DEPARTMENT OF THE INTERIOR

BULLETIN

OF THE

UNITED STATES

GEOLOGICAL SURVEY

No. 146

WASHINGTON
GOVERNMENT PRINTING OFFICE
1896

UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

BIBLIOGRAPHY AND INDEX

OF

NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY

FOR

THE YEAR 1895

BY

FRED BOUGHTON WEEKS

WASHINGTON

GOVERNMENT PRINTING OFFICE

1896

CONTENTS.

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF GEOLOGY,
Washington, D. C., June 23, 1896.

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 1895, 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 1895.

By FRED BOUGHTON WEEKS.

INTRODUCTION.

The present work comprises a record of publications on North American geology, paleontology, petrology, and mineralogy for the year 1895. It is planned on the same lines as the previous bulletins (Nos. 130 and 135), excepting that abstracts appearing in regular periodicals have been omitted in this volume.

Bibliography.—The bibliography consists of full titles of separate papers, classified by authors, an abbreviated reference to the publication in which the paper is printed, and a brief summary of the contents, each paper being numbered for index reference. The extent of papers less than a single page in length is indicated as ⅓ p., 5 l. (lines).

Index.—The subject headings, their subdivisions and arrangement, are shown in the Classified Key to the Index. They comprise geographic, geologic, mineralogic, paleontologic, and petrologic subdivisions. Under Economic Geology is given a list of useful minerals and ores described in publications examined; under Mineralogy, a list of minerals described in such publications; under Paleontology, a list of genera and species of fossils therein described, and under Petrology, a list of rocks described, reference being made in each case, by author's name and number of article in the Bibliography, to the paper in which the fossil, mineral, or rock is described.

LIST OF PUBLICATIONS EXAMINED.

Académie Royale des Sciences, des Lettres, et des Beaux-arts de Belgique: Bulletin, 3d ser., Vols. XXVI–XXIX; Memoirs, Vols. XLVII–LII. Bruxelles, Belgium.

Alabama, Geological Survey: Report upon the Coosa coal field, by A. M. Gibson. Montgomery, Ala.

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

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

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

American Geologist, Vols. XV–XVI. Minneapolis, Minn.

American Institute of Mining Engineers: Transactions, Vol. XXIV. New York, N. Y.

American Journal of Science, 3d ser., Vols. XLIX–L. New Haven, Conn.

American Museum of Natural History: Bulletin, Vol. VII. New York, N. Y.

American Naturalist, Vol. XXIX. Philadelphia, Pa.

American Philosophical Society: Proceedings, Vol. XXXIV, Nos. 147–149. Philadelphia, Pa.

Annals and Magazine of Natural History, Vols. XV–XVI. London, England.

Appalachia, Vol. VII, No. 4. Boston, Mass.

Boston Society of Natural History: Proceedings, Vol. XXVI, Part IV; Memoirs, Vol. V, Nos. 1–2; Occasional Papers, IV, Vol. I, Part II, 1894. Boston, Mass.

Botanical Gazette, Vol. XX. Madison, Wis.

British Association for the Advancement of Science: Reports, 1894 and 1895. London, England.

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

California State Mining Bureau: Bulletins, Nos. 3–7. Sacramento, Cal.

California, University of, Department of Geology: Bulletin, Vol. I, Nos. 9–11. Berkeley, Cal.

Canada, Geological and Natural History Survey: Reports, 1892–93, New Series, Vol. VI; Paleozoic Fossils, Vol. III, Part II; Contributions to Canadian Paleontology, Vol. II, Part I. Montreal, Canada.

Canada, Royal Society: Proceedings and Transactions, Vol. XII. Montreal, Canada.

Canadian Institute: Transactions, Vol. IV, part 2. Toronto, Ontario.

Cincinnati Society of Natural History: Journal, Vol. XVII, No. 4, and Vol. XVIII, Nos. 1–2. Cincinnati, Ohio.

Connecticut Academy of Arts and Sciences: Transactions, Vol. IX, part 2. New Haven, Conn.

Elisha Mitchell Scientific Society: Journal, Part II, 1894; Part I, 1895. Raleigh, N. C.

Engineering and Mining Journal, Vols. LIX–LX. New York, N. Y.

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

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

Hamilton Association: Journal and Proceedings, No. XI. Hamilton, Ontario.

Harvard College, Museum of Comparative Zoology: Bulletin, Vol. XXVI, No. 2; Memoirs, Vol. XVIII. Cambridge, Mass.
Illinois State Museum of Natural History: Bulletin, No. 7. Springfield, Ill.
Iowa, Academy of Sciences: Procedings, Vol. II. Des Moines, Iowa.
Iowa, Geological Survey: Second Annual Report, Vol. III; Third Annual Report, Vol. IV. Des Moines, Iowa.
Iowa, State University, Laboratories of Natural History: Bulletin, Vol. III, No. 3. Iowa City, Iowa.
Johns Hopkins University: Circulars, Vol. XIV. Baltimore, Md.
Journal of Geology, Vol. III. Chicago, Ill.
Journal of Morphology, Vols. X–XI. New York, N. Y.
Kansas University Quarterly, Vol. III, Nos. 3-4; Vol. IV, No. 1. Lawrence, Kans.
Liverpool Geological Association: Journal, Vol. XIV, 1894. Liverpool, England.
London, Geological Society, Quarterly Journal, Vol. LI. London, England.
London, Geologists' Association: Proceedings, Vol. XIV, Parts 1-5. London, England.
London, Royal Society: Proceedings, Vols. LVI–LVIII; Philosophical Transactions, Vol. CLXXXV, A, B. London, England.
Manchester, Geological Society: Transactions, Vol. XXIII, Parts III–IX. Manchester, England.
Minnesota, Geological and Natural History Survey: Twenty-third Annual Report; Final Report, Vol. III, Part I. Minneapolis, Minn.
Missouri, Geological Survey: Paleontology of Missouri, Vols. IV and V, 1894; Lead and Zinc deposits, Vols. VI and VII. Jefferson City, Mo.
National Academy of Sciences: Memoirs, Vol. VII. Washington, D. C.
Nautilus, Vol. VIII, Nos. 9-12 and Vol. IX, Nos. 1–8. Philadelphia, Pa.
Neues Jahrbuch für Mineralogie, Geologie, und Palaeontologie: 1894, Bänder I and II, Hefte 1–3; 1895, Bänder I and II, Hefte 1–3. Stuttgart, Germany.
New Brunswick Natural History Society: Bulletin, No. XIII. St. John, New Brunswick.
New Jersey, Geological Survey: Annual Report for 1894. Trenton, N. J.
New York, Academy of Sciences: Transactions, Vol. XIV; Annals, Vol VIII, Nos. 6–12. New York, N. Y.
New York, State Museum. Bulletin, Vol. III, Nos. 12-14. Albany, N. Y.
Nova Scotian Institute of Science: Proceedings and Transactions, Vol. VIII. Halifax, Nova Scotia.
Ottawa Naturalist, Vol. IX, Nos. 1–9. Ottawa, Ontario.
Paleontographica, Band XLI, Lieferung 3–6. Stuttgart, Germany.
Pennsylvania, Geological Survey: Final Report, Vol. III, Parts I and II. Harrisburg, Pa.
Philadelphia Academy of Natural Sciences: Proceedings, 1895, Parts I–III. Philadelphia, Pa.
Popular Science Monthly, Vols. XLVI–XLVII. New York, N. Y.
St. Louis Academy of Science: Transactions, Vol. VI, No. 18, and Vol. VII, Nos. 1–3. St. Louis, Mo.
School of Mines Quarterly, Vol. XVI. New York, N. Y.
Science, New Series, Vols. I–II. New York, N. Y.
Scientific American, Vols. LXXII–LXXIII. New York, N. Y.
Scientific American Supplement, Vols. XXXIX–XL. New York, N. Y.
Smithsonian Institution: Contributions to Knowledge, Nos. 980 and 989; Miscellaneous Collections, Nos. 854, 971, and 972. Washington, D. C.
Societa geologica italiana: Bulletin, Vol. XIV. Rome, Italy.
Société géologique de Belgique: Annals, Vol. XXI. Liège, Belgium.
Société géologique de France: Bulletin, 3d ser., Vol. XXII, Nos. 7–10, and Vol. XXIII, Nos. 1–6; Memoirs, Vol. IV, Fascicles II–IV, 1894. Paris, France.
Technology Quarterly, Vol. VIII, Nos. 1–3. Boston, Mass.
Torrey Botanical Club: Bulletin, Vol. XXII. New York, N. Y.

United States Geological Survey: Fifteenth Annual Report and Sixteenth Annual Report, Parts II–IV; Bulletins, Nos. 121–126 and 128–129; Geologic Atlas of the United States, folios 16–22. Washington, D. C.

United States National Museum: Bulletin, No. 48; Proceedings, Vol. XVII; Annual Report for 1893. Washington, D. C.

Washington Biological Society: Proceedings, Vol. IX. Washington, D. C.

Wisconsin Academy of Science, Arts, and Letters: Transactions, Vol. X. Madison, Wis.

Wisconsin, University of: Science Series, Vol. I, Nos. 2–4. Madison, Wis.

Zeitschrift der deutschen geologischen Gesellschaft: Band XLVI, Heft 4, and Band XLVII, Hefte 1–2. Berlin, Germany.

CLASSIFIED KEY TO THE INDEX.

BIBLIOGRAPHY.

A.

1 **Abbe** (Cleveland, jr.). Remarks on the cuspate capes of the Carolina coast.

Boston Soc. Nat. Hist., Proc., vol. xxvi, pp. 489–497, figs. 1–2.

Describes the formation of these capes and discusses their origin.

2 **Adams** (Frank D.). A further contribution to our knowledge of the Laurentian.

Am. Jour. Sci., 3d ser., vol. l, pp. 58–69, with map.

Describes the general distribution of the Laurentian rocks of Canada and the lithologic character and relations of the two divisions which comprise the formation. Describes the petrographic characters and gives the chemical analysis of the gneiss and compares it with chemical analyses of gneiss and slate from other regions. Reviews the evidence as to the sedimentary origin of the gneiss.

3 —— Preliminary report on the geology of a portion of central Ontario, situated in the counties of Victoria, Peterborough, and Hastings.

Canada Geol. Surv., Ann. Rept., 1892–93, new ser., vol. vi, Rept. J, 15 pp.

Describes the character and distribution of the Laurentian rocks, including an occurrence of nepheline syenite, mentions the occurrences of iron-ore bodies, and gives their chemical analyses.

4 **Agassiz** (Alexander). Note on the Florida reef. [Letter to J. D. Dana.]

Am. Jour. Sci., 3d ser., vol. xlix, pp. 154–155.

Describes the formation of the coral reefs of Florida.

5 —— On underground temperatures at great depths.

Am. Jour. Sci., 3d ser., vol. l, pp. 503–504 (communicated).

Describes the method employed in obtaining the temperature in the mines at Calumet, Mich., and gives the temperatures at various depths down to 4,580 feet.

6 —— A visit to the Bermudas in March, 1894.

Harv. Coll., Mus. Comp. Zool., Bull., vol. xxvi, pp. 281, pls. 30.

Describes the æolian hills and dunes, the sounds and lagoons, the distribution of the corals, the ledge flats and patches, and the serpuline reefs. Mentions the occurrence of recent fossil shells, and discusses the evidences of an elevation of the islands.

7 **Aims** (Walton I.). Notes on the construction of the East River gas tunnel [New York].

Sci. Am. Suppl., vol. xl, pp. 16332–16335.

Gives a profile view of the tunnel and notes on the rocks penetrated.

8 **Aldrich** (T. H.). Description of two new Eocene Solaridæ from Alabama.

Nautilus, vol. ix, pp. 1–2, pl. 1.

Describes Solarium elaboratum Conrad vir bimixta and S. planiforme n. sp.

9 **Ami** (Henry M.). Fossil insects from the Leda clays of Ottawa and vicinity [Ontario].

Ottawa Nat., vol. ix, pp. 190–191.

Names the insects found in the Pleistocene beds of this locality and quotes description of Phyrganea ejecta by S. H. Scudder.

10 —— Notes on a collection of Silurian fossils from Cape George, Antigonish County, Nova Scotia, with descriptions of four new species.

Nova Scotian Inst. of Sci., Proc. and Trans., vol. viii, pp. 411–415.

Describes Serpulites longissimus n. var., Tentaculites canadensis n. sp., Discina nova-scotica n. sp., D. fletcheri n. sp., and D. orientalis n. sp., with notes on other fossils.

11 **Andersen** (Carl). The Cooney mining district, Socorro County, New Mexico.

Eng. and Mg. Jour., vol. lix, pp. 343–344, with map.

Describes the ore bodies in this district carrying gold and silver.

12 **Anderson** (F. M.). Some Cretaceous beds of Rogue River Valley, Oregon.

Jour. of Geol., vol. iii, pp. 455–468.

Describes the pre-Cretaceous rocks and the stratigraphy and structure of the Cretaceous series of a portion of southern Oregon. Gives lists of fossils collected and five cross sections.

13 **Ashley** (George H.). Studies in the Neocene of California.

Jour. of Geol., vol. iii, pp. 434–454.

Describes the general geology and stratigraphy of the Tertiary rocks of the Santa Cruz Mountains and the Pleistocene history of San Francisco Peninsula, as shown by its topography and deposits. Discusses the evidences of the age of the Coast ranges and the recent history of Santa Catalina Island. Includes a sketch map and cross sections of the region.

14 —— The Neocene stratigraphy of the Santa Cruz Mountains of California.

Cal. Acad. Sci., Proc., vol. v, pp. 273–367, pls. xxii–xxv.

Describes the topographic features of the mountains and reviews the literature regarding them. Gives a general geologic description of the region, including a columnar section, and the lithologic characters and distribution of the various deposits which form the range. Discusses the evidences as to the geologic age of these beds and gives lists of fossils that have been collected.

B.

15 **Bache** (Franklin). Coal sections developed by recent operations in Wise County, Virginia.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 70–80.

Describes the coal developments and gives sections from various parts of the coal area of the county.

16 **Bailey** (E. H. S.). Natural gas and coal oil in Kansas.

Kans. Univ. Quart., vol. iv, pp. 1–14.

Gives an account of the natural gas and petroleum industry of Kansas.

17 **Bailey** (L. W.). Preliminary report on geological investigations in southwestern Nova Scotia.

Canada Geol. Surv., Ann. Rept., 1892–93, new ser., vol. vi, Rept. Q, 21 pp., with geologic map.

Describes the character and distribution of the granite and of the Cambrian, Devonian, and Triassic formations. Includes a description of the economic minerals of the region.

18 **Bain** (Harry Foster). Cretaceous deposits of the Sioux Valley [Iowa].

Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 99–114, pls. vii–viii.

Describes the distribution and lithologic characters of the Cretaceous beds of northwestern Iowa and gives the sections exposed at various localities.

19 —— Geology of Keokuk County [Iowa].

Iowa Geol. Surv., vol. iv, 3d Ann. Rept., pp. 259–311, pl. viii, figs. 27–29, with geologic map.

Describes the topography and drainage of the county and the lithologic and stratigraphic features of the Carboniferous and Pleistocene formations. Gives vertical sections of different localities, and describes the occurrence of coal, clay, building stone, water supply, road materials, and mineral paint.

20 —— Geology of Mahaska County [Iowa].

Iowa Geol. Surv., vol. iv, 3d Ann. Rept., pp. 317–380, pl. ix, figs. 30–45, with geologic map.

Describes the physiography and drainage of the region and the stratigraphy and lithology of the rocks of the Carboniferous and Pleistocene formations. Gives typical vertical sections, and discusses the geologic structure. Includes remarks on the occurrence of coal, clay, lime, building stone, soils, water supply, and road materials.

21 —— Central Iowa section of the Mississippian series.

Am. Geol., vol. xv, pp. 317–325.

Abstract: Iowa Acad. Sci., Proc., vol. ii, p. 174.

Describes the lithologic character of the St. Louis, Augusta, and Kinderhook beds, which make up the Mississippian series in central Iowa, and mentions some of the characteristic fossils. Discusses the evidence indicating that a portion of the Kinderhook may possess closer affinities to the Devonian than to the Carboniferous.

22 —— Pre-Glacial elevation of Iowa.

Iowa Acad. Sci., Proc., vol. ii, pp. 23–26.

Discusses the evidences showing that this region, in pre-Glacial time, stood at a considerable elevation above the present.

23 **Bain** (Harry Foster). [Review of the "Preliminary report on the geology of South Dakota," by J. E. Todd].
Jour. of Geol., vol. iii, pp. 114–115.

24 —— Origin of certain features of coal basins.
Jour. of Geol., vol. iii, pp. 646–654.
Describes the character of the basins in which the coal of the Iowa-Missouri region occurs and discusses the origin of these basins.

25 —— Notes on Iowa building stones.
U. S. Geol. Surv., 16th Ann. Rept., pt. iv, pp. 500–503.
Notes on the character and distribution of building stones in Iowa, contained in a paper on "Stone," by William C. Day.

26 —— **Todd** (J. E.) and. Interloessial till near Sioux City, Iowa.
Iowa Acad. Sci., Proc., vol. ii, pp. 20–23, pl. 1.
See Todd (J. E.) and Bain (H. F.), No. 474.

27 **Barbour** (Erwin Hinckley). Is Dæmonelix a burrow? A reply to Dr. Theodor Fuchs.
Am. Nat., vol. xxix, pp. 517–527.
Describes the character of the Miocene bad lands of the United States and reviews the evidences which have been said to indicate that these Miocene beds are of aërial origin and Dæmonelix a rodent.

28 **Barlow** (Alfred E.). On some dikes containing "huronite."
Ottawa Nat., vol. ix, pp. 25–47.
Reviews the literature on huronite and describes the petrographic character of rocks from various parts of Canada and from Minnesota containing huronite.

29 **Barnard** (H. M.). The zoological position of trilobites.
Sci. Am. Suppl., vol. xl, pp. 16533–16534 and 16549–16550.
Describes the characters of trilobites and discusses their zoological position.

30 **Barton** (George H.). Glacial origin of channels on drumlins.
Geol. Soc. Am., Bull., vol. vi, pp. 8–13.
Describes the characteristics of Glacial and pre-Glacial erosion of drumlins and discusses the origin of channels on certain drumlins in Massachusetts.

31 **Bather** (F. A.). Brachiocrinus and Herpetocrinus.
Am. Geol., vol. xvi, pp. 213–217.
Discusses the reasons for considering that the fragments described as Brachiocrinus belong to the genus Herpetocrinus.

32 **Bayley** (W. S.). The basic massive rocks of the Lake Superior region, iv. The peripheral phases of the great gabbro mass in northeastern Minnesota.
Jour. of Geol. vol. iii, pp. 1–20.
Describes the olivinitic, hypersthenic, diallagic, biotitic, hornblendic, and nonfeldspathic varieties of the granulitic gabbros. Gives the author's conclusions and a preliminary geologic map of the vicinity of Akeley Lake, Minnesota.

33 **Bayley** (W. S.). Spherulitic volcanics at North Haven, Maine.
Geol. Soc. Am., Bull., vol. vi, pp. 474–476.
Describes the occurrence and characters of volcanic rocks, basalts, and rhyolites associated with Niagara limestones and sandstones in this vicinity.

34 —— **Van Hise** (C. R.) and. Preliminary report on the Marquette iron-bearing district of Michigan.
U. S. Geol. Surv., 15th Ann. Rept., pp. 477–650, pls. xiii–xxvi.
See Van Hise (C. R) and Bayley (W. S.), No. 503.

35 **Beadle** (H. M.). The Iron Mountain mine [Montana].
Eng. and Mg. Jour., vol. lx, p. 562.
Brief description of the silver-lead ore bodies of this district in Missoula County, Mont.

36 **Becker** (George F.). Gold fields of the southern Appalachians.
U. S. Geol. Surv., 16th Ann. Rept., Part III, pp. 251–331, pls. xvi–xviii.
Describes the geography of the region and gives a history of mining operations and statistics. Describes the characters of the rocks of the gold fields, their geologic structure, the gangue minerals, veins, impregnations, and placers. Includes descriptive notes of the Georgian belt, South Mountain mining district, North Carolina, and the Carolinian belt, and a review of the history of the gold fields of the British maritime provinces and of the Green Mountains. A bibliography of the subject is also given.

37 —— The torsional theory of joints.
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 130–138 and 865–867.
Describes the phenomena of joints, reviews some of the explanatory hypotheses and the results of the author's experiments, and discusses the torsional theory and the character of torsional rupture.

38 —— Distribution of gold deposits in Alaska.
Jour. of Geol., vol. iii, pp. 960–962.
Gives a brief description of the gold deposits of Alaska.

39 **Beecher** (Charles E.). Further observations on the ventral structure of Triarthrus.
Am. Geol., vol. xv, pp. 91–100.
Describes the ventral structure of Triarthrus as shown by additional characters observed since the publication of the last paper on this trilobite.

40 —— The larval stages of trilobites.
Am. Geol., vol. xvi, pp. 166–197, pls. viii–x.
Describes the characters of the protaspis and gives a review of the larval stages of trilobites and an analysis of the variations of trilobite larvæ. Describes the antiquity of trilobites, the restoration of the protapsis, and the development and characters of the crustacean Nauplius. Gives a summary, list of bibliographic references, and explanation of plates.

41 —— Structure and appendages of Trinucleus.
Am. Jour. Sci., 3d ser., vol. xlix, pp. 307–311, pl. iii.
Mentions the genera allied to Trinucleus and the homologous features in other trilobites. Describes and figures the appendages of Trinucleus concentricus, found associated with Triarthrus becki in the Utica slate near Rome, N. Y.

42 **Beecher** (Charles E.). Revision of the families of loop-bearing Brachiopoda.

Conn. Acad. of Arts and Sci., Trans., vol. ix, pp. 376–391, pls. i–ii.

Discusses the classification of the loop-bearing Brachiopoda and gives the author's classification of the genera.

43 **Bell** (Robert). Honeycombed limestones in Lake Huron.

Geol. Soc. Am. Bull., vol. vi, pp. 297–304, pls. 13–15.

Describes the physical characteristics, age, and appearance of the eroded rocks on Grand Manitoulin and adjacent islands. Discusses the relations of the erosion forms to rock variety and the causes which have produced this peculiar phenomena.

44 **Berkey** (Charles P.). Notes on Minnesota minerals.

Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., pp. 194–202.

Contains notes on minerals from amygdaloidal diabase, with a chemical analysis of the rock, and a description and chemical analysis of apophyllite, laumonite, strigovite, datolite, travertine, and marl.

45 **Blake** (William P.). The zinc deposits of southwestern New Mexico.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 187–195.

Gives a brief account of the geology of the region and of the characteristics of the ore bodies.

46 —— Note on the structure of the franklinite and zinc ore bodies of Sussex County, New Jersey.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 521–524.

Discusses the geologic structure of the region.

47 —— Alunogen and bauxite of New Mexico.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 571–573.

Brief description of a deposit in New Mexico and discussion of the origin of similar bauxites.

48 **Blow** (A. A.). The Leadville gold belt [Colorado].

Abstract: Eng. and Mg. Jour., vol. lix, p. 77, with map.

Gives a brief description of the topography and geology of the region and of the character and occurrence of the gold ores.

49 **Bonney** (T. G.). On the mode of occurrence of Eozoon canadense at Cote St. Pierre [Canada].

Geol. Mag., dec. iv, vol. ii, pp. 292–299.

Describes the limestones in which Eozoon canadense occurs at this locality and the characteristics of the associated gneisses.

50 **Boyd** (C. R.). Correlations in the coal rocks west of Pocahontas, Flat Top, Virginia.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 254–257.

Remarks on the occurrence of a conglomerate overlying the coal in this region and its bearing on the correlation of the coals.

51 —— [The torsional theory of joints.]

Am. Inst. Mg. Engrs., Trans., vol. xxiv, p. 866 (½ p.).

In discussion of paper by G. F. Becker on the same subject.

