226, 237–258, 1899.
Describes structural details not given in original descriptions, and a supposed new species.

415 **Lambe** (Lawrence M.). On reptilian remains from the Cretaceous of northwestern Canada.
Ottawa Nat., vol. xiii, pp. 68–70, 1899.
Contains brief notes on the fossils collected.

416 —— Notes on a stromatoporoid from the Hudson River formation of Ontario.
Ottawa Nat., vol. xiii, pp. 170–171, 1399.
Contains notes on Labechia huronensis Billings.

417 **Lane** (Alfred C.). Geological report on Isle Royale, Michigan.
Mich. Geol. Surv., vol. vi, Pt. I, 281 pp., 16 pls., 29 figs., 1898.
Describes the structure, occurrence and character of the sedimentary and igneous rocks and the occurrence of diabase intrusives in the Huronian.

418 —— Water resources of the Lower Peninsula of Michigan.
U. S. Geol. Surv., Water-Supply Paper No. 30, 97 pp., 7 pls., 14 figs., 1899.
Describes the water supply of the region and the general physiographic and geologic features.

419 —— Lower Michigan mineral waters.
U. S. Geol. Surv., Water-Supply Paper No. 31, 97 pp., 4 pls., 2 figs., 1899.
Describes chemical composition and occurrence.

420 —— Note on a method of stream capture.
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Am. Jour. Sci., 4th ser., vol. vii, pp. 398–399, 1899.

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.]
Am. Jour. Sci., 4th ser., vol. viii, pp. 466–467, 1899.

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Includes description of the Webster chromite for which the name mitchellite is proposed.

532 —— Separation of alumina from molten magmas, and the formation of corundum.
Am. Jour. Sci., 4th ser., vol. viii, pp. 227–231, 1899. Review: Am. Geol., vol. xxiv, pp. 319–321 (½ p.), 1899.
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533 —— Notes on North Carolina minerals.
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534 —— See **Judd** (J. W.) and **Hidden** (W. E.), No. 367.

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See Monroe (C. E.) and Teller (E. E.), No. 490.

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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Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 98–116, pl. lxii, F–I, fig. 9, 1899.
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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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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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641 —— Gold mining in the Klondike district [Alaska].
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Describes the physiographic features, the character and occurrence of the Silurian, Devonian, Carboniferous, and Pleistocene subdivisions, and the occurrence of economic products.

643 —— The Sweetland Creek beds.
Jour. of Geol., vol. vii, pp. 65–78, 1899.
Gives several sections of the beds and describes their distribution, structural relations, and fauna.

644 —— Dipterus in the American Middle Devonian.
Jour. of Geol., vol. vii, pp. 494–495, 1 fig., 1899.
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645 —— Some Cretaceous drift pebbles in northern Iowa.
Am. Geol., vol. xxiv, pp. 389–390, 1899.

646 —— Diatomaceous earth in Muscatine County [Iowa].
Iowa Acad. Sci. Proc., vol. vi, pp. 53 (½ p.), 1899.
Brief note on occurrence.

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649 —— The geology of Cass County and of the part of Crow Wing County northwest of the Mississippi River [Minnesota].
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650 —— Geology of the region around Red Lake and southward to White Earth [Minnesota].
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651 —— Evidence of epeiroganic movements causing and terminating the Ice age.
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652 —— Glacial and modified drift in Minneapolis, Minn.
Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlviii, p. 229 (½ p.); Science, new ser., vol. x, p. 490 (¼ p.), 1899.

653 —— Greatest area and thickness of the North American ice sheet.
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Am. Geol., vol. xxiii, p. 192 (¾ p.), 1899.

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Am. Geol., vol. xxiii, pp. 192–193, 1899.

656 —— Modified drift in the Champlain epoch.
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657 —— [Review of "Iron making in Alabama," by W. B. Phillips.]
Am. Geol., vol. xxiii, pp. 328–329 (⅓ 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.]
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Am. Geol., vol. xxiii, pp. 369–374, 1899.
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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 (⅓ 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 epeirogaṇic 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 (⅓ 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 (⅓ 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-porphyry, paisanite, sölvsbergite, tinguaite, 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. xxiii, 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 (⅓ 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 Dictyospongidæ," 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.