52 **Boyer** (Charles S.). A fossil marine diatomaceous deposit at St. Augustine, Florida.
Torrey Bot. Club, Bull., vol. xxii, pp. 171–174.
Brief notes on diatoms from an artesian well at this place.

53 —— A diatomaceous deposit from an artesian well at Wildwood, N. J.
Torrey Bot. Club, Bull., vol. xxii, pp. 260–266.
Gives a list of diatoms occurring in Miocene strata and describes two new species.

54 **Brewer** (William M.). Ducktown, Tenn., copper mining district.
Eng. and Mg. Jour., vol. lix, p. 271.
Describes the occurrence of copper ores in the southwestern portion of Tennessee.

55 —— The Arbacoochee gold district, Alabama.
Eng. and Mg. Jour., vol. lx, p. 148 (½ p.).
Describes a recent discovery of gold in Cleburne County.

56 —— Mineral resources on the Southern Railway from Atlanta [Georgia] to Birmingham [Alabama].
Eng. and Mg. Jour., vol. lx, pp. 610–611.
Gives a brief description of some of the gold mines of the region.

57 **Brigham** (Albert P.). Drift bowlders between the Mohawk and Susquehanna rivers.
Am. Jour. Sci., 3d ser., vol. xlix, pp. 213–228.
Describes the topographic features of the Oriskany and Chenango valleys and adjacent territory, in central and southern New York, and mentions the sedimentary formations occurring in the district. Describes the distribution of the bowlders derived from the Archean, Oneida, Lower Helderberg, Oriskany, and Corniferous rocks, and gives a summary of the facts concerning the distribution of the bowlders.

58 **Brooks** (W. K.). The origin of the oldest fossils and the discovery of the bottom of the ocean.
Johns Hopkins Univ. Circ., vol. xiv, pp. 11–16.
Noticed in Bibliography and Index for 1894.

59 **Brown** (Lytle), **Meadows** (T. C.) and. The phosphates of Tennessee.
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 582–594.
See Meadows (T. C.) and Brown (L.) No. 332.

60 **Brown** (R. G.). The ore deposits of Butte City [Mont.].
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 543–558, figs. 1–3.
Describes the topography of the city and the distribution and character of the several copper and silver belts.

61 **Browne** (Ross E.). California placer gold.
Eng. and Mg. Jour., vol. lix, pp. 101–102.
Describes the character and occurrence of gold placers in California.

62 **Bryson** (John). The ups and downs of Long Island [New York].
Am. Geol., vol. xv, pp. 188–192 (correspondence).
Discusses the evidences which indicate the influence of the ice sheet in the formation of the coast line and the moraines and beaches of Long Island.

63 —— Rock Hill, Long Island, N. Y.
Am. Geol., vol. xvi, pp. 228–233, pl. xii.
Describes the occurrence of bowlders and other glacial phenomena on Long Island.

64 **Buell** (Ira M.). Bowlder trains from the outcrops of the Waterloo quartzite area [Wisconsin].
Wis. Acad. Sci. Arts and Letters, Trans., vol. x, pp. 485–509, pls. xii–xvi.
Describes the geology of the quartzite area, the evidence of glacial distribution, and the character and distribution of the bowlder trains in the region, in southern Wisconsin.

C.

65 **Calvin** (Samuel). Composition and origin of Iowa chalk.
Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 213–236, pl. xix.
Compares the chalk formations of Europe and North America, reviews the literature on the latter deposits, and describes and figures some of the Foraminifera which make up the chalk beds.

66 —— Geology of Allamakee County [Iowa].
Iowa Geol. Surv., vol. iv, 3d Ann. Rept., pp. 39–120, figs. 1–12, and a geologic map.
Describes the physiography and drainage of the region and the stratigraphic and lithologic features of the Cambrian and Lower Silurian formations. Describes the occurrence of building stones, lime, clay, iron, mineral paint, lead, and zinc.

67 —— Maquoketa shales in Delaware County [Iowa].
Abstract: Iowa Acad. Sci., Proc., vol. ii, pp. 40–42.
Describes the character and occurrence of these beds, and gives a list of the fossils collected.

68 —— The Niobrara chalk.
Am. Assoc. Adv. Sci., Proc., vol. xliii, pp. 197–217.
Describes the areal distribution, physical characteristics and stratigraphy of the Niobrara formation. Reviews the literature on the chalky character and Foraminiferal origin of the Niobrara strata. Describes the distribution of the Foraminifera, and compares the Niobrara and English chalk formations.

69 **Case** (E. C.). On the mud and sand dikes of the White River Miocene.
Am. Geol., vol. xv, pp. 248–254.
Reviews the descriptions of dikes of this character in California, Nebraska, and South Dakota, and discusses the evidences which indicate that they occupy preexisting cracks in the associated strata.

70 **Case** (E. C.). Experiments in ice motion.

Jour. of Geol., vol. iii, pp. 918-934.

Describes and illustrates the experiments undertaken to show the existence of differential movements or currents in the ice bottom, and discusses the relation of the experiments to observed phenomena in ice.

71 **Cazin** (F. M. F.). [The genesis of ore deposits.]

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 995-996.

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

72 **Chalmers** (Robert). On the glacial lake St. Lawrence of Prof. Warren Upham.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 273-275.

States the author's reasons for considering that there did not exist a glacial lake occupying the St. Lawrence Valley from Quebec to Lake Ontario, and that there are no evidences of a movement of a great ice sheet over this region at any time during the Glacial period.

73 **Chamberlin** (T. C.). Recent glacial studies in Greenland.

Geol. Soc. Am., Bull., vol. vi, pp. 199-220, pls. 3-10.

Abstract: Sci. Am. Suppl., vol. xxxix, p. 15876, and vol. xl, pp. 16275-16276.

Compares the glaciation of the mainland of North America and that of Greenland, and discusses the relation of geologic formations of the region to glaciation. Describes the stratification of the glaciers and gives a discussion of the causes of their movements. Describes eskers, kames, drumlins, and other glacial phenomena of Greenland.

74 —— Notes on the glaciation of Newfoundland.

Abstract: Geol. Soc. Am., Bull., vol. vi, p. 467 (⅓ p.).

Describes the local character of the glacial phenomena of Newfoundland.

75 —— Glacial studies in Greenland.

Jour. of Geol., vol. iii, pp. 61-69, 198-218, 469-480, 565-582, 668-681, and 833-843.

Describes the topographic and geologic features of the western coast of Greenland, and discusses their bearing on the glacial phenomena. Describes the characteristics of the various glaciers which occupy this portion of Greenland. Includes sketch maps of portions of the region and many illustrations of the glacial phenomena from photographs.

76 —— The classification of American glacial deposits.

Jour. of Geol., vol. iii, pp. 270-277.

Describes the Kansan, Aftonian, Iowa, Toronto, and Wisconsin formations and the later deposits.

77 **Clark** (Ellis). The silver mines of Lake Valley, New Mexico.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 138-167.

Describes the occurrence of Silurian and Carboniferous formations in this district and the character and distribution of the associated igneous rocks. Describes the mining operations and gives several cross sections of ore bodies, accompanied by a topographic and geologic map.

78 **Clark** (William Bullock). Cretaceous deposits of the northern half of the Atlantic Coastal Plain.

Geol. Soc. Am., Bull., vol. vi, pp. 479–482.

Describes the character and distribution of the Raritan, Matawan, Navesink, Redbank, Rancocas, and Manasquan divisions of the Cretaceous formation in portions of New Jersey, Delaware, and Maryland.

79 **Clarke** (Frank W.). The constitution of the silicates.

U. S. Geol. Surv., Bull., No. 125, 109 pp.

Discusses the constitution of silicate minerals, with special regard to their structural formulæ.

80 **Clarke** (John M.). "Cephalopod beginnings."

Am. Geol., vol. xv, pp. 125–128 (correspondence).

Discusses the recent reviews of the author's papers on the structure of Orthoceras and that of Bactrites and on the genus Nanno.

81 **Claypole** (E. W.) On a new specimen of Cladodus clarki.

Am. Geol., vol. xv, pp. 1–7.

Describes and figures a specimen of Cladodus clarki from the Cleveland shale of Ohio.

82 —— Recent contributions to our knowledge of the cladodont sharks.

Am. Geol., vol. xv, pp. 363–368.

Reviews the descriptions of the cladodont sharks from material found in Carboniferous rocks, and describes some of their characteristics from more perfect material from the Cleveland shale of Ohio.

83 —— Actinophorus clarki Newberry.

Am. Geol., vol. xvi, pp. 20–25, pl. ii.

Describes additional features of this species from material found in the Cleveland shale of Ohio.

84 —— The cladodonts of the Upper Devonian of Ohio.

Brit. Assoc. Adv. Sci., Rept. for 1895, p. 694 (½ p.).

Gives a brief discussion of the characters of cladodonts.

85 —— The great Devonian placoderms of Ohio, with specimens.

Brit. Assoc. Adv. Sci., Rept. for 1895, p. 695 (½ p.).

Gives brief notes on certain fossil fishes from the Devonian rocks of Ohio.

86 **Clements** (J. Morgan). The volcanics of the Michigamme district of Michigan (preliminary).

Jour. of Geol., vol, iii, pp. 801–822.

Reviews the previous work done in this district and describes the succession of the formations and the petrographic characters of apoandesite, the tuffs and breccias, and the acid volcanics. Discusses the nomenclature of certain rock types. Includes a preliminary map of a part of the district.

87 **Clerc** (F. L.). [The lead and zinc deposits of Missouri.]

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 931–932.

Makes a correction of certain statements made by A. Winslow, in a paper on the same subject.

88 **Coleman** (A. P.). Glacial and inter-Glacial deposits near Toronto [Ontario].

Jour. of Geol., vol. iii, pp. 622–645.

Describes the glacial deposits of the region and gives lists of the species of the fauna and flora collected. Discusses the probable character of the climate and the bearing of the data on the theory of distinct ice ages separated by mild inter-Glacial times.

89 **Collie** (George L.). The geology of Conanicut Island, Rhode Island.

Wis. Acad. Sci. Arts and Letters, Trans., vol. x, pp. 199–230, pl. iv.

Describes the occurrence of slate, granite, arkose, schist, and dike rocks and their microscopic characters.

90 **Comstock** (Theodore B.). Notes on Arizona geology.

Eng. and Mg. Jour., vol. lx, p. 369.

Comprises general remarks on the geology of Arizona.

91 **Cooper** (J. G.) Catalogue of California fossils (Parts ii–v).

Cal. State Mg. Bureau, Bull. No. 4, 1894, pp. 65, pls. i–v.

Part II is a bibliography of fossil Mollusca of California. Part III contains a list of described species of Tertiary and Quaternary Mollusca found in the State since 1888. Part IV gives notes on Cretaceous and Tertiary fossils from Orange County. Part V contains descriptions and figures of new Cretaceous and Tertiary species from California.

92 **Cope** (E. D.). Fourth contribution to the marine fauna of the Miocene period of the United States.

Am. Phil. Soc., Proc., vol. xxxiv, pp. 135–155, pl. vi.

Describes a number of new species found in Miocene strata of the Atlantic coastal plain.

93 —— The reptilian order Cotylosauria.

Am. Phil. Soc., Proc., vol. xxxiv, pp. 436–457, pls. vii–ix.

Describes the characters of this order and gives a list of the genera comprising its four families. Describes a number of new species, mainly from the Permian of Texas.

94 —— On some Pleistocene Mammalia from Petite Anse, La.

Am. Phil. Soc., Proc., vol. xxxiv, pp. 458–468, pls. x–xii.

Describes new species of Myolodon and Equus.

95 —— The fossil Vertebrata from the fissure at Port Kennedy, Pa.

Phila. Acad. Nat. Sci., Proc. 1895, pp. 446–450.

Describes the general character of the vertebrate remains found in this cave and the characters of two new species.

96 **Corning** (Frederick G.). An Idaho silver-gold camp.

Eng. and Mg. Jour., vol. lx, p. 244.

Gives a brief account of the ore bodies in the Florida Mountain district, Idaho.

97 **Cragin** (F. W.). A new Cretaceous genus of Clypeastridæ.

Am. Geol., vol. xv, pp. 90–91.

Describes Scutellaster cretaceus n. gen. et sp., from the Fox Hills division of the Cretaceous, near Colorado Springs, Colo.

98 **Cragin** (F. W.). The Mentor beds: A central Kansas terrane of the Comanche series.

Am. Geol., vol. xvi, pp. 162–165.

Describes the lithologic character of these beds in Saline County, Kans., and gives a list of the fossils collected.

99 —— A study of the Belvidere beds [Kansas].

Am. Geol., vol. xvi, pp. 357–385.

Discusses the use of the term Belvidere. Describes the lithologic and faunal characters of the different subdivisions of the Belvidere beds and reviews the classification of the Comanche terranes.

100 **Crosby** (William O.). Geology of the Boston Basin. Part II. Hingham [Mass.].

Bost. Soc. Nat. Hist., Occasional papers IV, vol. i, part ii, 1894, pp. 179–288, pls. vii–ix.

Describes the topography, character, and distribution of the granite and sedimentary rocks. Gives a detailed account of the geology of Hingham and discusses the geologic age of the formations. Describes the glacial geology. The paper contains three colored geologic maps.

101 —— A classification of economical geological deposits.

Eng. and Mg. Jour., vol. lix, pp. 28–29.

Reviews criticisms of R. W. Raymond on a former paper on the same subject.

102 **Cross** (Whitman). Geology and mining industries of the Cripple Creek district, Colorado. Part I. General geology of the Cripple Creek district, Colorado.

U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 13–109, pls. i–ii, fig. 1.

Chapter I (introduction) describes the geographic position and geologic character of the district, and its recent physiographic changes.

Chapter II.—Rock formations. Describes the petrographic characters of granite, schist, diabase, phonolite, nepheline-syenite, augite-syenite-porphyry, andesite, tuff, breccia, rhyolite, and the High Park lake beds.

Chapter III.—The Cripple Creek volcano. Describes the constitution and distribution of the fragmental materials and the character of the volcanic phenomena.

Chapters IV and V.—Comprise a description of the distribution of the volcanic rocks in the central area and its outlying districts.

103 **Culver** (G. E.). Some New Jersey eskers.

Wis. Acad. Sci., Arts and Letters, Trans., vol. x, pp. 19–23.

Describes the occurrence of eskers at Ramapo, in northeastern New Jersey.

104 —— The erosive action of ice.

Wis. Acad. Sci., Arts and Letters, Trans., vol. x, pp. 339–366.

Quotes the opinions of a large number of writers on glacial erosion, citing the publications, and giving the author's conclusions.

105 **Cummins** (W. F.). A question of priority.

Am. Geol., vol. xv, pp. 395–396 (correspondence).

Discusses the question of priority in the use of the term "Goodnight" to distinguish certain beds between the Loup Fork and Blanco, in Texas, and the term "Palo Duro," employed by W. B. Scott and in Dana's Manual of Geology.

106 **Cushing** (Henry P.). Faults of Chazy Township, Clinton County, New York.

Geol. Soc. Am., Bull., vol. vi, pp. 285–296, pl. 12.

Describes the general features of the district and of the Cambrian and Silurian formations. Describes the three classes of faults, and discusses the cause of the nonappearance of the Calciferous at Chazy village. The paper is accompanied by a geologic map of Chazy Township.

D.

107 **Dall** (William H.). Monograph of the genus Gnathodon Gray (Rangia Desmoulins).

U. S. Nat. Mus., Proc., vol. xvii, pp. 89–106, pl. vii.

Describes the characters and distribution of the genus Gnathodon, and also the characters of a number of living and fossil species.

108 —— Note on the Atlantic Miocene.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, pp. 224–225 (½ p.).

109 **Darton** (Nelson Horatio). Artesian well prospects in eastern Virginia, Maryland, and Delaware.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 372–397, pls. i–ii.

Presents a map showing the distribution of artesian wells, and also four cross sections of the region. Describes the character and distribution of the Pleistocene, Tertiary, and Cretaceous strata, and discusses the conditions affecting subterranean waters. Gives the records of many well borings in the region.

110 —— and **Kemp** (J. F.). A newly discovered dike at Dewitt, near Syracuse, New York. Geological notes by N. H. Darton. Petrographic description by J. F. Kemp.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 456–462.

Abstract: Geol. Soc. Am., Bull., vol. vi, pp. 477–478.

Describes the occurrence of the dike in the Salina formation. Refers to the previous descriptions of this dike rock and describes its petrographic characters. Presents a table showing its chemical analysis, and of serpentine from Syracuse and mica-peridotite from Kentucky. Gives the records of various wells, showing the thickness of sedimentary strata through which the dike must have penetrated.

111 **Davis** (Floyd). The coal supplies of Polk County, Iowa.

Eng. and Mg. Jour., vol. lix, pp. 149–150.

Describes the character and distribution of coal beds in this county.

112 **Davis** (William Morris). The ancient outlet of Lake Michigan.

Pop. Sci. Monthly, vol. xlvi, pp. 217–229.

Reviews previous descriptions of the glacial history of the Great Lakes region and describes the glacial phenomena of the country adjacent to Lake Michigan in Illinois.

113 **Dawson** (George M.). Inter-Glacial climatic conditions.

Am. Geol., vol. xvi, pp. 65–66.

Discusses the evidence of the plant remains found at Toronto, Ont., in its bearing on the question of inter-Glacial climatic conditions.

114 **Dawson** (George M.) Note on the glacial deposits of southwestern Alberta.

Jour. of Geol., vol. iii, pp. 507–511.

Discusses the relations of the drift from the Laurentian area with drift along the eastern slopes of the Rocky Mountains.

115 —— Note on the amount of elevation which has taken place along the Rocky Mountain range in British America since the close of the Cretaceous period. [Reply to a letter from J. D. Dana.]

Am. Jour. Sci., 3d ser., vol. xlix, pp. 463–465.

Describes briefly the infolding of the Cretaceous rocks with the Paleozoic in the Rocky Mountains. Considers that the amount of elevation varied in different localities, and that 32,000 to 35,000 feet is a minimum estimate of the greatest elevation for the region. Discusses the evidences of movement in Eocene and Miocene times.

116 **Dawson** (J. William). Synopsis of the air-breathing animals of the Paleozoic in Canada, up to 1894.

Roy. Soc. of Canada, Proc. and Trans., vol. xii, sect. iv, pp. 71–88.

Reviews the literature on the subject and gives a brief description of the genera of the vertebrata, and a list of the genera and species of Arthropoda. Describes erect trees recently found in the Joggins coal mine, Nova Scotia, and the character of the flora of the Devonian plant-bearing beds at St. John, New Brunswick. Includes suggestions to collectors.

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

Geol. Mag. dec. iv, vol. ii, pp. 443–449, 502–506, and 545–550.

Describes the character of the strata in which Eozoon canadense occurs and discusses the petrographic, chemical, structural, and biologic evidences of its animal nature.

118 **Day** (William C.). Stone.

U. S. Geol. Surv., 16th Ann. Rept., part iv, pp. 436–510.

Gives a list of mineral constituents of granite, and a table showing the distribution in the United States of the various classes of granite. Describes the nature and varieties of sandstone and limestone.

119 **Derby** (Orville A.). Constituents of the Cañon Diablo meteorite.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 101–110.

Describes the results of the several chemical analyses made of the material and concludes that the mass treated did not contain diamonds or anything remotely suggestive of them.

120 **D'Invilliers** (E. V.). [Carboniferous system, Pennsylvania.]

Pa. Geol. Surv., Final Rept., vol. iii, part 2, pp. 2153–2588, pls. 396–595.

Describes the character and distribution of the Lower Productive measures of Alleghany River coal series in Pennsylvania and the occurrence of coal in these beds. Includes vertical sections of many mines and names and figures of fossils from this formation.

121 —— **Smith** (A. D. W.), **Lesley** (J. P.), and. [Carboniferous formation, Pennsylvania.]

Pa. Geol. Surv., Final Rept., vol. iii, part i, pp. 1629–2152, pls. 205–395.

See Lesley (J. P.), D'Invilliers (E. V.), and Smith (A. D. W.), No. 292.

122 **Douglas** (Walter). Lake of the Woods, Ontario, gold district.

Eng. and Mg. Jour., vol. lix, p. 152.

Describes the occurrence of gold quartz veins in this district.

123 **Dowling** (D. B). Notes on the stratigraphy of the Cambro-Silurian rocks of eastern Manitoba.

Ottawa Nat., vol. ix, pp. 67–74.

Describes the lithologic character and succession of Lower Silurian rocks in the vicinity of Lake Winnipeg and gives a sketch map of this lake.

124 **Dumble** (E. T.). Cretaceous of western Texas and Coahuila, Mexico.

Geol. Soc. Am., Bull., vol. vi, pp. 375–388.

Gives a detailed section of the rocks of San Lorenzo, Coahuila. Describes the lithologic characters and names some of the fossils found in the Bosque, Fredericksburg, and Washita divisions of the Lower Cretaceous. Describes the distribution of the Dakota, Colorado, and Montana divisions of the Upper Cretaceous in Texas. Gives a general section of the Montana rocks and a list of fossils determined by Mr. T. W. Stanton.

125 —— Volcanic dust in Texas.

Science, new ser., vol. i, pp. 657–658 (correspondence).

Describes the occurrence of volcanic dust in material of which the larger part is formed of diatoms. Refers to the description of volcanic dust by H. W. Turner and quotes from Professor Cope as to the geologic age of the deposits from which the volcanic dust was obtained.

E.

126 **Earle** (Charles), **Osborn** (H. F.) and. Fossil mammals of the Puerco beds.

Am. Mus. Nat. Hist., Bull., vol. vii, pp. 1–70, figs. 120–121.

See Osborn (H. F.) and Earle (Charles) No. 362.

127 **Edwards** (Arthur M.). The occurrence of Tertiary clay on Long Island, N. Y.

Am. Jour. Sci., 3d ser., vol. l, p. 270 (⅓ p.) (communicated).

Describes the occurrence of upper Miocene clay containing marine Bacillariaceæ on Long Island.

128 **Eldridge** (George H.). A geological reconnoissance across Idaho.

U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 211–276, pls. xv–xvii, figs. 38–41.

Describes the topography of central Idaho, the drainage systems of the Snake and Columbia rivers, and the occurrence of granite and metamorphic and unaltered sedimentary rocks. Discusses the general structural features. Describes the gold and silver deposits and coal veins of the region.

129 **Elftman** (Arthur Hugo). Notes upon the bedded and banded structures of the gabbro and upon an area of troctolyte.

Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., pp. 224–230.

Describes the megascopic characters and field relations of gabbro in northeastern Minnesota and its microscopic features.

130 **Ells** (R. W.). The Potsdam and Calciferous formations of Quebec and eastern Ontario.

Roy. Soc. of Canada., Proc. and Trans., vol. xii, sect. iv, pp. 21–30.

Describes the character and distribution of the Potsdam and Calciferous rocks in the Ottawa and St. Lawrence basins and also of the Cambrian in eastern Quebec.

131 **Ells** (R. W.). The Rensselaer grit plateau.

Ottawa Nat., vol. ix, pp. 9–11.

Reviews a paper by T. Nelson Dale on the same subject and refers to the work of J. W. Dawson in the same region and in the vicinity of Quebec.

132 —— How rocks are formed.

Ottawa Nat., vol. ix, pp. 157–166.

Discusses the theories of rock formation and describes the process of formation of the deposits in the vicinity of Ottawa, Canada.

133 —— Notes on recent sedimentary formations on the Bay of Fundy coast [Nova Scotia].

Nova Scotian Inst. of Sci., Proc. and Trans., vol. viii, pp. 416–419.

Describes beds of limestone and shale overlying the trap rocks of the region.

134 **Emerson** (Benjamin Kendall). A mineralogical lexicon of Franklin, Hampshire, and Hampden counties, Mass.

U. S. Geol. Surv., Bull. No. 126, 180 pp.

Consists of a condensed history of minerals occurring in these counties, chemical analyses of some of the species, and a bibliography of the literature.

135 —— Illustrations of peculiar mineral transformations.

Geol. Soc. Am., Bull., vol. vi, pp. 473–474.

Mentions the occurrence of serpentine pseudomorphs after olivine and calcite pseudomorphs after salt, and describes the puckering of corundum crystals around allanite.

136 **Emmons** (Samuel Franklin). Economic geology of the Mercur mining district, Utah. Introduction. The Oquirrh Mountains.

U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 349–369.

Describes the topography and gives an account of the discovery, development, and production of the mining district. Describes the structure of the range, the occurrence of the sedimentary and igneous rocks and the general economic geology of the district.

F.

137 **Fairbanks** (Harold W.). On analcite diabase from San Luis Obispo County, California.

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 273–300, pl. 16.

Describes the field relations, contact metamorphism, and the microscopic and chemical characters of these rocks.

138 —— The stratigraphy of the California Coast ranges.

Jour. of Geol., vol. iii, pp. 415–433.

Describes the character, position, and faunal relations of the Golden Gate series and discusses the evidences of a nonconformity between the Knoxville and Golden Gate beds, between the Chico and Knoxville, and between the Miocene and Chico-Tejon series.

139 **Fairbanks** (Harold W.). Review of our knowledge of the geology of the California Coast ranges.

Geol. Soc. Am., Bull., vol. vi, pp. 71–102.

Discusses the use of the term Coast ranges as employed by different geologists, gives a summary of previous work, and compares the age and relations of the Coast ranges and Sierra Nevada. Describes the character of the crystalline basement complex, the lithologic character, extent, and relations of the pre-Cretaceous series, the alteration of the eruptives, and the characteristics and relations of the rocks of the Klamath Mountains. Discusses the general features of the orographic movement, the paleontologic and stratigraphic evidence of the age of the sedimentary series, and the relations of the Cretaceous and pre-Cretaceous strata. Describes the Eocene and Miocene formations of these ranges.

140 —— Auriferous conglomerate in California.

Eng. and Mg. Jour., vol. lix, pp. 389–390.

Describes the occurrence of an auriferous conglomerate in Siskiyou County, its geologic relations, and the structure of the region.

141 **Fairchild** (H. L.). Glacial lakes of western New York.

Geol. Soc. Am., Bull., vol. vi, pp. 353–374, pls. 18–23.

Presents a hydrographic map of western New York, and in a table gives a list of extinct lakes, their altitudes, and estimated dimensions. Describes the history and phenomena of some of these glacial lakes.

142 —— Lake Newberry the probable successor of Lake Warren.

Abstract: Geol. Soc. Am., Bull., vol. vi, pp. 462–466.

Discusses the evidences which indicate the formation, extent, and duration of Lake Newberry.

143 —— The kame-moraine at Rochester, N. Y.

Am. Geol., vol. xvi, pp. 39–51, with map.

Describes the location, topographic features, and the structure and composition of the Pinnacle Hills, in the vicinity of Rochester. Describes their morainic character and the process of their formation, and compares them with neighboring kame areas.

144 **Ferrier** (W. F.). Crystals.

Ottawa Nat., vol. ix, pp. 117–131.

Describes the formation of crystals and reviews the literature of the subject.

145 **Foerste** (Aug. F.). On Clinton conglomerates and wave marks in Ohio and Kentucky. With a résumé of our knowledge of similar occurrences in other Silurian strata of these States, and their evidence upon probable land conditions.

Jour. of Geol., vol. iii, pp. 50–60, and 169–197.

Gives a description of observations, by the author and others, of rounded limestone pebbles and wave marks in the Cincinnati, Oneida, Medina, and Clinton groups in Ohio and Kentucky. Includes remarks on the occurrence of the Upper Silurian and Devonian formations in the same region, a résumé of the facts regarding the geographic distribution of the pebbles and wave marks, and the conclusions to be drawn from them concerning the existence of land areas in Lower Silurian and Clinton times.

146 **Foote** (Warren M.). Note on the occurrence of leadhillite pseudomorphs at Granby, Mo.
Am. Jour. Sci., 3d ser., vol. l, pp. 99–100.
Describes pseudomorphs after calcite and galena.

147 —— Preliminary note on a new alkali mineral.
Am. Jour. Sci., 3d ser., vol. l, pp. 480–481.
Describes briefly the chemical and crystallographic characters of a new mineral from California, for which the term "northupite" is proposed.

148 —— Preliminary note on a new alkali mineral.
Phil. Acad. Nat. Sci., Proc., 1895, pp. 408–409.
Describes the crystallographic and chemical characters of northupite, found at Borax Lake, California.

149 **Frech** (F.). Das Profil des Grossen Colorado-Cañon.
Neues Jahr. für Min., etc., 1895, Band II, pp. 153–156.
Gives the vertical section of the Cambrian rocks of Colorado canyon and a description of the geologic history of the region.

150 **Freeman** (H. C.). The Ammon mines, Fergus County, Montana.
Eng. and Mg. Jour., vol. lix, pp. 416–417.
Describes the occurrence of gold on the contact of limestone and porphyry in this locality.

151 —— Boulder mining district, Montana.
Eng. and Mg. Jour., vol. lx, pp. 583–584.
Gives a historical review of mining in this district and a brief description of the gold ores.

152 **Fultz** (Francis M.). Erosion during the deposition of the Burlington limestones.
Am. Geol., vol. xv, pp. 128–130 (correspondence).
Describes deposits near Burlington, Iowa, which indicate a cessation of deposition and erosion, and renewal of deposition during the formation of the Burlington limestones.

153 —— How old is the Mississippi?
Abstract: Iowa Acad. Sci., Proc., vol. ii, p. 39 (½ p.).
Gives brief notes on the geologic history of this river.

154 —— Formation of the flint beds of the Burlington limestones.
Abstract: Iowa Acad. Sci., Proc., vol. ii, p. 177.
Brief note on the occurrence of these beds.

155 —— Coincidence of present and pre-Glacial drainage system in extreme southeastern Iowa.
Abstract: Iowa Acad. Sci., Proc., vol. ii, pp. 208–209 (½ p.).
Comprises brief notes on the drainage systems of the region.

156 —— Extension of the Illinois lobe of the great ice sheet into Iowa.
Iowa Acad. Sci., Proc., vol. ii, pp. 209–212.
Discusses the general features of the ice invasion of the State.

157 —— Glacial markings in southeastern Iowa.
Iowa Acad. Sci., Proc., vol. ii, pp. 213–217, pls. xxi–xxii.
Describes the character and directions of the markings.

G.

158 **Geikie** (James). The classification of European glacial deposits.
Jour. of Geol., vol. iii, pp. 241–269.
Describes the glacial phenomena of Europe and gives the author's classification.

159 **Gibson** (A. M.). Report upon the Coosa coal field [Alabama].
Ala. Geol. Surv., Montgomery, Ala., 143 pp.
Describes the topographic features of the coal field, with detailed description of the occurrence of coal seams. Includes a sheet of cross sections, showing the geologic structure and succession in the region.

160 **Gilbert** (Grove Karl). Lake basins created by wind erosion.
Jour. of Geol., vol. iii, pp. 47–49.
Abstract: Sci. Am. Suppl., vol. xxxix, p. 16157.
Discusses the evidences of the action of the wind in forming small lake basins in the arid portion of the Arkansas basin.

161 —— Sedimentary measurement of Cretaceous time.
Jour. of Geol., vol. iii, pp. 121–127.
Abstract: Sci. Am. Suppl., vol. xxxix, pp. 16180–16181.
Describes certain alternations of strata in Colorado, correlates these with the precession of the equinoxes, and from this deduces an estimate in years of a portion of Cretaceous time.

162 —— New light on isostasy.
Jour. of Geol., vol. iii, pp. 331–334.
Discusses the results obtained by Mr. G. R. Putnam in the measurement of gravity by means of the pendulum.

163 —— A rock fissure.
Science, new ser., vol. 2, pp. 117–119.
Describes a rock fissure in Carboniferous limestone in Arizona, considered to be the result of tension of the rock. Describes the character of the faults in the vicinity.

164 —— and **Gulliver** (F. P.). Tepee Buttes.
Geol. Soc. Am., Bull., vol. vi, pp. 333–342, pl. 17.
Describes the character of the Pierre group of Colorado, in which the buttes occur, the distribution and general features of the buttes, and the lithologic and faunal characters of the tepee rock. Discusses the origin of the cores and the conditions affecting their distribution, form, and size, and compares them with buttes of other origin.

165 **Gilpin** (E.). Note on the Sydney coal field [Nova Scotia].
Nova Scotian Inst. of Sci., Proc. and Trans., vol. viii, pp. 435–438.
Contains description of a subordinate coal basin within the Sydney coal field.

166 **Girty** (George H.). Development of the corallum in Favosites forbesi var. occidentalis.
Am. Geol., vol. xv, pp. 131–146, pls. vii–viii.
The material on which this paper is based was found in the Niagara shales of Waldron, Ind. Describes the development of the coralla in Favosites forbesi, F. spiniferus, and F. conicus, and discusses the evidences, which show to what extent the development observed in F. forbesi is characteristic of Favosites as a genus.

167 **Goode** (G. Brown.). Bibliography of the United States National Museum for the fiscal year ending June 30, 1893.
U. S. Nat. Mus., Rept. for 1893, appendix vii, pp. 285–313.

168 **Gordon** (Charles H.). Buried river channels in southeastern Iowa.
Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 239–255.
Describes the drainage of the region and gives the section exposed at various localities and in several well borings. Describes the history of the drainage diversion.

169 —— Geology of Van Buren County [Iowa].
Iowa Geol. Surv., vol. iv, 3d Ann. Rept., pp. 201–254, pls. vi–vii, figs. 19–26, with geologic map.
Describes the physiography and drainage of the region and the lithologic and stratigraphic characters of the Carboniferous and Pleistocene formations. Gives vertical sections of several well borings and describes the occurrence of coal, clay, and building stone.

170 —— Stratigraphy of the St. Louis and Warsaw formations in southeastern Iowa.
Jour. of Geol., vol. iii, pp. 289–311, with map.
Reviews the earlier geologic descriptions of this region, gives a cross section, and describes the lithologic character of the exposures at a number of localities. Describes the characteristics of the formations and the unconformities above and below the St. Louis limestone. Discusses the origin of the brecciated character and dolomitization of this limestone.

171 **Gosling** (Edgar B.). A treatise on ozokerite.
School of Mines Quart., vol. xvi, pp. 41–68.
Describes its properties and the geology of portions of Europe and of the central Rocky Mountain States in which it occurs. Describes the process of treatment and its uses.

172 **Grant** (C. C.). Opening address.
Hamilton Assoc., Jour. and Proc., No. xi, pp. 60–64.
Contains remarks on certain graptolites and notes on the occurrence of Niagara fossils in the vicinity of Hamilton, Ontario.

173 —— Brief note on the Devonian rocks, Ontario.
Hamilton Assoc., Jour. and Proc., No. xi, pp. 65–70.
Remarks on the fossil fauna and flora of Devonian rocks

174 —— Geological notes in continuation.
Hamilton Assoc., Jour. and Proc., No. xi, pp. 71–78.
Contains notes on glacial phenomena in Ontario and on the Silurian rocks of Anticosti and Quebec.

175 **Grant** (U. S.). The name of the copper-bearing rocks of Lake Superior.
Am. Geol., vol. xv, pp. 192–194 (correspondence).
Discusses the use of the terms Keweenawan and Nipigon to designate the copper-bearing rocks of Lake Superior, and quotes from several papers to show that the name Keweenawan should be adopted.

176 —— **Winchell** (H. V.) and. Preliminary report on the Rainy Lake gold region.
Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., pp. 36–105.
See Winchell (H. V.) and Grant (U. S.), No. 548.

177 **Gratacap** (L. P.). The possible revival of Virginia City, Nevada.
Sci. Am. Suppl., vol. xl, pp. 16329–16330.
Describes the occurrence of the ore bodies in this region.

178 **Griswold** (Leon S.). The origin of the Arkansas novaculites.
Boston Soc. Nat. Hist., Proc., vol. xxvi, pp. 414–421.
Describes the field relations of the Arkansas novaculites and discusses their origin, with special reference to a paper by F. Rutley on the same subject.

179 —— Origin of the Lower Mississippi.
Boston Soc. Nat. Hist., Proc., vol., xxvi, pp. 474–479, with map.
Compares the Cretaceous peneplain of Arkansas with that of the Appalachian region and describes the development of the former.

180 **Gulliver** (F. P.), **Gilbert** (G. K.) and. Tepee buttes.
Geol. Soc. Am., Bull., vol. vi, pp. 333–342, pl. 17.
See Gilbert (G. K.) and Gulliver (F. P.), No. 164.

181 **Gurley** (W. F. E.), **Miller** (S. A.) and. New and interesting species of Paleozoic fossils.
Ill. State Mus. Nat. Hist., Bull. No. 7, pp. 89, pls. i–v.
See Miller (S. A.) and Gurley (W. F. E.), No. 346.

H.

182 **Hall** (C. W.). Mineral alterations in the granitic rocks of the Northwestern States.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, p. 236 (½ p.).
Discusses the alterations of granites in Minnesota and Wisconsin.

183 —— and **Sardeson** (F. W.). The Magnesian series of the Northwestern States.
Geol. Soc. Am., Bull., vol. vi, pp. 167–198, pl. 2.
Discusses the lithologic and paleontologic characteristics of the series. Describes the local features of the St. Lawrence dolomites and shales, Jordan sandstone, Oneota dolomite, New Richmond sandstone, and the Shakopee dolomite. Discusses the lithology and genesis of the sandstones, shales, and dolomites. Includes a geologic map of portions of Minnesota, Iowa, Wisconsin, and Illinois.

184 **Halse** (Edward). The silver district of Tehuilotepec, State of Guerrero, Mexico.
Eng. and Mg. Jour., vol. lx, pp. 197–199.
Describes the occurrence of silver ores in this region and the character of the mining and ore reduction processes.

185 **Harris** (Gilbert D.). New and otherwise interesting Tertiary Mollusca from Texas.
Phila. Acad. Nat. Sci., Proc. 1895, pp. 45–88, pls. 1–9.
Describes many new species from the Tertiary rocks of Texas.

186 **Harris** (Hunter L.). History of the Atlantic shore line.
Elisha Mitchell Sci. Soc., Jour. 1894, part ii, pp. 33–50.
Discusses the evidences of the changes that have affected the Atlantic shore line of the United States during geologic times.

187 **Hastings** (John B.). The Atlanta lode, Idaho.
Eng. and Mg. Jour., vol. lix, p. 128.
Describes the occurrence of gold ore at this locality.

188 —— Subclassification of zenogenous ore deposits.
Eng. and. Mg. Jour., vol. lix, pp. 268–269.
Discusses some recent proposed classifications of ore deposits.

189 **Haworth** (Erasmus). The stratigraphy of the Kansas Coal Measures.
Kans. Univ. Quart., vol. iii, pp. 271–290, pl. xx.
Describes the character and distribution of the strata which form the Coal Measures, and discusses the conditions of their deposition. Includes a generalized vertical section of the Coal Measures.

190 —— Division of the Kansas Coal Measures.
Kans. Univ. Quart., vol. iii, pp. 291–295.
Discusses the evidences of changes in the strata upon which to base a subdivision of the Coal Measures.

191 —— The coal fields of Kansas.
Kans. Univ. Quart., vol. iii, pp. 297–309.
Describes the area of the coal fields and the geologic position of the coal beds, and discusses the physical and chemical properties of the coals.

192 —— Stratigraphy of the Kansas Coal Measures.
Am. Jour. Sci., 3d ser., vol. l, pp. 452–466.
Describes the distribution of the Mississippian formation which forms the floor of the Coal Measures. Gives the thickness of the various series of limestones and shales which comprise the Coal Measure formation, as shown by outcrops and records of well borings, and describes their distribution. Gives lists of fossils collected from several horizons. Discusses the ratio of limestone to shales. Includes a map showing the line of outcrop of the various subdivisions, a generalized vertical section of the Coal Measures, and the section shown by a boring at Topeka to a depth of about 1,600 feet.

193 —— Oil and gas in Kansas.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, pp. 229–236.
Describes the past production of oil and gas in southeastern Kansas and the character and distribution of the Coal Measure shales and sandstones in which they occur. Discusses the relation of oil and gas to anticlinals and synclinals and the evidences as to their original source.

194 **Hay** (O. P.). Description of a new species of Petalodus (P. securiger) from the Carboniferous of Illinois.
Jour. of Geol., vol. iii, pp. 561–564.
Describes and figures the characters of the dentition of Petalodus securiger and compares it with P. destructor.

195 **Hay** (Robert). Water resources of a portion of the Great Plains.
U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 535–588, pls. xl–xlii, figs. 58–65.
Describes the hydrographic, geologic, and topographic features and water-bearing formations of a portion of western Kansas and Nebraska and eastern Colorado.

196 **Hayes** (Charles Willard). Bauxite.

U. S. Geol. Surv., 16th Ann. Rept., part iii, pp. 547–597, pls. xx–xxiii, figs. 6–9.

Includes notes on the occurrence of bauxite in New Mexico and Arkansas and a description of the topography, stratigraphy, and structure of the Georgia and Alabama bauxite region, illustrated by a geologic map and vertical section. Describes the ores and associated deposits and discusses the origin of bauxite deposits, the source of the material, and the age of the strata.

197 —— The Tennessee phosphates.

U. S. Geol. Surv., 16th Ann. Rept., part iv, pp. 610–630, pls. v–vi.

Describes the character and occurrence of the phosphate in Devonian strata and the local characters of the various deposits. Discusses the origin of the deposits. Accompanied by a map of the phosphate region and vertical sections.

198 —— Stevenson folio—Alabama, Georgia, Tennessee.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio 19.

Describes the physiography of the region, the character and distribution of the Silurian, Devonian, and Carboniferous rocks, and the geologic structure of the region. Describes the occurrence of coal, iron, building stone, road material, clay, and the character of the soils. Contains topographic, colored areal geologic, economic geologic, and structure section maps and vertical sections.

199 —— Cleveland folio, Tennessee.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio 20.

Describes the geography and stratigraphy of the region, the character and distribution of the Algonkian, Cambrian, Silurian, Devonian, and Carboniferous rocks, the geologic structure and the occurrence of iron, lead, building stone, clay, and soils. Contains topographic, colored areal geologic, economic geologic, and structure section maps and a sheet of columnar sections.

200 —— Pikeville folio, Tennessee.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio 21.

Describes the geography, topography, and stratigraphy of the region, the character and distribution of the Silurian, Devonian, and Carboniferous rocks, the geologic structure, and the occurrence of coal, iron, building stone, clay, and soils. Accompanied by topographic, colored areal geologic, economic geologic, and structure section maps and a sheet of columnar sections.

201 —— McMinnville folio, Tennessee.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio 22.

Describes the geography, topography, and stratigraphy of the region, the character and distribution of the Silurian, Devonian, and Carboniferous formations, the geologic structure, and the occurrence of coal, iron, building stone, clay, and soils. Gives a generalized section and two vertical sections of the coal beds. Accompanied by topographic, colored areal geologic, economic geologic, and structure section maps.

202 —— The geological relations of the southern Appalachian bauxite deposits.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 243–254 and 861.

Presents a geologic map of the Georgia and Alabama bauxite deposits, describes the stratigraphy, general geology, and character of the ore bodies, and discusses the origin of the deposits.

203 **Heilprin** (Angelo). The Port Kennedy deposit [Pennsylvania].
Phila. Acad. Nat. Sci., Proc. 1895, p. 451 (½ p.).
Discusses briefly the faunal evidence of the age of the deposit.

204 —— The glaciers of Greenland.
Pop. Sci. Monthly, vol. xlvi, pp. 1–14.
Describes and illustrates the glacial phenomena of Greenland.

205 **Hershey** (Oscar H.). The Columbia formation in northwestern Illinois.
Am. Geol., vol. xv, pp. 7–24.
Describes the character and distribution of the three members of the Columbia formation, the Florence gravel, valley loess, and upland loess. Discusses the relation of the loess to the drift, the sequence of glacial history in northwestern Illinois, and the correlation with the Columbia formation in the Lower Mississippi Valley.

206 —— The Devonian series in southwestern Missouri.
Am. Geol., vol. xvi, pp. 291–300.
Describes the occurrence of the Eureka shale in Arkansas and of the other Devonian rocks of the Ozark series. Discusses the evidences of elevation and subsidence in this region, and the correlations indicated by the lithologic and stratigraphic relations.

207 —— River valleys of the Ozark plateau.
Am. Geol., vol. xvi, pp. 338–357.
Describes the extent and character of the Jura-Cretaceous peneplain and the Tertiary and Quaternary valleys. Discusses the cause of the meandering courses of the rivers and of the comparative straightness of the Missouri Valley. Describes the deposits of local drift in the valleys, considered to be equivalent to the Lafayette formation. Describes the post-Lafayette elevation, the Columbian formation, and the post-Columbia elevation, and gives a summary of the geologic history of the Ozark plateau since the Jurassic period.

208 —— On a Devonian limestone breccia in southwestern Missouri.
Science, new ser., vol. i, pp. 676–678.
Describes the character of a limestone breccia deposit in Stone County, Mo., and discusses the causes of its formation.

209 **Hice** (R. R.). The inner gorge terraces of the upper Ohio and Beaver rivers.
Am. Jour. Sci., 3d ser., vol. xlix, pp. 112–120.
Describes the character and the process of formation of the terraces of the Ohio and Beaver rivers in Pennsylvania and the relations of the terraces and rock benches. Considers that the rock benches of the two rivers belong to the same series, and that the inner gorge was formed during two periods. Reviews the evidences which show the existence of a buried channel and the character of the alluvium. Gives a list of the principal papers on this subject.

210 **Hill** (Robert T.). Discovery of a dicotyledonous flora in the Cheyenne sandstone.
Am. Jour. Sci., 3d ser., vol. xlix, p. 473 (communicated).
Contains brief remarks on the discovery of a dicotyledonous flora in the Cheyenne sandstone in the basal beds of the Comanche series in southern Kansas.

211 **Hill** (Robert T.). On outlying areas of the Comanche series in Kansas, Oklahoma, and New Mexico.

Am. Jour. Sci., 3d ser., vol. l, pp. 205–234.

Reviews the previous descriptions of the Cretaceous series in this region. Gives the section at Black Hills, Comanche County, Kans., and that near Belvidere. Reviews the descriptions of these sections by Professor Cragin. Includes notes on the fossil plants by F. H. Knowlton and on the fossil Mollusca by T. W. Stanton. Compares the fauna of these beds with that of the Comanche series in Texas. Considers that these outlying beds represent the attenuated northern extension of the Washita and probably a portion of the Fredericksburg division of the Texas Comanche series.

212 —— The radiolarian earths of Cuba.

Science, new ser., vol. i, pp. 628–629.

Quotes from recent publications on radiolarian earths of the West Indian region and describes the determination of the radiolarian remains and their geologic age.

213 **Hill** (Walter Hovey). The Deadwood placer claims, Idaho.

Eng. and Mg. Jour., vol. lx, pp. 225–226.

Describes the character of these placer deposits.

214 —— The gold belt of Idaho.

Eng. and Mg. Jour., vol. lx, p. 172.

Gives a historical sketch of gold mining in Idaho and a brief description of the mining districts.

215 **Hillebrand** (W. F.). Calaverite from Cripple Creek, Colorado.

Am. Jour. Sci., 3d ser., vol. l, pp. 128–131 and 426.

Gives a chemical analysis of material from the Cripple Creek mines, which shows the presence of calaverite. Includes crystallographic notes by S. L. Penfield.

216 —— Chemical composition of calaverite from Cripple Creek, Colorado.

U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 133–135.

Describes the occurrence of the mineral and its chemical composition.

217 **Hitchcock** (C. H.). Divisions of the ice age in the United States and Canada.

Am. Geol., vol. xv, pp. 330–335 (correspondence).