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 (⅓ p.), vol. xxiv, pp. 253–254; Science, new ser., vol. ix, p. 138 (½ 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 (¼ p.); Science, new ser., vol. ix, p. 102 (½ 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 vertebræ.

737 —— Cycadean Monœcism.
Am. Jour. Sci., 4th. ser., vol. viii, p. 164 (⅔ 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 (⅓ 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 (½ 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. lxvi, 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. lxvii, 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].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 266–312, pls. lxviii, X–Z, AA–EE, figs. 38–54, 1899.
Describes the physiographic features and the character and occurrence of Archean rocks, Cambrian sediments and igneous intrusions, and glacial history of the region.

761 —— The geology of the Hibbing plate of the Mesabi Iron Range [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 358–364, pl. lxxiii, 1899.
Describes the occurrence and character of the rocks associated with the iron ores.

762 —— The geology of the Mountain Iron plate of the Mesabi Iron Range [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 365–369, pl. lxxiv, fig. 62, 1899.
Describes the occurrence and character of the Cambrian rocks and occurrence of iron ores.

763 **Winchell** (Newton H.). The geology of the Virginia plate of the Mesabi Iron Range [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 370–382, pl. lxxv, 1899.
Describes the character and occurrence of the Archean, Cambrian, and Cretaceous rocks and iron ores of the region.

764 —— The geology of the Partridge River plate of the Mesabi Iron Range [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 383–389, pl. lxxvi, 1899.
Describes the character and occurrence of the Archean and Cambrian rocks of the region.

765 —— The geology of the Dunka River plate of the Mesabi Iron Range [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 390–398, pl. lxxvii, 1899.
Describes the occurrence of the Archean and Cambrian rocks.

766 —— The geology of the Pigeon Point plate [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 502–521, pl. lxxxv, and OO, figs. 91–100, 1899.
Describes the physiography and character and occurrence of the Cambrian strata.

767 —— The geology of the Vermilion Lake plate [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 522–549, pl. lxxxvi, and QQ–UU, WW, figs. 101–105, 1899.
Describes the physiography and the character and occurrence of the Archean and iron-bearing rocks.

768 —— The geology of the Carlton plate [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 550–565, pl. lxxxvi, and XX–ZZ, figs. 106–107, 1899.
Describes the geology of the region and discusses the age and relations of the Thomson slates.

769 —— The geology of the Duluth plate [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., pp. 566–580, pl. lxxxviii, figs. 108–110, 1899.
Describes the character and occurrence of the Cambrian rocks.

770 —— List of rock samples, with annotations, collected by N. H. Winchell, in 1896, 1897, and 1898.
Minn. Geol. and Nat. Hist. Surv., 24th Ann. Rept., pp. 1–84, 1899.

771 —— Thalite and bowlingite from the north shore of Lake Superior.
Am. Geol., vol. xxiii, pp. 41–44, 1899.
Describes microscopic and chemical characters of the material.

772 —— Chlorastrolite and zonochlorite from Isle Royale [Michigan].
Am. Geol., vol. xxiii, pp. 116–118, 1899.
Describes characters and material.

773 **Winchell** (Newton H.). Common zeolites of the Minnesota shore of Lake Superior.
Am. Geol., vol. xxiii, pp. 176–177, 1899.
Describes the characters of stilbite, heulandite, laumontite, and mesotype.

774 —— The optical characters of jacksonite.
Am. Geol., vol. xxiii, pp. 250–251, 1899.
Describes the microscopic and chemical character of the material.

775 —— [Review of "Rivers of North America; a reading lesson for students of geography and geology," by Israel C. Russell.]
Am. Geol., vol. xxiii, pp. 261–262, 1899.

776 —— Adularia and other secondary minerals of the copper-bearing rocks.
Am. Geol., vol. xxiii, pp. 317–318, 1899.
Describes crystallography and chemical characters of adularia and wollastonite.

777 —— [Review of "Report on the boundary between the Potsdam and pre-Cambrian rocks north of the Adirondacks" and "Augite-syenite gneiss near Loon Lake, New York."]
Am. Geol., vol. xxiii, p. 330, 1899.

778 —— [Review of "The characters of crystals: an introduction to physical crystallography," by Alfred J. Moses.]
Am. Geol., vol. xxiii, p. 389 (¼ p.), 1899.