Discusses the evidences of maximum glaciation during Lafayette time. Reviews recent literature on the unity of the Glacial epoch and discusses the evidences thus presented.

218 —— The Connecticut sandstone group.

Science, new ser., vol. i, pp. 74–77.

Gives a historical account of the use of the term "Connecticut" or "Connecticut sandstone group" to designate the Triassic areas of eastern North America.

219 —— High-level gravels in New England.

Abstract: Geol. Soc. Am., Bull., vol. vi, p. 460 (¼ p.).

Describes beach lines in the basin of Lake Memphremagog and adjacent region, which indicate the existence of glacial lakes.

220 **Hobbs** (William Herbert). A contribution to the mineralogy of Wisconsin.

Univ. of Wis., Science ser., vol. i, pp. 109–156, pls. 4–8.

Gives a list of papers on the subject and describes the mineralogic characters of quartz, arsenopyrite, calcite, smithsonite, galena, cerussite, sphalerite, gypsum, barite, marcasite, pyrite, azurite, malachite, and diamonds.

221 —— Mineralogical notes. With analyses by Herman Schlundt and Louis Kahlenberg.

Am. Jour. Sci., 3d ser., vol. l, pp. 121–128.

Describes and gives the chemical composition of cerussite from Montana, barite, manganite, and chloritoid from Michigan, and hessonite in a pegmatite from Connecticut.

222 **Hoffman** (G. Christian). Chemical contributions to the geology of Canada from the laboratory of the Survey.

Canada Geol. Surv., Ann. Rept., 1892–93, new ser., vol. vi, Rept. R, 93 pp.

Gives chemical analyses of rocks and minerals from Canada.

223 —— A plumbiferous tetrahedrite.

Am. Jour. Sci., 3d ser., vol. l, pp. 273–274 (⅓ p.) (communicated).

Describes the mineralogic and chemical characters of a plumbiferous tetrahedrite from British Columbia.

224 **Hollick** (Arthur). Dislocations in certain portions of the Atlantic Coastal Plain strata and their probable cause.

N. Y. Acad. Sci., Trans., vol. xiv, pp. 8–20, figs. 1–5.

Abstract: Geol. Soc. Am., Bull., vol. vi, pp. 5–7.

Discusses the theories concerning the cause of the principal lines of disturbance in the Atlantic Coastal Plain and describes the tilted and folded deposits underlying portions of the terminal moraine in this region. Discusses the theories of mountain-making forces or ice action as the cause of the folding and faulting.

225 —— Descriptions of new leaves from the Cretaceous (Dakota group) of Kansas.

Torrey Bot. Club, Bull., vol. xxii, pp. 225–228, pls. 236–237.

Gives descriptions and figures of three new species of fossil plants.

226 —— A new fossil Liriodendron from the Laramie at Walsenberg, Colo., and its significance.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, p. 225 (½ p.).

227 **Holm** (Theo.). On the validity of some fossil species of Liriodendron.

Bot. Gazette, vol. xx, pp. 312–316, pl. xxiii.

Reviews the description of certain fossil plants by Arthur Hollick.

228 **Hovey** (E. O.). Notes on some specimens of minerals from Washton Heights, New York City.

Am. Mus. Nat. Hist., Bull., vol. vii, pp. 341–342.

Describes the characters of xenotime, monazite, and tourmaline, and mentions the associated minerals.

229 **Hovey** (Horace C.). The Isles of Shoals [New Hampshire].
Sci. Am. Suppl., vol. xl, pp. 16547-16548.
Discusses the evidences of recent elevation in this region and of the results of other dynamic forces.

230 **Howell** (E. E.). On two meteorites.
Am. Jour. Sci., 3d ser., vol. l, pp. 252-254.
Describes a meteorite found in Cherokee County, Ga., and one from El Capitan Mountains of New Mexico, and gives their chemical analyses.

231 **Hunt** (A. E.). Bauxite.
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 855-861.
In discussion of papers on "Bauxite" by Messrs. Laur and Hayes, gives tables of production and chemical analyses of bauxite.

232 **Hyatt** (Alpheus). Remarks on the genus Nannо Clarke.
Am. Geol., vol. xvi, pp. 1-12, pl. i.
Gives the results of the author's study of the types from which the genus was described and discusses the bearing of this new evidence on the affinities of the forms of Endoceratidæ.

I.

233 **Iddings** (Joseph P.). Absarokite-shoshonite-banakite series.
Jour. of Geol., vol. iii, pp. 935-959.
Describes the petrographic characters and gives chemical analyses of absarokite, shoshonite, and banakite from the Yellowstone National Park and of similar rocks in neighboring regions.

234 —— **Penrose** (R. A. F., jr.) and. Review of "The Penokee iron-bearing series of Michigan and Wisconsin," by R. D. Irving and C. R. Van Hise.
Jour. of Geol., vol. iii, pp. 221-227.

J.

235 **James** (Joseph F.). The first fauna of the earth.
Am. Nat., vol. xxix, pp. 879-887 and 979-985.
Reviews the early history of geologic and paleontologic research, and gives figures of many fossils of the Cambrian formations.

236 —— Remarks on Daimonelix or "Devil's corkscrew" and allied forms.
Am. Geol., vol. xv, pp. 337-342, pls. xi-xii.
Reviews the description of this genus by E. H. Barbour, and refers to descriptions of similar fossils from Switzerland by Oswald Heer and to descriptions of fossils by James Hall and J. S. Newberry, which are considered to have affinities to those above mentioned.

237 —— Manual of the Paleontology of the Cincinnati group.
Cin. Soc. Nat. Hist., Jour., vol. xviii, pp. 67-88.
Continues the description of the fossils found in the Cincinnati group begun in a former paper and noticed in the Bibliography and Index for 1892-93 and 1894.

238 **Jones** (Arthur J.). Record of the Grinnell deep boring [Iowa].
Iowa Acad. Sci., Proc., vol. ii, pp. 31-35.
Describes the character of the rocks penetrated to a depth of 2,002 feet and gives a chemical analysis of the water.

239 **Jones** (Arthur J.). Topaz crystals of Thomas Mountain, Utah.
Iowa Acad. Sci., Proc., vol. ii, pp. 175–177.
Describes the occurrence of the crystals and discusses briefly their origin.

240 **Jones** (T. Rupert). On some fossil Ostracoda from Canada.
Geol. Mag., dec. iv, vol. ii, pp. 20–28, pl. ii.
Describes new species found in Quaternary beds of Manitoba and in the Laramie of Alberta.

K.

241 **Kain** (Samuel W.). Bibliography of scientific publications relating to the Province of New Brunswick other than those contained in the bulletins of the society, 1890–1895.
New Brunswick Nat. Hist. Soc., Bull., No. xiii, pp. 96–100.
This bibliography includes the subjects of geology, paleontology, physiography, botany, zoology, and ethnology.

242 **Keith** (Arthur). Knoxville folio-Tennessee, North Carolina.
U. S. Geol. Surv., Geol. Atlas of the U. S., folio 16.
Describes the physiography of the region, the character and distribution of the Ocoee group, the Cambrian, Silurian, Devonian, and Carboniferous rocks, the structure of the region, and the occurrence of marble, building stone, lime, and clay. Includes topographic, colored areal geologic, economic geologic, and structure section maps.

243 **Kemp** (J. F.). The nickel mine at Lancaster Gap, Pennsylvania, and the pyrrhotite deposits at Anthony's Nose, on the Hudson [New York].
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 620–633 and 888, figs. 1–6.
Abstract: Geol. Soc. Am., Bull., vol. vi, p. 3 (9 l.).
Describes the occurrence of pyrrhotite in these mines and discusses its origin.

244 —— Crystalline limestone, ophicalcites, and associated schists of the eastern Adirondacks [New York].
Geol. Soc. Am., Bull., vol. vi, pp. 241–262.
Reviews the previous and contemporary work in this region. Describes the distribution and occurrence of the limestones and associated rocks. Presents cross sections of the type localities and describes the petrographic characters of the limestone, ophicalcites, hornblendic, graphitic, and other schists, and granulite.

245 —— The geology of Moriah and Westports townships, Essex County, N. Y.
N. Y. State Mus., Bull., vol. iii, No. 14, pp. 325–355, pls. i–iv, figs. 1–5, with geologic map.
Describes the character and distribution of the gneisses, gabbros, crystalline limestones, and Cambro-Silurian sediments, and the petrographic characters of the gneisses, limestones, black schists, gabbros, and anorthosites. Describes the characters of the iron ores of the region.

246 —— The geological section of the East River at Seventeenth street, New York.
N. Y. Acad. Sci., Trans., vol. xiv, pp. 273–276.
Describes the occurrence of igneous rocks and dolomite in a tunnel at this locality.

247 **Kemp** (J. F.). The zinc mines at Franklin Furnace and Ogdensburg, N. J.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, p. 237 (¼ p.).

248 —— **Darton** (N. H.) and. A newly discovered dike at Dewitt, near Syracuse, New York. Geological notes by N. H. Darton. Petrographic description by J. F. Kemp.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 456–462.

See Darton (N. H.) and Kemp (J. F.), No. 110.

249 **Kennedy** (William). Iron ores of east Texas.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 258–288 and 862–863.

Gives a historical review of the iron industry of the region, describes the general geology, and discusses the age and classification of the ores. Gives many chemical analyses of iron ores, and data as to its strength and the methods of mining.

250 —— The Eocene Tertiary of Texas east of the Brazos River.

Phila. Acad. Nat. Sci., Proc. 1895, pp. 89–160.

Compares the Tertiary strata of Alabama and Texas and describes the character and distribution of the Tertiary rocks of Texas, including sections at many localities and lists of fossils collected. Gives a résumé of the Tertiary history of the Texas region.

251 **Keyes** (Charles Rollin). The origin and relations of central Maryland granites.

U. S. Geol. Surv., 15th Ann. Rept., pp. 685–740, pls. xxxvi–xlviii, figs 23–29.

Describes the geologic features and petrographic characters of central Maryland granites. Describes the exposures in different parts of the region and discusses the origin and age of the granites and gneisses.

252 —— Bibliography of North American Paleontology, 1888–1892.

U. S. Geol. Surv., Bull. No. 121, 251 pp.

Comprises a brief review of paleontologic literature, and author's list of papers, a title index, and subject entries and cross references.

253 —— Glacial scorings in Iowa.

Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 149–165, pls. ix–xv.

Describes the glacial scorings in various parts of the State and gives a table showing the observed directions of the striæ.

254 —— Gypsum deposits of Iowa.

Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 259–304, pls. xxi–xxv.

Describes the topographic and geologic features of the gypsum region and the character and extent of the gypsum beds. Discusses their origin and geologic age. Presents a geologic map of the gypsum region.

255 —— Economic geology of Lee County [Iowa].

Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 307–407, pls. xxvi–xxxii, with geologic map.

Describes the physiography of the county and the character and distribution of the subdivisions of the Carboniferous formation. Gives sections exposed at various localities and mentions fossils found. Describes the occurrence of coal, building stone, clay, cement, lime, and artesian and mineral waters.

256 **Keyes** (Charles Rollin). Economic geology of Des Moines County [Iowa].

Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 411–492, pls. xxxiii–xxxvii, with geologic map.

Describes the topographic character of the region and the distribution, lithologic character, and structure of the Carboniferous and Pleistocene formations. Gives sections exposed at different places and mentions fossils found. Describes the occurrence of building stone, clay, coal, and lime.

257 —— Paleontology of Missouri, Part I.

Mo. Geol. Surv., vol. iv, 1894, pp. 271, pls. i–xxxii, figs. 1–9, with geologic map of the State.

Describes the lithologic character, distribution, and structure of the Archean, Algonkian, Silurian, Devonian, and Carboniferous formations in Missouri, and includes descriptions of protozoans, sponges, corals, echinoderms, and crustaceans, and a stratigraphic catalogue of Missouri fossils.

258 —— Paleontology of Missouri, Part II.

Mo. Geol. Surv., vol. v, 1894, pp. 266, pls. xxxiii–liv, figs. 10–11.

Describes the specific characters of polyzoans, brachiopods, lamellibranchs, gasteropods, cephalopods, and vertebrates occurring in Missouri, and includes a synonymic index to the fossils of Missouri.

259 —— Secular decay of granitic rocks.

Iowa Acad. Sci., Proc., vol. ii, pp. 27–31, pls. ii–iv.

Describes the disintegration of granitic rocks of Maryland and Missouri, and discusses the general process of secular decay of similar rocks.

260 —— Synopsis of American Paleozoic echinoids.

Iowa Acad. Sci., Proc., vol. ii, pp. 178–194, pls. xviii–xx.

Remarks on the general characters and distribution of echinoids, and describes and figures a number of species.

261 —— Opinions concerning the age of the Sioux quartzite.

Iowa Acad. Sci., Proc., vol. ii, pp. 218–222.

Reviews previous opinions as to the age of this formation, and mentions finding impressions resembling certain lamellibranchs.

262 —— The Cambro-Silurian question in Missouri and Arkansas.

Jour. of Geol., vol. iii, pp. 519–526.

Reviews previous papers concerning the age of the sedimentary rocks of the Ozark series in Missouri and Arkansas, and discusses the evidences of the stratigraphic succession and age of the beds which make up this series.

263 —— Acidic eruptions of northeastern Maryland.

Am. Geol., vol. xv, pp. 39–46.

Describes the granitic rocks of northeastern Maryland, discusses the evidences of continual changing in the physical condition of rocks, and remarks on the economic value of the Port Deposit granite.

264 —— A hypsometric map of Missouri.

Am. Geol., vol. xv, pp. 314–317.

Mentions the different sources from which data have been obtained concerning the elevation of different localities in the State, and presents a sketch map showing the location of lines of precise leveling and of railway lines whose levels are used for primary control.

265 **Keyes** (Charles Rollin). Superior Mississippian in western Missouri and Arkansas.

Am. Geol., vol. xvi, pp. 86–91.

Describes the distribution of the Mississippian series in the Mississippi Valley, and gives lists of fossils collected at different localities, which show that both the upper and lower portions of this series are represented in southwest Missouri.

266 —— Stratigraphy of the Kansas coal measures.

Am. Jour. Sci., 3d ser., vol. l, pp. 239–243.

Reviews the recently published opinions concerning the Kansas coal measures, describes the deposition of these beds in the western interior basin, and discusses the relations of the coal measure formations of Iowa, Missouri, and Kansas.

267 —— Granitic rocks of Missouri.

Eng. and Mg. Jour., vol. lx, pp. 516–517.

Describes briefly the geographic distribution of granite in Missouri, and gives a classification of granitic rocks.

268 **Klotz** (Otto J.). Experimental application of the phototopographical method of surveying to the Baird Glacier, Alaska.

Jour. of Geol., vol. iii, pp. 512–518.

Describes the methods employed, the general features of Baird Glacier, and the results that can be obtained in studying the motions of glaciers by this method.

269 **Knight** (Wilbur C.). Coals and coal measures of Wyoming.

U. S. Geol. Surv., 16th Ann. Rept., part iv, pp. 208–215.

Gives notes on the occurrence of coal in the Cretaceous strata of Wyoming in a paper, by E. W. Parker, on the "Production of coal in 1894."

270 **Knowlton** (F. H.). A review of the fossil flora of Alaska, with descriptions of new species.

U. S. Nat. Mus., Proc., vol. xvii, pp. 207–240, pls. ix.

Gives a historical review of papers on the fossil flora of Alaska, a systematic enumeration of species, with descriptions of a few new species and of others previously described, and a table showing the geologic and geographic distribution of the fossil flora of Alaska, with an explanation and discussion of the table and the age of the plant-bearing beds.

271 —— Notes on the examination of a collection of inter-Glacial woods from Muir Glacier, Alaska.

Jour. of Geol., vol. iii, pp. 527–532.

Gives a list of the inter-Glacial woods, with brief megascopic descriptions.

272 —— Report upon a small collection of fossil plants from Black Hills, near Belvidere, Kansas, collected by Prof. R. T. Hill in August, 1894.

Am. Jour. Sci., 3d ser., vol. l, pp. 212–214.

Includes brief notes on the species collected.

273 —— Report on a small collection of fossil plants from Poverty Hill and Monte Cristo mine on Spanish Peak, California, submitted by H. W. Turner, January, 1895.

Am. Geol., vol. xv, pp. 377–378.

Gives a brief report on the material and a list of the species determined.

274 **Knowlton** (F. H.) Report on a small collection of fossil plants from Old Port Caddo landing, on Little Cypress Bayou, Harrison County, Tex., made by Mr. T. Wayland Vaughan.
Am. Geol., vol. xvi, pp. 308–309.
Gives a list of the species determined and states briefly their relation to the flora of the so-called eo-lignitic beds.

275 —— Description of a new problematical plant from the Lower Cretaceous of Arkansas.
Torrey Bot. Club, Bull., vol. xxii, pp. 387–390.
Describes and figures Paleohillia arkansana n. gen. et sp.

276 **Kümmel** (Henry B.). Some meandering rivers of Wisconsin.
Science, new ser., vol. i, pp. 714–716.
Describes the geologic and physiographic features of Lafayette and Grant counties and their effect on the drainage systems of the region.

277 —— Review of "Reconstruction of the Antillean continent," by J. W. Spencer.
Jour. of Geol., vol. iii, pp. 364–368.

278 —— **Salisbury** (R. D.) and. Lake Passaic—an extinct glacial lake.
Jour. of Geol., vol. iii, pp. 533–560.
See Salisbury (R. D.) and Kümmel (H. B.), No. 414.

279 **Kunz** (George Frederick). Precious stones.
U. S. Geol. Surv., 16th Ann. Rept., part iv, pp. 595–605.
Notes on the occurrence of diamonds in Wisconsin and California, rubies in North Carolina, sapphires in Montana, emeralds in the Carolinas, beryl in Maine, quartz gems in Pennsylvania, North Carolina, California, Wyoming, and Arizona, and utahlite, opal, and hyalite from Utah.

L.

280 **Lakes** (A.). Fossilized big trees, California.
Sci. Am. Suppl., vol. xxxix, p. 15862.
Describes the occurrence of fossil trees in Cretaceous and Tertiary strata of California.

281 **Lane** (Alfred C.). A connection between the chemical and optical properties of amphiboles.
Abstract: Geol. Soc. Am., Bull., vol. vi, p. 3 (¼ p.).
Gives brief statement of the law which seems to apply to all hornblendes.

282 —— Crystallized slags from copper smelting.
Abstract: Geol. Soc. Am., Bull., vol. vi, pp. 469–470.
Describes crystals of melilite occurring in these slags.

283 —— The bowels of the earth.
Pop. Sci. Monthly, vol. xlvii, pp. 302–313.
Comprises a discussion of the phenomena of volcanoes and earthquakes and of the condition of the earth's interior.

284 **Laur** (Frank). The bauxites: A study of a new mineralogical family.
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 234–242.
Discusses the mineralogic and chemical characters of bauxite.

285 **Lawson** (Andrew C.). Sketch of the geology of the San Francisco peninsula [California].

U. S. Geol. Surv., 15th Ann. Rept., pp. 399–476, pls. v–xii.

Describes the petrographic character and geologic relations of the Montara granite, the distribution and character of the Franciscan series, of Mesozoic age, the occurrence of serpentine, and the petrographic character and distribution of the Pliocene and Pleistocene formations. Discusses the dynamic phenomena of the region.

286 —— On malignite, a family of basic plutonic orthoclase rocks rich in alkalies and lime, intrusive in the Coutchiching schists of Poohbah Lake [Ontario].

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 337–362.

Describes the field relations of the rocks occurring in the Province of Ontario and their petrographic characteristics.

287 —— A contribution to the geology of the Coast ranges.

Am. Geol., vol. xv, pp. 342–356.

The region described is mainly that of the San Francisco peninsula. Describes the relations and succession of the granitic, sedimentary and volcanic series. Reviews the paleontologic evidences as to the age of the sedimentary rocks and describes the geologic structure of the region, and the post-Pliocene diastrophism.

288 **Le Conte** (Joseph). Critical periods in the history of the earth.

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 313–336.

Describes the character of the Glacial, post-Cretaceous, post-Paleozoic and pre-Cambrian revolutions and the general laws of the evolution of the organic kingdom and the suddenness of changes and rarity of transitional forms.

289 —— [The genesis of ore deposits.]

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 996–1006.

Discusses paper by F. Posepny on the same subject.

290 **Leonhard** (A. G.). Origin of the Iowa lead and zinc deposits.

Am. Geol., vol. xvi, pp. 288–294.

Describes the occurrence and mode of deposition of these deposits and reviews the various theories as to their origin.

291 —— Lansing lead mines [Iowa].

Iowa Acad. Sci., Proc., vol. ii, pp. 36–38.

Describes the occurrence of lead ore in the Oneota limestone.

292 **Lesley** (J. P.), **D'Invilliers** (E. V.), and **Smith** (A. D. W.). [Carboniferous formation, Pennsylvania.]

Pa. Geol. Surv., Final Rept., vol. iii, part i, pp. 1629–2152, pls. 205–395.

Describes the characters and distribution of the Carboniferous formation in Pennsylvania, giving vertical sections of many localities and coal mines, and names and figures many fossils.

293 **Lesquereux** (Leo). Cretaceous fossil plants from Minnesota.

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, part i, pp. 1–22, pls. A and B.

Gives a sketch of the geologic range of plant remains, and describes the plant remains of the Cretaceous of Minnesota.

294 **Leverett** (Frank). On the correlation of New York moraines with raised beaches of Lake Erie.

Am. Jour. Sci., 3d ser., vol. 1, pp. 1–20.

Presents a map of western New York showing the distribution of the moraines. Describes the Sheridan and Crittenden beaches and their probable correlative moraines in New York, and the character of the country inside (northeast of) the Lockport moraine.

295 —— Pre-Glacial valleys of the Mississippi and tributaries.

Jour. of Geol., vol. iii, pp. 740–763.

Describes the courses of the main pre-Glacial drainage lines of the northern portion of the Mississippi basin, compares the elevation and slope of the pre-Glacial valley floors, and discusses the age and development of the pre-Glacial valleys.

296 **Lindgren** (Waldemar). Characteristic features of California gold-quartz veins.

Geol. Soc. Am., Bull., vol. vi, pp. 221–240, pl. 11.

Describes the geographic distribution, geologic relations, and age of the gold-quartz veins in California. Discusses the structural relations of the veins and describes the association of minerals, the distribution of the gold and the alteration of the country rock. Includes a discussion of the origin of gold and a summary of conclusions. Accompanied by a map of California showing the location of the gold-quartz veins.

297 —— and **Turner** (H. W.). Marysville folio, California.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio 17.

Describes the topography of the region, the characters of the Pleistocene deposits and of the igneous rocks of Marysville buttes and the occurrence of gold-bearing gravels, coal, and natural gas. Includes topographic, colored areal geologic, economic geologic, and structure section maps.

298 —— Smartsville folio, California.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio 18.

Gives a general description of the gold belt of California and a generalized columnar section of the formations of the region. Describes its topographic features, the character and distribution of the Carboniferous rocks and of the igneous rocks, including porphyrite, diabase, granodiorite, gabbrodiorite, and amphibolite, and discusses the age of the igneous rocks. Describes the Neocene and Pleistocene formations, the associated flows of rhyolite and andesite, and the occurrence of auriferous gravels, gold quartz veins, copper, quicksilver, iron, building stone, and soils. Includes topographic, colored areal geologic, economic geologic, and structure section maps.

299 **Lonsdale** (Elston Holmes). Geology of Montgomery County [Iowa].

Iowa Geol. Surv., vol. iv., 3d Ann. Rept., pp. 385–451, pls. x–xi, figs. 46–54, with geologic map.

Describes the physiography of the county and the distribution, stratigraphy, and lithology of the Carboniferous, Cretaceous, and Pleistocene formations. Gives sections of typical localities, and describes the occurrence of building stone, clay, coal, road materials, soils, and water supply.

300 **Lonsdale** (Elston Holmes). Cement materials in Iowa.

Abstracts: Iowa Acad. Sci., Proc., vol. ii, pp. 172–174; Eng. and Mg. Jour., vol. ix, p. 153.

Contains brief remarks on certain deposits in Iowa.

301 —— Upper Carboniferous of southwestern Iowa.

Iowa Acad. Sci., Proc., vol. ii, pp. 197–200.

Reviews previous descriptions of these beds and describes their character and thickness.

302 **Luquer** (L. McI.) and **Volckening** (G. J.). On three new analyses of sodalite from three new localities [Ontario].

Am. Jour. Sci., 3d ser., vol. xlix, pp. 465–466.

Describes the occurrence and chemical composition of sodalite from Ontario, Canada, Ural Mountains, Asia, and the Congo State, Africa.

303 **Lyman** (Benjamin Smith). Report on the New Red of Bucks and Montgomery counties [Pennsylvania].

Pa. Geol. Surv., Final Rept., vol. iii, part 2, pp. 2589–2638, pls. 596–611.

Describes the occurrence, distribution, and structure of the formation in eastern Pennsylvania and discusses its occurrence in other portions of the Middle and Southern Atlantic States, and in New England.

304 —— The Yardley fault [Pennsylvania].

Am. Phil. Soc., Proc., vol. xxxiv, pp. 381–384, pl. x.

Refers to a previous description of the fault by Prof. H. Carvill Lewis. Describes the phenomena connected with the fault and discusses the evidence as to the extent and direction of the downthrow.

305 —— The Chalfont fault rock, so called.

Am. Phil. Soc., Proc., vol. xxxiv, pp. 384–388, pls, xi–xii.

Quotes from a previous description of the fault phenomena at Chalfont, Bucks County, Pa., by Prof. H. Carvill Lewis. Describes the dips and cleavage planes of the strata as shown in two plates.

M.

306 **McCalley** (Henry). Alabama barite or heavy spar.

Ala. Ind. and Sci. Soc., Proc., vol. v, pp. 25–29.

Describes its occurrence in Silurian rocks of Alabama, and the production in the various mines of the United States.

307 **McGee** (W J). The extension of uniformitarianism to deformation.

Geol. Soc. Am., Bull., vol. vi, pp. 55–70.

Describes the movements of the earth's crust and the evidences by which they are detected, the methods of acquiring this knowledge, and the progress of knowledge of the earth's crust. Discusses the origin of these movements.

308 —— A miniature extinct volcano.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, pp. 225–226.

Gives a brief description of a soda lake in central Nevada and its lacustral history.

309 **McKellar** (Peter). The silver mines of Thunder Bay [Ontario].

Abstract: Eng. and Mg. Jour., vol. lix, p. 391.

Describes the occurrence of silver at Thunder Bay and discusses the origin of the deposits.

310 **Marbut** (C. F.). The geographic development of Crowleys Ridge [Arkansas and Missouri].

Boston Soc. Nat. Hist., Proc., vol. xxvi, pp. 479–488, figs. 1–3.

Describes the geographic extent of the ridge and the results of stream erosion, and discusses the origin of the ridge.

311 **Marsh** (O. C.). The Reptilia of the Baptanodon beds.

Am. Jour. Sci., 3d ser., vol. l, pp. 405–406.

Describes the occurrence of species of Baptanodon in Utah, Oregon, and Wyoming.

312 —— On the affinities and classification of the dinosaurian reptiles.

Am. Jour. Sci., 3d ser., vol. l, pp. 483–498.

Abstract of paper read before the International Congress of Zoologists, 1895. Discusses the affinities and the classification of Dinosauria, adopted by the author.

313 —— Restoration of some European dinosaurs, with suggestions as to their place among the Reptilia.

Brit. Assoc. Adv. Sci., Rept. for 1895, pp. 685–688.

Gives a brief comparison of some European and North American dinosaurs.

314 **Marsters** (Vernon F.). Camptonite dikes near Danbyborough, Vt.

Am. Geol., vol. xv, pp. 368–371.

Describes the characters of the dike rock and the manner in which it differs from the type rock at Campton Falls, N. H. Gives a list of the localities where camptonite dikes are known to occur.

315 —— Camptonites and other intrusives of Lake Memphremagog [Quebec].

Am. Geol., vol. xvi, pp. 25–39, with map.

Gives a brief description of the geologic features of the vicinity of Lake Memphremagog. Describes the granite, lamprophyre, monchiquite, and fourchite dikes, the microscopic characters of the dike rocks, and gives a summary of the literature of the occurrence of these dikes.

316 **Matthew** (George F.). On the organic remains of the Little River group, No. II.

Roy. Soc. of Canada, Proc. and Trans., vol. xii, sect. iv, pp. 89–100.

Quotes the author's description of the post-Cambrian beds of the region from a previous paper and describes the lithologic character and succession of the beds of this group. Describes a new species of insect, a new scorpion, and a new land snail from these beds.

317 —— On the organic remains of the Little River group, No. III.

Roy. Soc. of Canada, Proc. and Trans., vol. xii, sect. iv, pp. 101–110.

Presents a table of the genera of the pre-Carboniferous land flora of northeastern North America, showing their geologic distribution, and discusses their bearing on the age of the Little River beds. Gives a sketch of the literature of fossil myriapods and describes five new species from the Little River group.

318 —— Early Protozoa.

Am. Geol., vol. xv, pp. 146–153.

Discusses the occurrence of early Protozoa in pre-Cambrian rocks, and reviews a paper by L. Cayeux on the Protozoa of the pre-Cambrian of Brittany.

319 **Matthew** (George F.). The Protolenus fauna.
N. Y. Acad. Sci., Trans., vol. xiv, pp. 101–153, pls. i–xi.
Abstract: Science, new ser., vol. i, pp. 452–453.
Describes the relations of the different faunas of the Cambrian rocks of New Brunswick and Newfoundland, and the specific characters of the Protolenus fauna, including a number of new species.

320 —— Two new Cambrian graptolites with notes on other species of Graptolitidæ of that age.
N. Y. Acad. Sci., Trans., vol. xiv, pp. 262–273, pls. xlviii–xlix.
Describes several species of graptolites occurring in the Cambrian rocks near St. John, New Brunswick.

321 **M[atthew]** (G. F.). Report on the summer camp at French Lake [New Brunswick].
New Brunswick Nat. Hist. Soc., Bull., No. xiii, pp. 84–88.
Describes the physiography of this region in south central New Brunswick.

322 —— Report on the summer camp at Lepreau basin [New Brunswick].
New Brunswick Nat. Hist. Soc., Bull., No. xiii, pp. 88–93.
Describes briefly the geologic structure of this vicinity in southern New Brunswick, and gives a summary of its geologic history.

323 —— Report on geology.
New Brunswick Nat. Hist. Soc., Bull., No. xiii, pp. 94–95.
Gives a brief statement regarding the classification of brachiopods and of the occurrence of primitive types in the St. John group, and describes and figures Trematobolus insignis.

324 **Matthew** (W. D.). The effusive and dike rocks near St. John, N. B.
N. Y. Acad. Sci., Trans., vol. xiv, pp. 187–218, pls. xii–xvii.
Presents a bibliography of the literature, describes the distribution of the pre-Cambrian volcanics along the eastern coast of North America, and reviews the classification of pre-Cambrian in New Brunswick. Describes the petrographic characters of quartz-porphyry, felsite-porphyry, diabase, soda-granite, diorite-porphyrite, and augite-porphyrite.

325 —— Monazite and orthoclase from South Lynne, Connecticut.
School of Mines Quart., vol. xvi, pp. 231–233.
Describes and figures the crystallographic characters of the minerals named.

326 —— The volcanic rocks of the maritime provinces of Canada.
New Brunswick Nat. Hist. Soc., Bull., No. xiii, pp. 76–83.
Gives a brief description of the geologic history of New Brunswick and of the character and distribution of the volcanic rocks of Nova Scotia and New Brunswick.

327 **Matthews** (Edward B.). The granites of Pikes Peak, Colorado.
Geol. Soc. Am., Bull., vol. vi, pp. 471–473.
Describes several types of granite from the Pikes Peak region and discusses the genetic sequence.

328 **Mead** (Daniel W.). Notes on the hydro-geology of Illinois in relation to its water supplies.

Ill. Soc. Eng. and Surveyors, 8th Ann. Rept., 1893.

Describes the geologic features of the State and its drainage systems, and gives sections showing the character of the strata and tables of physical data of artesian wells. Contains geologic maps of Illinois and of northern Illinois and southern Wisconsin and a cross section.

329 —— The hydro-geology of the Upper Mississippi Valley and some of the adjoining territory.

Assoc. of Eng. Societies, Jour., vol. xiii, No. 7, 1894, 68 pp.

Gives tables showing the amount of rainfall and rate of evaporation in various parts of the region and a general summary of the geology, with vertical sections displayed in certain wells. Discusses the glacial deposits and presents a number of tables giving physical data of artesian and deep wells in the Upper Mississippi Valley. The paper contains six maps.

330 —— The geology of Wisconsin water supplies.

Paper read before the convention of American Waterworks Association at Milwaukee, Wis., September 5–9, 1893. Author's edition, Rockford, Ill.

Describes the general geologic features of Wisconsin in relation to the water supply and gives data regarding the artesian and deep wells. The paper contains a geologic map of the State.

331 —— Geological map and table of economic resources of Illinois.

Author's edition, Rockford, Ill.

Presents a geologic map of Illinois and tables showing the analysis of Illinois limestones and clays and the economic resources with geologic strata and geographic locality where found.

332 **Meadows** (Thomas C.) and **Brown** (Lytle). The phosphates of Tennessee.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 582–594.

Gives a historical sketch of phosphate mining and a map of the region. Describes the occurrence of phosphatic material at various localities and the general geology of the district. Discusses the origin of the material.

333 **Mercer** (Henry C.). A preliminary account of the reexploration in 1894 and 1895 of the "Bone Hole," now known as Irwin's Cave, at Port Kennedy, Montgomery County, Pennsylvania.

Phila. Acad. Nat. Sci., Proc. 1895, pp. 443–446.

Describes the occurrence of fossil vertebrates and plants in this cave.

334 **Merriam** (John C.). On some reptilian remains from the Triassic of northern California.

Am. Jour. Sci., 3d ser., vol. l, pp. 55–57.

The remains consist of vertebræ and fragments of ribs and were obtained from the black bituminous limestones of the Trias in Shasta County, Cal. Their systematic position is within the old order Enaliosauria. Proposes the new generic and specific name Shastasaurus pacificus for one of the skeletons.

336 **Merriam** (John C.). Sigmogomphius leconteı, a new castoroid rodent from the Pliocene, near Berkeley, Cal.

Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 363-370.

Gives a history of Castoridæ, a description of the fossil remains collected, and a comparison with other castoroid genera, and describes their geologic and geographic distribution.

336 **Merrill** (Frederick J. H.). The geology of natural scenery.

Pop. Sci. Monthly, vol. xlvi, pp. 240-244.

Describes geologic phenomena in New York and in portions of Europe.

337 —— The geology of Moriah and Westport townships, Essex County, N. Y.

See Kemp (J. F.), No. 245.

338 —— Clay industries of New York.

See Ries (H.), No. 398.

339 **Merrill** (George P.). The onyx marbles: their origin, composition, and uses, both ancient and modern.

U. S. Nat. Mus., Rept. for 1893, pp. 539-585, pls. 1-18.

Discusses its origin, mode of occurrence, and chemical and physical properties, and describes its occurrence in Arizona, California, eastern Appalachian region, Colorado, Utah, New Mexico, Mexico, and in foreign countries.

340 —— On the formation of stalactites and gypsum incrustations in caves.

U. S. Nat. Mus., Proc., vol. xvii, pp. 77-81, pls. ii-v.

Describes the formation of stalactites and incrustations in Wyandotte Cave, Indiana, Luray Caves, Virginia, and the Mammoth Cave, Kentucky.

341 —— The formation of sandstone concretions.

U. S. Nat. Mus., Proc., vol. xvii, pp. 87-88, pl. vi.

Describes the formation of nodular masses of siliceous sand and iron disulphide in the Potomac division of the Cretaceous in the District of Columbia.

342 —— Notes on some eruptive rocks from Gallatin, Jefferson, and Madison counties, Montana.

U. S. Nat. Mus., Proc., vol. xvii, pp. 637-673.

Describes the petrographic characters of the following rock types in this region: Enstatite andesite, basalt ? (with chemical analysis), augite andesite, hornblende andesite, lamprophyr, porphyrite ? (with chemical analysis), hypersthene andesite (with chemical analysis), diorite rhyolite, andesite, hornblende picrite (with chemical analysis), saxonite (harzburgite) (with chemical analysis), pyroxenite (with chemical analysis), diabase, liparite, pyroxenite (websterite) (with chemical analysis), diorite porphyrite, quartzose hornblende porphyrite (with chemical analysis), and lamprophyres (with chemical analyses).

343 —— Disintegration of the granitic rocks of the District of Columbia.

Geol. Soc. Am., Bull., vol. vi, pp. 321-332, pl. 16.

Describes the character of the rock and the extent of the disintegration of a particular locality and gives chemical analyses of the fresh rock, of that partially decomposed, and of the soil. Gives analyses of material separated by solvents and also mechanically separated. Discusses the conditions affecting the results and compares them with analyses of material from other localities. Discusses the evidence of the time limit and causes of the disintegration.

344 **Merritt** (William Hamilton). [Nickel deposits at Sudbury, Ontario.]
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 755–756.
Discussion of paper by S. F. Emmons on the "Geological distribution of the useful metals in the United States."

345 **Miller** (Arthur M.). High level gravel and loam deposits of Kentucky rivers.
Am. Geol., vol. xvi, pp. 281–287.
Discusses the evidences of a former flooded condition of some of the Kentucky rivers and the possibility of the terminal moraine having blocked the mouths of the Kentucky and Licking rivers. Presents a map of northeastern Kentucky.

346 **Miller** (S. A.) and **Gurley** (William F. E.). New and interesting species of Paleozoic fossils.
Ill. State Mus. Nat. Hist., Bull., No. 7, pp. 89, pls. i–v.
Describes new species of fossils from the Carboniferous of Missouri, the Devonian of Indiana, and the Silurian of Tennessee and Indiana.

347 **Montgomery** (Henry). Volcanic dust in Utah and Colorado.
Science, new ser., vol. i, pp. 656–657 (correspondence).
Describes deposits of volcanic dust occurring in the Oquirrh and Wasatch mountains, Utah, and in the Green River region of northwestern Colorado.

348 **Moses** (Alfred J.). Contributions from the mineralogical department of Columbia College.
School of Mines Quart., vol. xvi, pp. 226–231.
Describes the crystallographic characters of zincite, atacamite from Arizona, enargite from Montana, and hollow pseudomorphs of quartz after an unknown mineral from New Jersey.

349 **Mudge** (E. H.). Central Michigan and the post-Glacial submergence.
Am. Jour. Sci., 3d ser., vol. l, pp. 442–445.
Describes the character of the erosion of central Michigan and discusses the evidences which indicate that this depression is an unfilled portion of a much deeper valley, eroded in pre-Glacial time. Discusses the theory of a submergence of the Great Lakes during the Glacial period.

N.

350 **Nason** (Frank L.). The franklinite deposits of Mine Hill, Sussex County, New Jersey.
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 121–130.
Describes recent operations with the diamond drill and the evidence obtained as to the position and extent of the ore body.

351 —— The geological structure of the Ringwood iron mines, New Jersey.
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 505–521.
Describes the position of the ore bodies and discusses their geologic structure.

352 **Nason** (Frank L.). The Goler gold diggings [California].
Eng. and Mg. Jour., vol. lix, p. 223.
Describes the occurrence of gold placers on the western edge of the Mojave desert, California.

353 **Newell** (Frederick Haynes). The public lands and their water supply.
U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 457–533, pls. xxxv–xxxix, figs. 48–57.
Describes the character of the public lands of the Western States and their water supply.

354 **Nitze** (H. B. C.). Monazite.
U. S. Geol. Surv., 16th Ann. Rept., part iv, pp. 667–693.
Reviews the history and nomenclature of this mineral, describes its crystallographic and chemical characters, and gives a table showing its geographic and geologic occurrence. Includes a bibliography.

355 **Norton** (William Harmon). Certain Devonian and Carboniferous outliers in eastern Iowa.
Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 115–133.
Mentions the localities where these outliers are known to occur and the fossils that have been found in them.

356 —— Thickness of the Paleozoic strata of northeastern Iowa.
Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 169–210, pls. xvii–xviii.
Gives the thickness of the different Paleozoic formations at various localities in Iowa and the vertical sections displayed by several deep well borings.

357 —— Geology of Linn County [Iowa].
Iowa Geol. Surv., vol. iv, 3d Ann. Rept., pp. 125–195, pls. ii–v, figs. 13–18, with geologic map.
Describes the topography and drainage of the area and the distribution and lithologic character of the Upper Silurian, Devonian, and Pleistocene beds, and an outlier of Carboniferous strata. Gives vertical sections at various localities and describes the occurrence of building stones, clay, and lime.

358 —— Occurrence of Megalomus canadensis Hall in the Le Claire beds at Port Byron, Illinois.
Iowa Acad. Sci., Proc., vol. ii, pp. 42–43 (¼ p.).
Contains brief notes on the occurrence of the fossil at this locality.

359 —— Geological section of the Y. M. C. A. artesian well at Cedar Rapids, Iowa.
Iowa Acad. Sci., Proc., vol. ii, pp. 194–196.
Gives the section of the well to a depth of 1,462 feet and a table showing the thicknesses of the formations penetrated.

O.

360 **Olcott** (E. E.). [On the nickel mine at Lancaster Gap, Pennsylvania.]
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 883–886.
In discussion of paper by J. F. Kemp on the same subject.

361 **Osborn** (Henry Fairchild). Fossil mammals of the Uinta Basin. Expedition of 1894.

Am. Mus. Nat. Hist., Bull., vol. vii, pp. 71–106, figs. 1–17.

Gives a description of the occurrence of the fossils and the character of the formations in the Uinta Basin, in northeastern Utah, by Mr. O. A. Peterson. In a table shows the succession of species in the three faunal levels and describes the fossils collected, including several new species.

362 —— and **Earle** (Charles). Fossil mammals of the Puerco beds.

Am. Mus. Nat. Hist., Bull., vol. vii, pp. 1–70, figs. 1–21.

The fossils described were found in the San Juan region of New Mexico. Quotes from Dr. Wortman's field notes describing their occurrence. Gives in tabular form a synopsis and vertical distribution of the Puerco fauna, and describes the characters of the fossils collected, including a number of new species.

363 —— and **Wortman** (J. L.). Perissodactyls of the Lower Miocene White River beds [South Dakota].

Am. Mus. Nat. Hist., Bull., vol. vii, pp. 343–375, pls. viii–xi, figs. 1–12.

Gives a list of the species described and the lithologic character and thickness of the beds in which they were found. Describes the fossils collected, including a number of new species.

P.

364 **Packard** (R. L.). Note on a blue mineral, supposed to be ultramarine, from Silver City, New Mexico.

U. S. Nat. Mus., Proc., vol. xvii, pp. 19–20.

Gives a brief description of its occurrence and a chemical analysis of the material.

365 —— On an occurrence of copper in western Idaho.

Am. Jour. Sci., 3d ser., vol. l, pp. 298–300.

Describes the occurrence of copper in the mountains separating Oregon from Idaho and the petrographic and chemical characters of the diorite with which it is associated.

366 **Penfield** (S. L.). Partial report on calaverite crystals from Cripple Creek, Colorado.

U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 135–136.

Describes the crystallographic characters of the material examined.

367 **Penrose** (R. A. F., jr.). Geology and mining industries of the Cripple Creek district, Colorado, Part II. Mining geology of the Cripple Creek district, Colorado.

U. S. Geol. Surv., 16th Ann. Rept., part ii, pp, 111–209, pls. iii–xiv, figs. 2–37, with supplemental map of the Cripple Creek district.

Gives a historical account of mining at Cripple Creek. Describes the mineralogic character and superficial alteration of the gold ores. Discusses the mode of occurrence and deposition of the ores. Chapters V and VI contain detailed descriptions of the mines. Contains a discussion of the chemical characters of calaverite by W. F. Hillebrand and of its crystallographic characters by S. L. Penfield.

368 **Penrose** (R. A. F., jr.), and **Iddings** (J. P.). Review of the "Penokee iron-bearing series of Michigan and Wisconsin," by R. D. Irving and C. R. Van Hise.
Jour. of Geol., vol. iii, pp. 221–227.

369 —— and **Quereau** (E. C.) Review of "Vol. VII. Geological Survey of Ohio."
Jour. of Geol., vol. iii, pp. 353–357.

370 **Perrine** (Charles D.). Earthquakes in California in 1894.
U. S. Geol. Surv., Bull. No. 129, 23 pp.
Includes a chronologic record of earthquakes occurring on the Pacific Coast in 1894.

371 **Phillips** (William B.), Coal in western North Carolina.
Eng. and Mg. Jour., vol. lx, pp. 612–613.
Describes the occurrence of coal in rocks of possible Cambrian age.

372 **Pirsson** (Louis V.). Complementary rock and radial dikes.
Am. Jour. Sci., 3d ser., vol. l, pp. 116–121.
Describes the smaller bodies, usually dikes and sheets, which frequently accompany large intrusions of massive igneous rocks, which are in part more basic and in part more acid than the main bodies. Such rocks are known as complementary rocks. Discusses the use of the term lamprophyre for the basic type, and suggests the term oxyphyre for the acid type. Considers that radial dikes around an eruptive center are usually of later formation, and are most typical in areas of undisturbed, homogeneous, and sedimentary strata; further, that normally oxyphyres most commonly cut the central stock and lamprophyres the outer zone of sedimentaries.

373 —— On some phonolitic rocks from Montana.
Am. Jour. Sci., 3d ser., vol. l, pp. 394–399.
Describes the megascopic and microscopic characters of pseudo-leucite sodalite-tinguaite, and quartz-tinguaite porphyry.

374 —— **Weed** (W. H.) and. On the igneous rocks of the Sweet Grass Hills, Montana.
Am. Jour. Sci., 3d ser., vol. l, pp. 309–313.
See Weed (W. H.) and Pirsson (L. V.), No. 523.

375 —— Igneous rocks of Yogo Peak, Montana.
Am. Jour. Sci., 3d ser., vol. l, pp. 467–479.
See Weed (W. H.) and Pirsson (L. V.) No. 524.

376 —— Highwood Mountains of Montana.
Geol. Soc. Am., Bull., vol. vi, pp. 389–422, pls. 24–26.
See Weed (W. H.) and Pirsson (L. V.) No. 522.

377 **Posepny** (F.). [The genesis of ore deposits.]
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 962–980.
Reviews discussions of a former paper by the author on the same subject.

378 **Prest** (W. H.). Deep mining in Nova Scotia.

Nova Scotian Inst. of Sci., Proc. and Trans., vol. viii, pp. 420–434.

Gives a general vertical section of the Cambrian rocks of eastern Nova Scotia and discusses their geologic age. Describes the folding, mineralization, and denudation of these rocks. Remarks on the classification of the gold mines, and discusses the probabilities of deep mining.

379 **Prosser** (Charles S.). The classification of the Upper Paleozoic rocks of central Kansas.

Jour. of Geol., vol. iii, pp. 682–705 and 764–800.

Describes the topographic features of the region and the lithologic character and fauna of the Permian and Permo-Carboniferous rocks, and reviews previous descriptions of the geology of Kansas. Presents a table showing the stratigraphic position and character of the formations comprising the Upper Paleozoic of central Kansas.

380 —— Kansas River section of the Permo-Carboniferous and Permian rocks of Kansas.

Geol. Soc. Am., Bull., vol. vi, pp. 29–54.