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20	146	175	356	498	725
24	152	212	399	512	726
47	159	275	417	604	727
73	165	276	445	639	799
88	166	334	451	683	
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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.
sirœa 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.
(Cranœna) romingeri Hall, Grabau, No. 229.
Diospyros haguei n. sp., Knowlton, No. 392.
lamarensis n. sp., Knowlton, No. 392.
Diphyphyllum cœspitosum 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.
Discohelix verrili 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.
Echinarachinius 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.
nuculloides 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.
deciduum 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 verneuiliana Hall, Girty, No. 223.
Euomphalus n. sp., Girty, No. 222.

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.
Hadrophyllum, E. and H., Grabau, No. 229.
woodi n. sp., Grabau, No. 229.
Haguia n. gen., Walcott, No. 682.
sphærica 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.
Heliophyllum Hall, Grabau, No. 229.
confluens Hall, Grabau, No. 229.
halli, E. and H. Grabau, No. 229.
Helminthoidichnites meeki n. sp., Walcott, No. 681.
(?) neihartensis 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 sphæroidalis 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 Kœnig, 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.
botrœdema n. sp., Hall and Clarke, Nos. 275, 276.
eumeces n. sp., Hall and Clarke, Nos. 275, 276.
eutheles 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 primordialis Hall, Walcott, No. 682.
Hyomeryx Marsh, Scott, No. 576.
Hypertragulus Cope, Scott, No. 576.
Hyphantænia 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.
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 kaulfusii Heer, Knowlton, No. 392.
Lynx calcaratus Cope, Cope, No. 118.
Lyopora Nich. and Eth. jun., Lambe, No. 413.
goldfussi Billings (sp.), Lambe, No. 413.
Lyrodictya 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.
hamiltoniæ Hall, Grabau, No. 229.
sp., Weller, No. 711.
Macron philadelphicus n. sp., Harris, No. 281.
Mactra bistriata 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.
Mantioceras 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.
sphenopteroides (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.
favosistoidea Billings em. (favosoidea), 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.
stubbsi n. sp., Harris, No. 280.
sp., Logan, No. 440.

Paleontology—Continued.
Genera and species described—Continued.
Odontoperis ? bradleyi Lx., White, No. 720.
wortheni Lx., White, No. 719.
Oligocarpia cf. gutbieri Goepp, 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.
lodiensis 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.
Orthosthropia 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.
leeii n. sp., Logan, No. 440.
plumosa, Harris, No. 280.
pulaskensis, Harris, No. 280.
thirsæ, 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.
Palæoneilo 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.
tenuistriata 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.
(Dactylotheca) 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.
gemmæus Hall and Clarke, Grabau, No, 229.
Phanerotinus paradoxus Winchell, Weller. No. 711.
Philine alabamensis Ald., Harris, No. 281.

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.
banano 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 choanæ 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.
palæa 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.
lævicosta White, Girty, No. 223.
parviformis n. sp., Girty, No. 223.
scabriculus Martin, Girty, No. 223.
semireticulatus (Martin)?, Girty, Nos. 222, 223.
Proetus Steininger, 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.
Protagriochoerus 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.
Protospyræna gigas n. sp., Stewart, No. 610.

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.
meekanus, n. sp., Girty, No. 222.
pandatus, n. sp., Girty, No. 222.
telliniformis, n. sp., Girty, No. 222.
Schizophoria swallovi (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.
langsdorfii (Brongn.) Heer, Knowlton, No. 392.
magnifica n. sp., Knowlton, No. 392.
reichenbachi (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 subsclarina 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.
huppertzi 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.
chærophylloides (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.
subcrenulata (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.
(Crossotheca) ophioglossoides (Lx.), White. No. 720.
(Hymenotheca) broadheadi n. sp., White, No. 720.
Sphenotus Hall, Grabau, No. 229.
truncatus (Conrad), Grabau, No. 229.
Spirialis choctavensis 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. eatoni Hall, Grabau, No. 229.

Paleontology—Continued.
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 amœnus 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 præcursoria 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.
pœcilus 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.
Tornatellœa 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) eocensis 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.
Trochosmilia 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.
præcincta 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 dyspelor, 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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