Reviews the work of Meek and Hayden and Professor Swallow in this region. Describes the sections at Manhattan, the Mill Creek section, and that of the upper Kansas River, giving lists of fossils collected and comparing the faunas of some of the beds. Presents a "chart giving tabulated sections of the rocks exposed along the Kansas River southwest of Manhattan, as described by Meek and Hayden, Swallow and Hay."

Q.

381 **Quereau** (E. C.), **Penrose** (R. A. F., jr.), and. Review of "Geology, vol. vii, Geological Survey of Ohio."

Jour. of Geol., vol. iii, pp. 353–357.

382 **Quille** (Dan de). The gold belts of Nevada.

Eng. and Mg. Jour., vol. lix, pp. 532–533.

Describes the occurrence of gold at Virginia City and other localities in Nevada.

383 —— Millions in gold beneath the lava flows.

Eng. and Mg. Jour., vol, lx, pp. 537–538.

Discusses the occurrence of gold beneath the lava flows of Idaho and California.

R.

384 **Rand** (Theodore D.). Trap dikes in Chester County, Pennsylvania.

Phila. Acad. Nat. Sci., Proc., 1895, pp. 540–541.

Gives brief notes on the occurrence of trap dikes in this county.

385 **Ransome** (F. Leslie). On lawsonite, a new rock-forming mineral from the Tiburon peninsula, Marin Co., Cal.

Univ. of Cal., Dept. of Geol., Bull., vol. i, No. 10, pp. 301–312, pl. 17.

Describes the optical, crystallographic, chemical, and physical characters of lawsonite, with notes on the associated minerals.

386 **Rauff** (Hermann). Palæospongiologie.

Palæontographica, Band xli, pp. 223–272, pls. xx–xxvi, figs. 76–124.

Describes new species of fossil sponges from the Niagara rocks of Tennessee and one from the Trenton of Manitoba.

387 **Rauff** (Hermann). Ueber Porocystis pruniformis Cragin (= ? Araucarites wardi Hill) aus der unteren Kreide in Texas.
Neues Jahr. für Min., etc., 1895, Band i, pp. 1-15.
Describes the characters of the fossil, and reviews the descriptions of Messrs. Hill and Cragin.

388 **Raymond** (R. W.). [The torsional theory of joints.]
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 864-865.
In discussion of paper by G. F. Becker on the same subject.

389 —— [Pyrrhotite deposits at Anthonys Nose, New York].
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 886-888.
In discussion of paper by J. F. Kemp on "The nickel mine at Lancaster Gap, Pennsylvania, and the pyrrhotite deposits at Anthonys Nose on the Hudson."

390 —— [The classification of ore deposits.]
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 956-957.
Remarks on a classification of ore deposits presented in T. A. Rickard's discussion of a paper on the "Genesis of ore deposits," by F. Posepny.

391 —— [The genesis of ore deposits.]
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 980-995.
In discussion of paper by F. Posepny on the same subject.

392 **R[aymond** (R. W.).] The superficial alteration of ore deposits.
Eng. and Mg. Jour., vol. lix, p. 328.
Reviews paper by R. A. F. Penrose, jr., on the same subject.

393 **Reid** (Harry Fielding). The variations of glaciers.
Jour. of Geol., vol. iii, pp. 269-288.
Abstract: Geol. Soc. Am., Bull., vol. vi, pp. 461-462 (½ p).
Discusses the causes of variations in glaciers, and describes the observations that should be made in studying glacial phenomena.

394 **Rhoads** (Samuel N.). Distribution of the American bison in Pennsylvania, with remarks on a new fossil species.
Phila. Acad. Nat. Sci., Proc., 1895, pp. 244-248.
Remarks on the former occurrence of the American bison in Pennsylvania, and describes a new species, Bison appalachicolus.

395 **Rickard** (T. A.). [The genesis of ore deposits.]
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 942-956.
In discussion of paper by F. Posepny on the same subject, presents the author's classification of ore bodies, and discusses phenomena observed in mines in Colorado and Arizona.

396 —— Porphyry.
Eng. and Mg. Jour., vol. lix, p. 578.
Discusses the characters of porphyries and their occurrence in different mining regions.

397 —— Variations in the milling of gold ores, xii. The Black Hills, South Dakota.
Eng. and Mg. Jour., vol. lx, pp. 221-223 and 247-251.
Describes briefly some of the ore bodies of the Black Hills.

398 **Ries** (Heinrich). Clay industries of New York.
N. Y. State Mus., Bull., vol. iii, No. 12, 262 pp.
Describes the occurrence of clay deposits in Quaternary, Tertiary, and Cretaceous strata of the State. Gives a list and figures of diatoms found in Cretaceous beds, and includes an account of the clay industries and a map of the State, showing the location of clay deposits and manufactories.

399 —— On a granite-diorite near Harrison, Westchester County, N. Y.
N. Y. Acad. Sci., Trans., vol. xiv, pp. 80–86.
Describes the petrographic characters of a granite-diorite, of a gneissic structure, occurring at the locality named.

400 **Robertson** (James D.). The Missouri lead and zinc deposits.
Am. Geol., vol. xv, pp. 235–248.
Describes the differences between the deposits of the southwestern portion of the State and those of the central and southeastern, the characters of the country rock, and the forms and mode of deposition of the ore bodies. Describes the lead and zinc compounds and accessory minerals. Reviews some of the theories advanced to account for the origin of these deposits, and discusses the evidence in support of the author's hypothesis.

401 —— [Lead and zinc deposits in Missouri.]
See Winslow (A.), No. 564.

402 **Rolker** (Charles M.). The production of tin in various parts of the world.
U. S. Geol. Surv., 16th Ann. Rept., part iii, pp. 458–538.
Includes statistics of production in various countries and notes on the occurrence of tin in Maine, Virginia, North Carolina, Alabama, Texas, South Dakota, and California.

403 **Rowley** (R. R.). Description of a new genus and five new species of fossils from the Devonian and sub-Carboniferous rocks of Missouri.
Am. Geol., vol. xvi, pp. 217–223.
Describes Aristocrinus n. gen. and five new species.

404 **Ruedmann** (R.). Synopsis of the mode of growth and development of the graptolitic genus Diplograptus.
Am. Jour. Sci., 3d ser., vol. xlix, pp. 453–455.
Describes and figures the results of observations made upon a large collection of specimens of Diplograptus found near Dolgeville, N. Y.

405 **Rundall** (W. H.). Quicksilver ores at Guadalcazar, Mexico.
Sci. Am. Suppl., vol. xl, pp. 16289–16290.
Describes the occurrence of quicksilver at this vicinity.

406 **Russell** (Israel C.). Review of "Report on surface geology," by R. D. Salisbury.
Jour. of Geol., vol. iii, pp. 358–364.

407 —— The influence of débris on the flow of glaciers.
Jour. of Geol., vol. iii, pp. 823–832.
Discusses the rate of flow of glaciers as affected by glacial erosion and subglacial deposition, the unconsolidated deposits beneath glaciers, terminal moraines, and the variations of glaciers.

S.

408 **Salisbury** (Rollin D.). Surface geology: Report of Progress [New Jersey].

N. J. Geol. Surv., Rept. for 1894, pp. 1–150, pls. i–iv.

Describes the distribution and character of the drift deposits of the northern portion of New Jersey, the distribution and direction of the glacial striæ, the changes of drainage of lakes and streams, and the lithologic character and succession of certain deposits of Tertiary age. Includes geologic sections and map showing the course of ice movement in the last Glacial epoch.

409 —— Surface formations of southern New Jersey.

Geol. Soc. Am., Bull., vol. vi, pp. 483–488.

Describes the distribution, composition, thickness, and age of the Beacon Hill, Pensauken, and Jamesburg formations, which constitute "the post-Cretaceous surface materials south of the Triassic belt of New Jersey."

410 —— Studies for students. Agencies which transport materials on the earth's surface.

Jour. of Geol., vol. iii, pp. 70–97.

Discusses the evidences of the action of the wind, water, water and ice cooperating, and ice, in transporting materials on the earth's surface.

411 —— [Review of the "Report on the geology of the Coastal Plain of Alabama," by E. A. Smith].

Jour. of Geol., vol. iii, pp. 101–108.

In this review the author discusses the classification and relation of the Lafayette beds.

412 —— Pre-Glacial gravels on the quartzite range near Baraboo, Wis.

Jour. of Geol., vol. iii, pp. 655–667.

Describes the character of these gravel deposits and names the fossils found in the pebbles. Discusses the evidence as to the age of these gravels and their relation to the high-level gravels of adjacent States.

413 —— The Greenland expedition of 1895.

Jour. of Geol., vol. iii, pp. 875–902.

Describes the coastal topography of Greenland in about latitude 64° 30′, and to the north, and the general features of the glacial phenomena. Discusses the evidences of past glaciations drawn from the nature of the rock surfaces and the evidence of recent changes of level.

414 —— and **Kümmel** (H. B.). Lake Passaic—an extinct glacial lake [New Jersey].

Jour. of Geol., vol. iii, pp. 533–560.

Describes the position and character of the lake basin, the existing shore features, its lacustrine deposits, and the different outlets. Discusses the evidences of the various phases of its history.

415 **Sardeson** (F. W.), **Hall** (C. W.) and. The Magnesian series of the Northwestern States.

Geol. Soc. Am., Bull., vol. vi, pp. 167–198, pl. 2.

See Hall (C. W.) and Sardeson (F. W.), No. 183.

416 **Schmitz** (E. J.). The structure of the Richmond coal basin [Virginia].

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 397–408, figs. 1–13.

Describes the geologic structure of the region, illustrated by cross sections.

417 **Schuchert** (Charles). Dry dredging in the Mississippian Sea.

Science, new ser., vol. ii, pp. 679–681.

Gives an account of collecting fossils from the Devonian rocks of Ontario and Michigan.

418 —— American fossil Brachiopoda.

Science, new ser., vol. ii, pp. 722–724.

Describes a work in preparation by the author entitled "A synopsis of American fossil Brachiopoda, including bibliography and synonymy," and gives a summary of the important results.

419 —— **Winchell** (N. H.) and. Sponges, graptolites, and corals from the Lower Silurian of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, part i, pp. 55–95, pls. F and G.

See Winchell (N. H.) and Schuchert (Charles), No. 561.

420 —— The Lower Silurian Brachiopoda of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii. part i. pp. 333–474, pls. xxix–xxxiv.

See Winchell (N. H.) and Schuchert (Charles), No. 562.

421 **Scott** (W. B.). The osteology and relations of Protoceras.

Jour. of Morph., vol. xi, pp. 303–374, pls. xx–xxii.

Describes the dentition, brain, vertebral column, and limbs of Protoceras, discusses its systematic position, and describes and figures a restoration of Protoceras celer.

422 —— A restoration of Hyænodon.

Geol. Mag., dec. iv, vol. ii, pp. 441–443, pl. xiia.

Describes briefly the characters of Hyænodon cruentus Leidy from the White River beds of South Dakota.

423 —— On the Tertiary lacustrine formations of North America.

Brit. Assoc. Adv. Sci., Rept. 1895, pp. 681–682.

Gives a brief description of the Tertiary lacustrine beds occurring in the Great Plains and Rocky Mountain region.

424 **Scudder** (Samuel H.). The Tertiary Hemiptera of British Columbia.

Canada Geol. Surv., Cont. to Canadian Palæontology, vol. ii, part i, pp. 5–26, pl. i.

Describes fossil insects from the Tertiary strata of British Columbia, including several new genera and species.

425 —— The Coleoptera hitherto found fossil in Canada.

Canada Geol. Surv., Cont. to Canadian Palæontology, vol. ii, part i, pp. 27–56, pls. 2–3.

Describes the characters of Coleoptera found in Pleistocene, Tertiary and Cretaceous strata of various parts of Canada.

426 **Scudder** (Samuel H.). Notes upon myriapods and arachnids found in sigillarian stumps in the Nova Scotia coal field.

Canada Geol. Surv., Cont. to Canadian Palæontology, vol. ii, part i, pp. 57–65, pls. iv–v.

Gives descriptions and figures of several species, including two new ones.

427 —— Revision of the American fossil cockroaches, with description of new forms.

U. S. Geol. Surv., Bull. No. 124, pp. 145, pls. xii.

Gives faunal lists of American cockroaches and tables of distribution, and discusses the characteristics of Mylacridæ. Describes and figures many species, including new species.

428 **Selwyn** (Alfred R. C.). Summary report of the operations of the Geological Survey for the year 1892.

Canada Geol. Surv., Ann. Rept., 1892–93, new ser., vol. vi, Rept. A, 95 pp.

Gives a summary of the reports of the geologists on the work done in British America in 1892.

429 —— Summary report of the operations of the Geological Survey for the year 1893.

Canada Geol. Surv., Ann. Rept., 1892–93, new ser., vol. vi, Rept. A, 98 pp.

Gives a summary of the reports of the geologists of the work done in 1893.

430 **Shaler** (Nathaniel Southgate). Preliminary report on the geology of the common roads of the United States.

U. S. Geol. Surv., 15th Ann. Rept., pp. 259–306.

Gives a historical outline of American roads, describes methods of using stone in road building, the relative value of road stones, their distribution, the action of rain, frost, and wind, the effect of geologic structure on grades of roads, and the sources of supply of road stone in New England, Appalachian region, Atlantic Coastal Plain, Mississippi Valley, Great Lakes region, and Cordilleran region.

431 —— The geology of the road-building stones of Massachusetts, with some consideration of similar materials from other parts of the United States.

U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 277–341, pls. xviii–xxiv.

Gives an account of the methods of collecting and testing materials employed. Describes the character of road-building materials of glacial origin, in bedded rocks, and dike and vein stones, in Massachusetts. Contains a discussion of topographic conditions affecting road building, a description of the brickmaking clays and road-making gravels, and statistics concerning the resistance to wear of road-building stones.

432 —— Origin, distribution, and commercial value of peat deposits.

U. S. Geol. Surv., 16th Ann. Rept., part iv, pp. 305–314.

Describes the formation of peat and the distribution of peat bogs in the United States.

433 —— [Dislocations of the Cretaceous and Tertiary rocks of Marthas Vineyard, Mass.].

Geol. Soc. Am., Bull., vol. vi, p. 7 (½ p.).

In discussion of paper by Arthur Hollick on "Dislocations in certain portions of the Atlantic Coastal Plain strata and their probable causes," discusses the character of the folds and of the topography which existed when the region was invaded by the ice sheet.

434 **Shaler** (Nathaniel Southgate). Evidences as to the change of sea level.

Geol. Soc. Am., Bull., vol. vi, pp. 141–166.

Gives a synopsis of the author's previous views of the conditions and forces affecting sea level. Describes the agencies deforming shore lines, and discusses the value of criteria indicating higher and lower seashores. Describes the changes in altitudes of portions of North American coasts and also those of other countries.

435 **Sherzer** (W. H.). Native sulphur in Michigan.

Am. Jour. Sci., 3d ser., vol. l, pp. 246–248.

Describes the occurrence of native sulphur in the Upper Helderberg limestone of Monroe County, Mich.

436 **Skewes** (Edward). Cripple Creek, Colorado.

Eng. and Mg. Jour., vol. lix, pp. 103–104 and 151–152.

Describes the occurrence of gold in some of the mines of Cripple Creek, Colo.

437 —— Cripple Creek phonolite dikes, Raven Hill, Colorado.

Eng. and Mg. Jour., vol. lix, p. 583.

Describes the occurrence and character of the dike rock in some of the mines of Cripple Creek.

438 **Smith** (A. D. W.), **Lesley** (J. P.), **D'Invilliers** (E. V.) and. [Carboniferous formation, Pennsylvania.]

Pa. Geol. Surv., Final Rept., vol. iii, part i, pp. 1629–2152, pls. 205–395.

See Lesley (J. P.), D'Invilliers (E. V.) and Smith (A. D. W.), No. 292.

439 **Smith** (Eugene A.). Alabama's resources for the manufacture of Portland cement.

Ala. Ind. and Sci. Soc., Proc., vol. v, pp. 44–51.

Describes the occurrence of the raw materials in the Cretaceous and Tertiary limestones and clays of Alabama.

440 **Smith** (James Perrin). Mesozoic changes in the faunal geography of California.

Jour. of Geol., vol. iii, pp. 369–384.

Describes briefly the relations of the pre-Carboniferous and Carboniferous faunas and the post-Paleozoic revolution. Discusses the relations of the Triassic, Jurassic, and Cretaceous faunas of California, compares them with the Mesozoic faunas of Europe and other portions of western United States, and gives the author's summary of conclusions.

441 —— Studies for students. Geologic study of migration of marine invertebrates.

Jour. of Geol., vol. iii, pp. 481–495.

Reviews recent literature discussing the geographic distribution of faunas in recent and geologic time. Discusses the causes of migration, the influence of land and water barriers and climatic zones in limiting migration, and the criteria by which the occurrence of migration is established.

442 —— The Carboniferous strata of Shasta County, California.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, p. 247 (⅓ p.).

443 **Smyth** (C. H. jr.). On a basic rock derived from granite.
Abstract: Geol. Soc. Am., Bull., vol. vi, p. 4.
Describes the character of a basic rock derived from granite in Jefferson County, N. Y. Gives the chemical analysis of a specimen of the altered material, and discusses the evidences as to the causes which have produced the alteration.

444 —— Crystalline limestones and associated rocks of the northwestern Adirondack region [New York].
Geol. Soc. Am., Bull., vol. vi, pp. 263–284.
Describes the extent and character of the limestones, and the areas of gneiss, igneous rocks, granite, and diorites. Gives a more detailed statement of the occurrence, character, and relations of the three varieties of gabbro associated with the limestone.

445 **Smyth** (Henry Lloyd). The Republic trough [Michigan].
U. S. Geol. Surv., 15th Ann. Rept., pp. 608–630, pls. xxv–xxvi.
Describes the distribution and character of the Archean and the Lower and Upper Marquette series and their contacts. Discusses the position, relations, and origin of the ore deposits.

446 **Snow** (E. P.). The Fourmile placer fields of Colorado and Wyoming.
Eng. and Mg. Jour., vol. lx, pp. 102–104.
Describes the occurrence of gold placers in Routt County, Colo., and Carbon County, Wyo.

447 —— The Hartville iron-ore deposits in Wyoming.
Eng. and Mg. Jour., vol. lx, pp. 320–321.
Describes the character and geologic relations of the ore body.

448 —— The Douglas Creek placers, Albany County, Wyoming.
Eng. and Mg. Jour., vol. lx, pp. 539–541, with map.
Describes the occurrence of this placer in the Medicine Bow range.

449 **Spencer** (Arthur C.). Certain minerals of Webster County, Iowa.
Iowa Acad. Sci., Proc., vol. ii, pp. 143–145.
Describes the character and occurrence of quartz, pyrite, celestite, and gypsum.

450 **Spencer** (J. W.). Reconstruction of the Antillean continent.
Geol. Soc. Am., Bull., vol. vi, pp. 103–140, pl. 1.
Describes the characteristics of old valleys and the deformation of land surfaces. Describes the submarine valley and fjords of the continental and antillean regions, and discusses the evidences of elevation and subsidence in Pliocene and Pleistocene time. Discusses the evidence of the separation of the Antillean basins from the Pacific and their connection with the Atlantic, and the biologic bearing of the physical changes of level.

451 —— [On the formation of glacial terrace plains.]
Geol. Soc. Am., Bull., vol. vi, pp. 460–461 (⅓ p.).
In discussion of paper by C. H. Hitchcock on "High level gravels in New England."

452 —— [Lake Newberry as the probable successor of Lake Warren.]
Geol. Soc. Am., Bull., vol. vi, p. 466 (⅓ p.).
In discussion of paper by H. L. Fairchild on the same subject.

453 **Spencer** (J. W.). The geological survey of the Great Lakes.
Am. Assoc. Adv. Sci., Proc., vol. xliii, pp. 237–243.
Describes the former continental elevation, the character of the lake basins, and the buried drainage systems.
Describes the deformation of the deserted beaches, the origin of the glacial lakes, and changes of their outlets.

454 —— Duration of Niagara Falls.
Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, pp, 244–246.

455 —— Note on Mr. Kümmel's review of the "Reconstruction of the Antillean continent."
Jour. of Geol., vol. iii, pp. 497–498.
Discusses some of the evidences of recent changes in continental elevations.

456 —— Preliminary notes on the late connection and separation of the Pacific Ocean and Gulf of Mexico.
Geol. Mag., dec. iv, vol. ii, pp. 306–308.
Describes the author's recent observations in this region.

457 **Spurr** (J. Edward). Economic geology of the Mercur mining district, Utah. With introduction by S. F. Emmons.
U. S. Geol. Surv., 16th Ann. Rept., part ii, pp. 343–455, pls. xxv–xxxiv, figs. 42–47.
Introduction.—The Oquirrh Mountains, by S. F. Emmons. Chapter i is a description of the general geology of the mining district. Chapter ii describes the geology of the Silver Ledge and the nature of the silver ores and discusses their origin. Chapter iii describes the occurrence and character of the gold ores and discusses their origin.

458 **Stanton** (T. W.). Review of "Boletin de la comision geologica de Mexico, No. 1; Fauna fosil de la Sierra de Catorce, San Luis Potosi," by Antonio del Castillo and José G. Aguilera.
Jour. of Geol., vol. iii, pp. 858–861.
Discusses the relation of the Catorce beds to the Lower Cretaceous beds of the Pacific Coast and the Texas region.

459 —— [Report on the invertebrate fossils from Black Hills, near Belvidere, Kans., collected by R. T. Hill.]
Am. Jour. Sci., 3d ser., vol. l, pp. 215–218.
Gives brief notes on the species collected.

460 **Stevenson** (John J.). On the New England coal fields of the United States.
Manchester Geol. Soc., Trans., vol. xxiii, pp. 127–121.
Gives a historical sketch of coal mining in New England, a brief description of the strata containing coal beds, and a list of plant remains collected from them.

461 **Storms** (W. H.). The wall rocks of California gold mines.
Eng. and Mg. Jour., vol. lix, pp. 172–173.
Describes the occurrence of gold and the associated rocks in various parts of California.

T.

462 **Taylor** (Frank B.). Changes of level in the region of the Great Lakes in recent geological time. [Letter to J. D. Dana.]

Am. Jour. Sci., 3d ser., vol. xlix, pp. 69–71.

Reviews the evidences of the height reached by the highest old shore line of Lake Superior, the extent of glacial time as shown by the Niagara cataract, and the nature of the changes that have been produced by alternations in the altitude of the region.

463 —— Niagara and the Great Lakes.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 249–270.

Describes the extent of the Chippewa beach in the Lake Superior and Michigan-Huron basin, the beaches of the Gulf of Winnipeg, the extent of the Hudson-Champlain strait, and the extent of the first Lake Algonquin. Reviews descriptions of the Niagara gorge, describes the succession of the lake stages, and gives a chronologic conspectus of the post-Glacial history of the Great Lakes.

464 —— The Munuscong Islands [Michigan].

Am. Geol., vol. xv, pp. 24–33.

Presents a map showing the location of the ancient Munuscong Islands to the north of Mackinac Strait. Describes the character of the surface formations and beaches, and in a table compares the heights of the principal shore lines within the area of the map.

465 —— The second Lake Algonquin.

Am. Geol., vol. xv, pp. 100–120 and 162–179.

Describes the southern extension of the Nipissing beach along the Michigan and Huron shores and discusses the causes of the change of outlet and the deformation of the Nipissing plane. Presents a map showing the extent of Lake Algonquin and the subsequent deformation of the Nipissing plane. Describes the order of the changes and reviews Dr. Spencer's paper on the duration of Niagara gorge. Discusses the evidences of recent elevation and tilting in contiguous regions.

466 —— The Nipissing beach on the north Superior shore.

Am. Geol., vol. xv, pp. 304–314.

Describes the general character of the Nipissing beach and its form and extent at certain localities on the north shore of Lake Superior. This paper is based on observations published by A. C. Lawson in a paper entitled "Sketch of the coastal topography of the north side of Lake Superior with special reference to the abandoned strands of Lake Warren." Gives the author's summary and conclusions.

467 —— [On the use of the term "Erigan".]

Am. Geol., vol. xv, pp. 394–395 (correspondence).

Refers to the author's use of the term "Erigan" to denote a section of the Niagara gorge and proposes to substitute the name "Little Niagara" throughout for "Erigan."

468 **Thomas** (Benjamin W.), **Woodward** (Anthony) and. The microscopical fauna of the Cretaceous in Minnesota, with additions from Nebraska and Illinois. (Foraminifera, Radiolaria, Coccoliths, Rhabdoliths.)

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, pt. i, pp. 23–54, pls. C, D, and E.

See Woodward (A.) and Thomas (B. W.), No. 567.

469 **Tilton** (J. L.). On the southwestern part of the Boston Basin [Massachusetts].

Boston Soc. Nat. Hist., Proc., vol. xxvi, pp. 500–505, with map.

Describes the general character of the rocks, with a discussion of special parts of the boundary between the granite and basin rocks.

470 —— Geological section along Middle River, in central Iowa.

Iowa Geol. Surv., vol. iii, 2d Ann. Rept., pp. 137–146.

Gives a cross section of the region and the vertical section of the Carboniferous rocks at various localities. Discusses the subdivision of the Iowa Coal Measures into upper and lower divisions.

471 **Todd** (J. E.). Inequalities in the old Paleozoic sea bottom.

Am. Geol., vol. xv, p. 64 (⅛ p.) (correspondence).

Gives the depths at which crystalline rocks were struck in well borings at various localities in Iowa and Nebraska.

472 —— Volcanic ash bed near Omaha [Nebr.].

Am. Geol., vol. xv, p. 130 (⅛ p.) (correspondence).

Describes briefly an occurrence of a volcanic ash bed in the bluffs of the Missouri River near Omaha, Nebr.

473 —— Recent geological work in South Dakota.

Am. Geol., vol. xvi, p. 202 (correspondence).

Gives a brief statement of some of the recent results obtained by two parties sent into the field by the School of Mines of South Dakota.

474 —— and **Bain** (H. Foster). Interloessial till near Sioux City, Iowa.

Iowa Acad. Sci., Proc., vol. ii, pp. 20–23, pl. 1.

Describes the outcrop of the till in the banks of the Big Sioux River. Discusses its origin.

475 **Turner** (Henry W.). The age and succession of the igneous rocks of the Sierra Nevada.

Jour. of Geol., vol. iii, pp. 385–414, with map.

Describes the topographic and general geologic features of the Sierra Nevada range and the character, age, and succession of the igneous rocks. Includes chemical analyses of some of the pre-Tertiary and Tertiary igneous rocks and a geologic map of the region.

476 —— Auriferous gravels of the Sierra Nevada.

Am. Geol., vol. xv, pp. 371–379.

Reviews the paleontologic evidence as to the age of the two groups into which the auriferous gravels are divided. Presents a report by F. H. Knowlton on the fossil plants collected at certain localities in California.

477 —— Further notes on the gold ores of California.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 374–380.

Describes the occurrence of gold in barite, gold associated with talc-schists, and the occurrence of gold-quartz veins in Tertiary rocks in California.

Describes the occurrence and chemical composition of mariposite and the occurrence of tetrahedrite in quartz veins.

478 **Turner** (Henry W.). Gold in serpentine.

Am. Jour. Sci., 3d ser., vol. xlix, p. 478 (½ p.) (communicated).

Refers to a previous article in which the occurrence of serpentine in gold-quartz veins is described.

479 —— Volcanic dust in Texas.

Science, new ser., vol. i, pp. 453–455.

Gives a description by R. T. Hill of the locality where the material was found, and refers to similar volcanic material from Nebraska, Montana, Idaho, and California.

480 —— The gold belt of California.

Abstract: Sci. Am. Suppl., vol. xxxix, pp. 16197–16198.

481 —— Lindgren (W.) and. Marysville folio, California.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio 17.

See Lindgren (W.) and Turner (H. W.), No. 297.

482 —— Smartsville folio, California.

U. S. Geol. Surv., Geol. Atlas of the U. S., folio 18.

See Lindgren (W.) and Turner (H. W.), No. 298.

U.

483 **Udden** (J. A.). Fossil frost cracks.

Sci. Am., vol. lxxii, p. 102.

Describes the occurrence of certain phenomena, considered to be frost cracks, in Cretaceous sandstone of the Black Hills, South Dakota.

484 **Ulrich** (E. O.). On the structure and systematic position of "Anomaloides," and a proposal to change the name to Anomalospongia.

Minn. Geol. and Nat. Hist. Surv. Final Rept., vol. iii, part i, pp. 68–74.

Remarks on the previous description of Anomoloides reticulatus, and describes the characters of the new genus and species, Anomalospongia reticulatus.

485 —— On Lower Silurian Bryozoa of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, part i, pp. 96–332, pls. 1–28, figs. 8–20.

Gives the terminology of Bryozoa, and remarks on the preservation, methods of study, classification, and geologic distribution of Paleozoic Bryozoa. Describes genera and species occurring in the Lower Silurian of Minnesota.

486 **Ulrich** (E. O.), **Winchell** (N. H.) and. Historical sketch of investigation of Lower Silurian in the Upper Mississippi Valley.

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, part i, pp. ix–liv.

See Winchell (N. H.) and Ulrich (E. O.), No. 563.

487 **Upham** (Warren). Late Glacial or Champlain subsidence and reelevation of the St. Lawrence river basin.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 1–18, with map.

Discusses the evidences of the epeirogenic movements that began and ended the Champlain epoch. Describes the character and distribution of the beaches of the Glacial lakes that occupied the St. Lawrence basin.

488 **Upham** (Warren). Epochs and stages of the Glacial period.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 305–306.

States briefly the reasons for considering that Pleistocene glaciation was continuous, with fluctuations of the ice margin much greater in the interior than eastward. Presents a table showing the minor time subdivisions of the Glacial and Champlain epochs.

489 —— Drumlin accumulation.

Am. Geol., vol. xv, pp. 194–195 (correspondence).

Describes the general features of drumlins as shown by recent descriptions of the glacial phenomena of Greenland.

490 —— Climatic conditions shown by North American inter-Glacial deposits.

Am. Geol., vol. xv, pp. 273–295.

Describes the fluctuations of the borders of the ice sheet, and the character of the inter-Glacial deposits in Minnesota, Iowa, Illinois, Indiana, Ohio, New England, and portions of Canada. Mentions many of the fossils found in these inter-Glacial beds. Presents a map showing the maximum area of the ice sheet and the stages of its recession, and a table showing the epochs and stages of the Glacial period.

491 —— Stages of recession of the North American ice sheet, shown by glacial lakes.

Am. Geol., vol. xv, pp. 396–399 (correspondence).

Gives the sequence of events of the recession of the ice sheet represented by seven stages of waning glaciation, and discusses the evidence attributing the Pleistocene shore lines to lakes dammed on the north by the receding ice sheet.

492 —— Correlations of stages of the Ice age in North America and Europe.

Am. Geol., vol. xvi, pp. 100–113, pls. v–vi.

Presents a map of the glaciated region of North America and one of the glaciated area of Europe. Describes the different stages into which the author divides the Glacial and Champlain epochs. Discusses the evidences of the character, formation, and accumulation of marginal moraines, and compares the Alaskan ice sheet with that of Greenland.

493 —— Warm, temperate vegetation near glaciers.

Am. Geol., vol. xvi, pp. 326–327 (correspondence).

States the author's opinions as to the existence of a warm, temperate vegetation near the glacial ice sheet.

494 —— View of the Ice age as two epochs, the Glacial and Champlain.

Science, new ser., vol. ii, pp. 529–533.

Discusses the nomenclature of the epochs and stages of the Glacial epoch, and describes their character and extent in North America.

495 —— Tertiary and early Quaternary baseleveling in Minnesota, Manitoba, and northwestward.

Abstract: Geol. Soc. Am., Bull., vol. vi, pp. 17–20.

See Bibliography and Index for 1894, No. 578.

496 **Upham** (Warren). Departure of the ice sheet from the Laurentian lakes.

Abstract: Geol. Soc. Am., Bull., vol. vi, pp. 21-27.

Describes the phenomena attending the retreat of the ice sheet, the character of the shore lines, the height of the beaches of the western Superior glacial lake and of lakes Warren and Algonquin, and the formation of these glacial lakes. Discusses the character and progress of the uplift following the recession of the ice sheet.

497 —— Discrimination of glacial accumulation and invasion.

Geol. Soc. Am., Bull., vol. vi, pp. 343-352.

Discusses the mode of formation of ice sheets, the character of the drift and morainal phenomena, and the causes of ice accumulation and departure. Describes the phenomena attending an invasion by the advancing border of an ice sheet, and discusses the meteorologic explanation of the irregularity of glacial invasion and the criteria of ice accumulation and invasion.

498 —— Quaternary time divisible into three periods—the Lafayette, Glacial, and Recent.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, pp. 219-223.

Describes the character of the Glacial and post-Glacial phenomena, and gives an estimate of the duration of Quaternary time.

499 —— Minor time divisions of the Ice age.

Am. Nat., vol. xxix, pp. 235-241.

Discusses the evidences of fluctuations of the ice sheet and gives the author's classification.

500 —— Late Glacial or Champlain subsidence and reelevation of the St. Lawrence River Basin.

Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., pp. 156-193.

Discusses the evidences of uplift and subsidence prior to and during the Glacial period as shown by beaches of the glacial lakes of the St. Lawrence Basin.

V.

501 **Van Hise** (Charles R.). The origin of the dells of the Wisconsin.

Wis. Acad. Sci. Arts, Letters, Trans., vol. x, pp. 556-560.

Discusses the evidence of the position of the dells of the Wisconsin River and tributaries as being controlled by a rectangular system of joints in the strata.

502 —— Summary of current pre-Cambrian North American literature.

Jour. of Geol., vol. iii, pp. 227-236 and 709-721.

Reviews a number of recent papers describing pre-Cambrian rocks of North America.

503 —— and **Bayley** (William Shirley). Preliminary report on the Marquette iron-bearing district of Michigan.

U. S. Geol. Surv., 15th Ann. Rept., pp. 477-650, pls. xiii-xxvi.

Describes the distribution, geologic relations, and lithologic characters of the rocks forming the Basement Complex, Lower Marquette series, and the Upper Marquette series, and discusses the dynamic movements which have affected these formations and their correlation with other formations. Includes a chapter on the Republic Trough, by H. L. Smyth.

504 **Vaughan** (T. Wayland). The stratigraphy of northwestern Louisiana.

Am. Geol., vol. xv, pp. 205–229.

Reviews the literature of the Cretaceous and Tertiary strata of the region and describes the lithologic and faunal characters of the Eocene deposits. Gives lists of fossils collected at various localities. Discusses the relations of the Eocene and Miocene formations and the distribution of the Sparta sands of undetermined age, and the character of the Pleistocene and Recent deposits.

505 —— Section of the Eocene at Old Point Caddo Landing, Harrison County, Texas, with notes upon a collection of plants from that locality, by F. H. Knowlton.

Am. Geol., vol. xvi, pp. 304–309.

Describes the section at this locality and gives a list of fossils collected, and also fossils collected at Cross Lake and Mansfield, La.

506 **Vogdes** (A. W.). Notes on Paleozoic Crustacea No. 4. On a new trilobite from Arkansas Lower Coal Measures.

Cal. Acad. Sci., Proc., vol. iv, pp. 589–591.

Describes the characters of Griffithides ornata n. sp., from the Coal Measures of Arkansas and discusses its affinities.

507 —— A supplement to the bibliography of the Paleozoic Crustacea.

Cal. Acad. Sci., Proc., vol. v, pp. 53–76.

This paper is a continuation of the Bibliography of Paleozoic Crustacea published in Occasional Papers of the California Academy of Sciences, No. iv, 1893, bringing it up to date (1896) and correcting some errors and omissions of the first edition.

508 **Volckening** (G. J.) and **Luquer** (L. McI.). On three new analyses of sodalite from three new localities.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 465–466.

See Luquer (L. McI.) and Volckening (G. J.), No. 302.

W.

509 **Walcott** (Charles Doolittle). Lower Cambrian rocks in eastern California.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 141–144.

Mentions the previous descriptions of the White Mountain region. Gives a section of the rocks of Black Canyon and a summary of the entire section—4,900 feet of quartzites, limestones, and shales. Describes the character of the fauna and considers that it represents the oldest of the Cambrian faunas of western United States.

510 —— The Appalachian type of folding in the White Mountain range of Inyo County, California.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 169–174.

Gives a general section of the rocks of this range and describes the geologic structure as exhibited in Silver and Black canyons. Illustrates the structure by several figures.

511 **Walcott** (Charles Doolittle). Algonkian rocks of the Grand Canyon of the Colorado.

Jour. of Geol., vol. iii, pp. 312–330, with geologic map.

Refers to the existing literature on these rocks, describes their geographic position and distribution, and discusses the nomenclature adopted. Describes their stratigraphic relations and gives a vertical section of the Grand Canyon series. Includes a discussion of the conditions of their sedimentation, geologic age, and the possibility of correlating this series with others of similar lithologic character.

512 —— Discovery of the genus Oldhamia in America.

U. S. Nat. Mus., Proc., vol. xvii, pp. 313–315.

Reviews previous descriptions of this genus and describes Oldhamia (Murchisonites) occidens n. sp., from the shales and slates of eastern New York, which are considered to belong either to the Upper Cambrian or Lower Ordovician.

513 —— Note on some appendages of the trilobite.

Wash. Biol. Soc., Proc., vol. ix, pp. 89–97, pl. 1.

Describes the characteristics of antennæ found at Rome, N. Y.

514 **Walker** (A. E.). Hamilton sponges [Ontario].

Hamilton Assoc., Jour. and Proc., No. xi, pp. 85–87.

Gives notes and figures of sponges from Niagara rocks near Hamilton, Ontario.

515 **Walter** (Emma). Does the Delaware water gap consist of two river gorges?

Phila. Acad. Nat. Sci., Proc. 1895, pp. 198–205.

Discusses the evidences which indicate that the Delaware River flowed in an opposite direction in pre-Glacial times and quotes from other descriptions of similar phenomena.

516 **Ward** (Henry A.). Preliminary notice of the Plymouth meteorite [Indiana].

Am. Jour. Sci., 3d ser., vol. xlix, pp. 53–55, two figures.

Describes the finding of a meteorite at Plymouth, Ind., and gives a chemical analysis.

517 **Ward** (Lester Frank). The Potomac formation.

U. S. Geol. Surv., 15th Ann. Rept., pp. 307–397, pls. ii–iv.

Describes the stratigraphic and paleontologic relations of the several members of the Potomac formation in the Atlantic Coastal Plain and includes a general description of the fossil floras of these beds and tables showing the geographic range of American and foreign species.

518 —— Fossil cycadean trunks of North America, with a revision of the genus Cycadeoidea Buckland.

Wash. Biol. Soc., Proc., vol. ix, pp. 75–88.

Describes specimens recently found in the Black Hills and gives a list of papers on the several species of the genus Cycadeoidea Buckland. Describes C. jennyana n. sp.

519 **Watts** (O. P.). The cause of the movement of glaciers.

Sci. Am. Suppl., vol. xxxix, p. 16157.

520 **Watts** (W. L.). The gas and petroleum yielding formations of the Central Valley of California.

Cal. State Mg. Bureau, Bull. No. 3, 100 pp.

Describes the occurrence of natural gas, petroleum, and asphaltum in this region and gives the sections of several wells and lists of the fossils collected in Cretaceous and Tertiary strata.

521 **Weed** (Walter Harvey). Montana coal fields.

U. S. Geol. Surv., 16th Ann. Rept., part iv, pp, 144–146.

Notes on the occurrence of coal in the Cretaceous rocks of Montana in a paper by E. W. Parker on the production of coal in 1894.

522 —— and **Pirsson** (Louis V.). Highwood Mountains of Montana.

Geol. Soc. Am., Bull., vol. vi, pp. 389–422, pls. 24–26.

Describes the topographic features, geologic structure, and the characteristics of each eruptive center of the Highwood Mountains. Describes the remarkable differentiation zone of Square Butte, and the characters and minerals of the dark rock, for which the name "shonkinite" is proposed.

523 —— On the igneous rocks of the Sweet Grass Hills, Montana.

Am. Jour. Sci., 3d ser., vol. l, pp. 309–313.

Describes the topographic character and geologic structure of the Three Buttes, known as the Sweet Grass Hills. Describes the petrographic characters of the igneous rocks, quartz-diorite porphyrite, quartz-syenite porphyry, and minette occurring in this region.

524 —— Igneous rocks of Yogo Peak, Montana.

Am. Jour. Sci., 3d ser., vol. l, pp. 467–479.

Describes the topographic character and geologic structure of the Little and Big Belt mountains, Yogo Peak forming a conspicuous summit of the Little Belt range. Describes the petrographic character of the syenite, yogoite, and shonkinite, illustrating the variation and gradation in the chemical and mineralogic composition of the Yogo rocks. Discusses the differentiation at Yogo Peak and the classification adopted.

525 **Weeks** (Joseph D.). Manganese.

U. S. Geol. Surv., 16th Ann. Rept., part iii, pp. 389–457.

Includes a brief discussion of the origin and occurrence of manganese and notes on its occurrence in Alabama, Arkansas, California, Colorado, Georgia, Indian Territory, New Jersey, Pennsylvania, Tennessee, Vermont, Virginia, New Brunswick, Nova Scotia, and Cuba.

526 —— Natural gas in 1894.

U. S. Geol. Surv., 16th Ann. Rept., part iv, pp. 405–429.

Includes notes on the occurrence of natural gas in Ohio, Indiana, and California.

527 —— The Elk Garden and Upper Potomac coal fields of West Virginia.

Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 351–364, figs. 1–2.

Gives a general description of the region and tables of chemical analyses of the coal and of coal production.

528 **Weidman** (Samuel). On the quartz keratophyre and associated rocks of the north range of the Baraboo Bluffs [Wisconsin].

Univ. of Wis., Science ser., vol. i, pp. 35–56, pls. 1–3.

Gives a geologic map of the region and describes the areal geology and the occurrence and microscopic characters of the quartz keratophyre.

529 **Weller** (Stuart). The succession of fossil faunas at Springfield, Missouri.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 185–199.

The strata from which the fossils were obtained belong to the Burlington and Keokuk groups of the Mississippian series. The rocks are divided into twelve zones, and a brief description of the lithologic character and a list of the fossils collected from each zone is given. Presents a table showing the range of the species in the different zones and groups. Considers that the faunas represent the Burlington and Keokuk and that they are continuous, and should be designated by a single name. (Osage group is said to be the name first suggested.)

530 —— A circum-insular Paleozoic fauna.

Jour. of Geol., vol. iii, pp. 903–917.

Discusses and illustrates by two maps the distribution of land and water during early Devonian time and at the close of Devonian time. Discusses the evidence of a union of eastern and western Devonian provinces and the generic and specific evidences of the origin of the littoral fauna of the Ozark Island. Presents a table showing the geologic and geographic range of the genera of the Chouteau group.

531 **Wheeler** (H. A.). Note on the glacial drift in St. Louis [Mo.].

St. Louis Acad. Sci., Trans., vol. vii, pp. 121–122.

Gives a brief description of an occurrence of glacial clay and gravel in the city of St. Louis.

532 —— Note on the occurrence of blende in lignite.

St. Louis Acad. Sci., Trans., vol. vii, pp. 123–125.

Abstract: Eng. and Mg. Jour., vol. lix, p. 248.

Describes an occurrence of blende-bearing lignite in a ferruginous sandstone and discusses its bearing on the origin of the Missouri zinc deposits.

533 —— Recent additions to the mineralogy of Missouri.

St. Louis Acad. Sci., Trans., vol. vii, pp. 126–131.

Gives a list of minerals found in Missouri since the publication, in 1884, of a paper by A. V. Leonhard, "Notes on the mineralogy of Missouri," in the Transactions of the St. Louis Academy of Sciences, vol. iv, p. 440.

534 **White** (Charles A.). Notes on the invertebrate fauna of the Dakota formation, with descriptions of new molluscan forms.

U. S. Nat. Mus., Proc., vol. xvii, pp. 131–138, pl. viii.

Reviews the previous descriptions of marine fauna of the Dakota, describes five new species from this formation in Nebraska, and discusses the evidence of the nonmarine character of the Dakota beds.

535 —— The Bear River formation and its characteristic fauna.

U. S. Geol. Surv., Bull., No. 128, 86 pp., pls. xi.

Reviews the history of the Bear River formation, discusses its taxonomic position, and describes its geographic distribution and the characteristics of its fossils. Includes a biologic discussion and a comparison of Bear River fauna with other American fossil faunas. Discusses the geographic and time range of Pyrgulifera.

536 **White** (Charles Henry). An examination into the nature of Palæotrochis.

Elisha Mitchell Sci. Soc., Jour. 1894, part ii, pp. 50–66, with plate.

Reviews Emmons's description of Palæotrochis and of the strata in which it occurs in North Carolina. Discusses the evidences of its concretionary and of its organic origin.

537 **White** (David). The Pottsville series along New River, West Virginia.

Geol. Soc. Am., Bull., vol. vi, pp. 305–320.

Discusses the use of the term Pottsville. Describes the differentiation of floras in Pottsville time and the stratigraphic relations of the series, giving vertical sections of the Piney Creek and Nuttall and Hawks Nest sections. Discusses the paleontologic relations of the beds and gives lists of fossils from various horizons.

538 **Whiteaves** (J. F.). Revision of the fauna of the Guelph formation of Ontario, with descriptions of a few new species.

Geol. Surv. of Can., Paleozoic Fossils, vol. iii, part ii, pp. 45–109, pls. ix–xv.

Mentions the species found in this formation in Ontario, with notes on their occurrence in other formations. Describes several new species.

539 —— Systematic list, with references, of the fossils of the Hudson River or Cincinnati formation at Stony Mountain, Manitoba.

Canada Geol. Surv., Paleozoic Fossils, vol. iii, part ii, pp. 111–128.

Gives a brief sketch of the discovery of Hudson River strata at this locality and a list of fossils that have been collected.

540 **Williams** (Edward H.). Notes on the southern ice limit in eastern Pennsylvania.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 174–185.

Presents a map showing the boundaries recognized during the previous year. Discusses the evidences of the character of the deposits made during the advance and retreat of the ice sheet. Describes the distribution and character of the glacial deposits of the region, the influence of the ridges on the ice advance, and the glacial gravels of the Juniata Valley.

541 **Williams** (George Huntington). General relations of the granitic rocks in the middle Atlantic Piedmont plateau.

U. S. Geol. Surv., 15th Ann. Rept., pp. 657–684, pls. xxvii–xxxv.

Discusses the criteria for the recognition of ancient plutonic rocks in highly metamorphosed terranes, the distribution and age of the Appalachian igneous granites, and the gradations of Maryland granites. Discusses the origin of Maryland pegmatites.

542 **Williams** (Henry Shaler). On the recurrence of Devonian fossils in strata of Carboniferous age.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 94–101.

Describes the geologic relations and age of the strata near Batesville, Ark., and remarks on the occurrence of Devonian fossils in rocks that belong to the Carboniferous. Compares the Batesville fauna with the Devonian faunas of Eureka, Nev., Shasta County, Cal., and of the Mississippi Valley. Describes the differences in the succession of the Devonian faunas of the West and of the Appalachian province.

543 **Williston** (S. W.). New or little known extinct vertebrates.
Kans. Univ. Quart., vol. iii, pp. 165–176, pls. xiv–xix.
Describes vertebrate remains contained in the museum of the University of Kansas.

544 —— Semi-arid Kansas.
Kans. Univ. Quart., vol. iii, pp. 209–216, with map
Gives a general description of the geology of Kansas and a geologic sketch map of the State.

545 —— Note on the mandible of Ornithostoma.
Kans. Univ. Quart., vol. iv, p. 61, pl. D.
Remarks on the character of the skulls of Ornithostoma from the Kansas Cretaceous.

546 **Wilson** (A. G.). The Upper Silurian in northeastern Iowa.
Am. Geol., vol. xvi, pp. 275–281.
Reviews the descriptions of Owen, Hall, and Keyes of the Silurian rocks of this region, and gives the results of the author's study of these rocks in Delaware, Jones, Dubuque, and Clayton counties, Iowa. Mentions fossils collected at various localities.

547 **Winchell** (H. V.). [The genesis of ore deposits.]
Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 957–962.
In discussion of paper by F. Posepny on the same subject.

548 —— and **Grant** (U. S.). Preliminary report on the Rainy Lake gold region [Minnesota].
Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., pp. 36–105.
Describes the occurrence of gold and the character and relations of the Laurentian, Coutchiching, and Keewatin rocks of the Rainy Lake region. Describes the occurrence of the gold veins.

549 **Winchell** (N. H.). The age of the Galena limestone.
Am. Geol., vol. xv, pp. 33–39.
Reviews the paleontologic data regarding the age of the Galena limestone, presented by C. D. Walcott in a paper entitled "The Utica slate and related formations." Gives a brief statement of recent work of the Minnesota Geological Survey on the Lower Silurian rocks, and mentions the fossil characteristics of certain horizons.

550 —— The stratigraphic base of the Taconic or Lower Cambrian.
Am. Geol., vol. xv, pp. 153–162.
Gives a historical sketch of the work on the Cambrian rocks of England, discusses the character of the pre-Cambrian rocks in general, and refers to the opinions of various writers on the Cambrian strata of Canada, New England, New York, and Pennsylvania.

551 —— The paleontologic base of the Taconic or Lower Cambrian.
Am. Geol., vol. xv, pp. 229–234.
Describes the succession of Cambrian strata in Wales and the occurrence of volcanic outbreaks during its deposition. Refers to the determination of the succession of the Paradoxides and Olenellus faunas and the evidence of the nonconformity between the crystalline Archean rocks and the overlying sedimentaries.

552 **Winchell** (N. H.). The eruptive epochs of the Taconic or Lower Cambrian.

Am. Geol., vol. xv, pp. 295–304.

Describes the differences between the Archean complex and the eruptive rocks associated with the Cambrian in North America. Discusses the relations and succession of the Cambrian rocks of western New England, eastern New York, and the evidences as to the age of the Adirondack gabbros. Reviews the recent opinions as to the succession of the Adirondack rocks.

553 —— Canadian localities of the Taconic eruptives.

Am. Geol., vol. xv, pp. 356–363.

Reviews the descriptions and classifications of the Huronian and Quebec groups in Canada by Logan, Selwyn, Ells, and Dawson, and discusses the relations of these sedimentary and igneous rocks.

554 —— Steps of progressive research in the geology the Lake Superior region prior to the late Wisconsin survey.

Am. Geol., vol. xvi, pp. 12–20.

Reviews the descriptions of the Huronian rocks of Lake Superior by Canadian geologists, a report by Foster and Whitney on the geology of the Lake Superior district, and reports by Brooks, Pumpelly, and Rominger on the copper-bearing rocks. Gives a summary of the author's views regarding the state of opinion on the geological questions under consideration up to the time of the Wisconsin survey.

555 —— The Keweenawan according to the Wisconsin geologists.

Am. Geol., vol. xvi, pp. 75–86.

Discusses the conclusions of the geologists of the Wisconsin survey from 1873 to 1879 concerning the Laurentian, Huronian, and Keweenawan rocks of the Lake Superior region, and also the published opinions of Irving and Van Hise.

556 —— A rational view of the Keweenawan.

Am. Geol., vol. xvi, pp. 150–162.

States several objections to separating the horizontal Lake Superior sandstones from the tilted sandstones, and discusses the evidences in support of the several statements. Discusses the evidence as to the age of the eruptive rocks which have been included in the Keweenawan series.

557 —— The synchronism of the Lake Superior region with other portions of the North American continent.

Am. Geol., vol. xvi, pp. 205–213.

Compares the succession of geologic events in the Lake Superior region with that in eastern New York, and explains the accompanying map of the Lake Superior region.

558 —— The latest eruptives of the Lake Superior region.

Am. Geol., vol. xvi, pp. 269–274.

Describes the synclinorium of the Lake Superior region, and discusses the relations of certain eruptives and the evidences indicating that the Black Bay sandstones are a part of the Keweenawan.

559 **Winchell** (N. H.). Comparative taxonomy of the rocks of the Lake Superior region.

Am. Geol., vol. xvi, pp. 331–337.

Presents a table showing the classification of the Lake Superior formations, and compares it with the classification adopted by other writers.

560 —— The origin of the Archean greenstones.

Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., pp. 4–35.

Describes the megascopic and microscopic characters of greenstones, and discusses the theory of dynamic metamorphism and the greenstones as a geologic terrane. This paper is mainly a critical review of a paper by Prof. G. H. Williams on "The greenstone schist areas of the Menominee and Marquette regions of Michigan; a contribution to the subject of dynamic metamorphism in eruptive rocks."

561 —— and **Schuchert** (Charles). Sponges, graptolites, and corals from the Lower Silurian of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, part i, pp. 55–95, pls. F and G.

Describes species of sponges, graptolites, and corals occurring in Lower Silurian rocks of Minnesota, including several new species.

562 —— The Lower Silurian Brachiopoda of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, part i, pp. 333–474, pls. xxix–xxxiv.

Gives a brief sketch of the occurrence of brachiopods in the Lower Silurian rocks of Minnesota and description of genera and species.

563 —— and **Ulrich** (E. O.). Historical sketch of investigation of Lower Silurian in the Upper Mississippi Valley.

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, part i, pp. ix–liv.

Gives a bibliography of Lower Silurian literature of the Mississippi Valley.

564 **Winslow** (Arthur). Lead and zinc deposits [Missouri].

Mo. Geol. Surv., vols. vi and vii, 1894.

Abstract: Am. Inst. Mg. Engrs., Trans., vol. xxiv, pp. 634–689 and 932–933, pls. i–iii, figs. 1–17.

Gives a historical sketch of lead and zinc, a description of their compounds, and their distribution and conditions of occurrence. Describes the occurrence of lead and zinc in foreign countries and in the various States of the United States. Describes the physiography and geology of the mining regions of Missouri, and includes an account of the development and occurrences of lead and zinc ores in this State. Discusses the nomenclature of the formations and describes their distribution and structure. Gives lists of fossils collected from the Silurian rocks. Includes a discussion of the origin of lead and zinc ores and tables of production.

565 —— The geologic history of Missouri.

Am. Geol., vol. xv, pp. 81–89.

Presents a table showing the classification of the Missouri rocks. Describes the geologic changes which occurred in Algonkian, Cambrian, Silurian, Devonian, and Carboniferous times and the erosion during the Mesozoic and Tertiary eras.

566 **Winslow** (Arthur). A Paleozoic eruptive in Missouri.

Abstract: Am. Assoc. Adv. Sci., Proc., vol. xliii, pp. 227–229.

Describes the occurrence of pegmatite in Lower Silurian rocks of Missouri and its petrographic characters.

567 **Woodward** (Anthony) and **Thomas** (Benjamin W.). The microscopical fauna of the Cretaceous in Minnesota, with additions from Nebraska and Illinois (Foraminifera, Radiolaria, Coccoliths, Rhabdoliths).

Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, part i, pp. 23–54, pls. C, D, and E.

Describes the methods of microscopic preparation of the material and the foraminiferal and radiolarian remains found in the Cretaceous of Minnesota. Gives a brief sketch of the discovery of other fossils in the Cretaceous of this State.

568 **Woodward** (Henry). On some decapod Crustacea from the Cretaceous formation of Vancouvers Island, etc.

Brit. Assoc. Adv. Sci., Rept. for 1895, pp. 696–697.

Brief notes on specimens of fossil crustaceans from the Cretaceous rocks of British Columbia and remarks on the close affinity of the European and North American forms.

569 **Woodworth** (J. B.). Three-toed dinosaur tracks in the Newark group at Avondale, N. J.

Am. Jour. Sci., 3d ser., vol. l, pp. 481–482.

Describes briefly the tracks, which are considered to be identical with those of the Connecticut Valley.

570 **Woolman** (Lewis). Report on artesian wells in southern New Jersey.

N. J. Geol. Surv., Rept. for 1894, pp. 151–221, pls. v–x.

Gives the sections of many well borings cutting Miocene and Cretaceaus strata and lists of fossils which were taken from the borings.

571 **Wortman** (J. L.). On the osteology of Agriochœrus.

Am. Mus. Nat. Hist., Bull., vol. vii, pp. 145–178, pl. i, figs. 1–24.

Describes the characters in which Agriochœrus differs from Oreodon and discusses its systematic position. Gives a restoration of Agriochœrus latifrons.

572 —— **Osborn** (H. F.) and. Perissodactyls of the lower Miocene White River beds.

Am. Mus. Nat. Hist., Bull., vol. vii, pp. 343–375, pls. viii–xi, figs. 1–12.

See Osborn (H. F.) and Wortman (J. L.), No. 363.

573 **Wright** (G. Frederick). Observations upon the Glacial phenomena of Newfoundland, Labrador, and southern Greenland.

Am. Jour. Sci., 3d ser., vol. xlix, pp. 86–94.

Describes the glacial striæ of Newfoundland and the evidence of pre-Glacial elevation. Describes the topographic character of the coast of Labrador and the evidences of glacial and subaerial erosion and the glacial phenomena of southern Greenland. Gives the author's conclusions as to the extent of the ice sheet in this region and on the recent date of the Glacial epoch.

574 **Wright** (G. Frederick). Dr. Holst on the continuity of the Glacial period.

Am. Geol., vol. xvi, pp. 396-399 (correspondence).

Quotes from a recent paper by Dr. Holst, "Has there been more than one Ice age in Sweden?" descriptions given of the glacial phenomena of North America.

575 —— Glacial phenomena between Lake Champlain, Lake George, and the Hudson River [New York].

Science, new ser., vol. ii, pp. 673-678.

Describes the present and pre-Glacial drainage of the region.

INDEX.

[The numbers refer to the entries in the Bibliography.]

Paleontology—Continued.
Genera and species described—Continued.
Baptanodon
discus, Marsh, 313.
natans, Marsh, 313.
Barycrinus
hoveyi (Hall), Keyes, 257.
magnificus Meek and Worthen, Keyes, 257.
spurius (Hall), Keyes, 257.
Batocrinus
æqualis (Hall), Keyes, 257.
broadheadi n. sp., Miller and Gurley, 346.
calvini Rowley, Keyes, 257.
formaceus n. sp., Miller and Gurley, 346.
heteroclitus n. sp., Miller and Gurley, 346.
inconsuetus n. sp., Miller and Gurley, 346.
incultus n. sp., Miller and Gurley, 346.
ignotus n. sp., Miller and Gurley, 346.
imparilis n. sp., Miller and Gurley, 346.
inopinatus n. sp., Miller and Gurley, 346.
insperatus n. sp., Miller and Gurley, 346.
insuetus n. sp., Miller and Gurley, 346.
laura (Hall), Keyes, 257.
longirostris (Hall), Keyes, 257.
modestus n. sp., Miller and Gurley, 346.
nashvillæ (Troost), Keyes, 257.
nitidulus n. sp., Miller and Gurley, 346.
peculiaris n. sp., Miller and Gurley, 346.
planus n. sp., Miller and Gurley, 346.
polydactylus n. sp., Miller and Gurley, 346.
procerus n. sp., Miller and Gurley, 346.
prodigialis n. sp., Miller and Gurley, 346.
pyriformis (Shumard), Keyes, 257.
rotundus (Yandell and Shumard), Keyes, 257.
sampsoni n. sp., Miller and Gurley, 346.
serratus n. sp., Miller and Gurley, 346.
trochiscus, Meek and Worthen, Keyes, 257.
venustulus n. sp., Miller and Gurley, 346.
veterator n. sp., Miller and Gurley, 346.
vetustus n. sp., Miller and Gurley, 346.
vicinus n. sp., Miller and Gurley, 346.
Batostoma Ulrich, Ulrich, 485.
? decipiens n. sp., Ulrich, 485.
fertile Ulrich, Ulrich, 485.
humile n. sp., Ulrich, 485.
magnopora n. sp., Ulrich, 485.
minnesotense n. sp., Ulrich, 485.
montuosum n. sp., Ulrich, 485.
varium n. sp., Ulrich, 485.
winchelli Ulrich, Ulrich, 485.
Belanus balanoides, Beecher, 40.
Belemnites densus, Marsh, 313.
Belemnocrinus ? sampsoni Miller, Keyes, 257.
Bellerophon
bellus n. sp., Keyes, 258.
bilabiatus White and Worthen, Keyes, 258.
bilobatus ? Sowerby, Keyes, 258.
crassus Meek and Worthen, Keyes, 258.
marcouanus Geinitz, Keyes, 258.
meekianus Swallow, Keyes, 258.
montfortianus Norwood and Pratten, Keyes, 258.
nodocarinatus Hall, Keyes, 258.
panneus White, Keyes, 258.
percarinatus Conrad, Keyes, 258.

Paleontology—Continued.
Genera and species described—Continued.
Bellerophon
stevensianus McChesney, Keyes, 258.
sublævis Hall, Keyes, 258.
urii Fleming, Keyes, 258.
Bembidium glaciatum, Scudder, 425.
Berenicea Lamouroux, Ulrich, 485.
minnesotensis Ulrich, Ulrich, 485.
Bergeronia n. sub gen., Matthew, 319.
articephala, Matthew, 319.
elegans W. D. Matthew, Matthew, 319.
Betula alaskana Lesquereux, Knowlton, 270.
Beyrichona, Matthew, 319.
ovata n. sp., Matthew, 319.
papilio, Matthew, 319.
planata n. sp., Matthew, 319.
rotundata n. sp., Matthew, 319.
tinea, Matthew, 319.
triangula n. sp., Matthew, 319.
Bison appalachicolus n. sp., Rhoads, 394.
Bittium longissimum n. sp., Cooper, 91.
Blattina sp., Scudder, 427.
Bledius glaciatus, Scudder, 425.
Bolivina
dilatata Reuss, Woodward and Thomas, 567.
punctata d'Orbigny, Woodward and Thomas, 567.
Brachiocrinus nodosarius, Bather, 31.
Brachiopoda, Schuchert, 418.
Branchipus stagnalis, Beecher, 40.
Bryograptus
lentus n. sp., Matthew, G. F., 320.
patens Matt., Matthew, G. F., 320.
? retroflexus ? Brögger, Matthew, G. F., 320.
spinosus Matt., Matthew, G. F., 320.
Bulimina
affinis d'Orbigny, Woodward and Thomas, 567.
pupoides d'Orbigny, Woodward and Thomas, 567.
Bulimorpha Whitfield, Keyes, 258.
bulimiformis (Hall), Keyes, 258.
inornata (Meek and Worthen), Keyes, 258.
Bulla assimilata n. sp., Cooper, 91.
Buprestis
saxigena, Scudder, 425.
sepulta, Scudder, 425.
tertiaria, Scudder, 425.
Byrrhus ottawaensis, Scudder, 425.
Bythinella latentis n. sp., White, 535.
Bythopora Miller and Dyer, Ulrich, 485.
alcicornis n. sp., Ulrich, 485.
herricki Ulrich, Ulrich, 485.
Bythotrypa n. gen., Ulrich, 485.
laxata Ulrich, Ulrich, 485.
Calceocrinus
tunicatus (Hall), Keyes, 257.
ventricosus (Hall), Keyes, 257.
Calliostoma kempiana n. sp., Cooper, 91.
Callopora Hall, Ulrich, 485.
ampla n. sp., Ulrich, 485.
angularis n. sp., Ulrich, 485.
crenulata n. sp., Ulrich, 485.
dumalis n. sp., Ulrich, 485.

Paleontology—Continued.
Genera and species described—Continued.
Clonograptus proximatus n. sp., Matthew, G. F. 320.
Coccosteus, Claypole, 83.
Codaster blairi n. sp., Miller and Gurley, 346.
Cœlidia columbiana, Scudder, 424.
Colodon Marsh, Osborn and Wortman, 363.
dakotensis n. sp., Osborn and Wortman, 363.
longipipes O. & W., Osborn and Wortman, 363.
procuspidatus n. sp., Osborn and Wortman, 363.
Columnaria
? halli Nicholson, Winchell and Schuchert, 561.
stellata? (Hall), Keyes, 257.
Comarocystites
obconicus Meek and Worthen, Keyes, 257.
shumardi Meek and Worthen, Keyes, 257.
Conocardium parrishi Worthen, Keyes, 258.
Conocorypha (Bailiella) baileyi, Beecher, 40.
Conopterium effusum Winchell, Keyes, 257.
Constellaria Dana, Ulrich, 485.
varia n. sp., Ulrich, 485.
Conularia
crustula White, Keyes, 258.
missouriensis? Swallow, Keyes, 258.
Corbicula durkeei Meek, White, 535.
Corbula
aldrichi var. smithvillensis n. var., Harris, 185.
crassicostata, Stanton, 459.
engelmanni Meek, White, 535.
hicksii n. sp., White, C. A., 534.
pyriformis Meek, White, 535.
triangulata n. sp., Cooper, 91.
Corbulomya tauschii n. sp., White, 535.
Cordiera gracillima n. sp., Cooper, 91.
Cornus smithvillensis, n. sp., Harris, 185.
Crania Petzius, Winchell and Schuchert, 562.
granulosa N. H. Winchell, Winchell and Schuchert, 562.
lævis n. sp., Keyes, 258.
setigera Hall, Winchell and Schuchert, 562.
trentonensis Hall, Winchell and Schuchert, 562.
Craniella Œhlert, Winchell and Schuchert, 562.
? ulrichi Hall, Winchell and Schuchert, 562.
Crassatella
antestriata Gabb, Harris, 185.
lomana n. sp., Cooper, 91.
trapaquara n. sp., Harris, 185.
texalta n. sp., Harris, 185.
texana Heilp., Harris, 185.
Crenella santana n. sp., Cooper, 91.
Crepipora Ulrich, Ulrich, 485.
perampla n. sp., Ulrich, 485.
spatiosa n. sp., Ulrich, 485.
subæquata n. sp., Ulrich, 485.
Crocuta inexpecta n. sp., Cope, 95.
Cromyocrinus kansasensis (Miller and Gurley), Keyes, 257.

Paleontology—Continued.
Genera and species described—Continued.
Cryptoblastus
kirkwoodensis (Shumard), Keyes, 257.
melo (Owen and Shumard), Keyes, 257.
Cryptocephalites n. gen., Scudder, 425.
punctatus n. sp., Scudder, 425.
Cryptohypnus? terrestris, Scudder, 425.
Ctenacanthus
costellatus, Claypole, 82.
hybodoides, Claypole, 82.
Ctenocephalus (Hartella) matthewi, Beecher, 40.
Cucullæa bowersiana n. sp., Cooper, 91.
Cyathocrinus
brittsi n. sp., Miller and Gurley, 346.
chouteauensis n. sp., Miller and Gurley, 346.
enormis Meek and Worthen, Keyes, 257.
iowensis Owen and Shumard, Keyes, 257.
macadamsi n. sp., Miller and Gurley, 346.
Cyathophyllum
cornicula Rominger, Keyes, 257.
glabrum n. sp., Keyes, 257.
Cycadeoidea jennyana n. sp., Ward, L. F., 518.
Cyclomena bilix (Conrad), Keyes, 258.
Cyclops tenuicornis, Beecher, 40.
Cyclospira, Winchell and Schuchert, 562.
bisulcata Emmons sp. ? Winchell and Schuchert, 562.
Cylichnella atysopsis n. sp., Harris, 185.
Cylindrocœlia Ulrich, Winchell and Schuchert, 561.
minnesotensis, Ulrich, Winchell and Schuchert, 561.
Cyphaspis girardeauensis Shumard, Keyes, 257.
Cypræa kennedyi n. sp., Harris, 185.
Cypris
dawsoni n. sp., Jones, T. R., 240.
ovum, Beecher, 40.
Cyrtina acutirostris (Shumard), Keyes, 258.
Cyrtocalpis, Matthew, G. F., 318.
Cyrtoceras
kansasense n. sp., Miller and Gurley, 346.
orodes Billings, Whitcaves, 538.
Cystophyllum americanum Edwards and Haime, Keyes, 257.
Cytherella crucifera n. sp., Jones, T. R., 240.
Cytheridea tyrrellii n. sp., Jones, T. R., 240.
Dæmonelix, Barbour, 27.
Daimonelix circumaxilis, James, 236.
Dalmanites
hausmanni, Beecher, 40.
socialis, Beecher, 40.
tridentifera (Shumard), Keyes, 257.
Daphnia longispina, Beecher, 40.
Dawsonites n. gen., Scudder, 424.
veter n. sp., Scudder, 424.
Dekayella Ulrich, Ulrich, 485.
prænuntia n. sp., Ulrich, 485.
var. simplex n. var., Ulrich, 485.
var. nævigera n. var., Ulrich, 485.
var. echinata n. var., Ulrich, 485.
var. multipora n. var., Ulrich, 485.
Dekayia Edwards and Haime, Ulrich, 485.
trentonensis Ulrich, Ulrich, 485.

Paleontology—Continued.
Genera and species described—Continued.
Productus
semireticulatus (Martin), Keyes, 258.
symmetricus McChesney, Keyes, 258.
Proëtus
decorus, Beecher, 40.
missouriensis Shumard, Keyes, 257.
parviusculus, Beecher, 40.
swallovi Shumard, Keyes, 257.
Progonoblattina columbiana, Scudder, 427.
Prometopsis depilis, Scudder, 425.
Promylacris
harei n. sp., Scudder, 427.
rigida, Scudder, 427.
testudo, Scudder, 427.
Protagraulos n. gen., Matthew, 319.
priscus n. sp., Matthew, 319.
Protaræa vetusta Hall sp., Winchell and Schuchert, 561.
Proteœphyllum reniforme Font., Ward, 517.
Protocaris marshi, James, 235.
Protoceras celer, Scott, 421.
Protochriacus
attenuatus n. sp., Osborn and Earle, 362.
priscus Cope, Osborn and Earle, 362.
simplex Cope, Osborn and Earle, 362.
Protogonodon Scott, Osborn and Earle, 362.
pentacus Cope, Osborn and Earle, 362.
Protolenus Matthew, Matthew, 319.
bi-tuberculatus n. sp., Matthew, 319.
paradoxoides, Matthew, 319.
Protophyllum
crednerioides ? Lesq., Lesquereux, 293.
integerrimum n. sp., Lesquereux, 293.
querciforme n. sp., Hollick, 225.
Protospongia Salter, Matthew, 319.
Prunus variabilis Newberry, Knowlton, 270.
Pseudoliva ostrarupis n. sp., Harris, 185.
Psittacotherium multifragum Cope, Osborn and Earle, 362.
Pterbostichus Bonelli, Scudder, 425.
abrogatus, Scudder, 425.
destitutus, Scudder, 425.
destructus, Scudder, 425.
dormitans, Scudder, 425.
fractus, Scudder, 425.
gelidus, Scudder, 425.
Pterotocrinus chesterensis (Meek and Worthen), Keyes, 257.
Ptilodictya Lonsdale, Ulrich, 485.
Ptychocrinus splendens (S. A. Miller), Keyes, 257.
Ptychoparia
kingi, Beecher, 40.
linnarssoni, Beecher, 40.
monile, Beecher, 40.
(Atops) trilineata, James, 235.
Ptysmaphora n. gen., Scudder, 424.
fletcheri n. sp., Scudder, 424.
Pulvinulina
haueri d'Orbigny sp., Woodward and Thomas, 567.
menardii d'Orbigny sp., Woodward and Thomas, 567.
Pupa primæva n. sp., Matthew, G. F., 316.

Paleontology—Continued.
Genera and species described—Continued.
Pycnomphalus solarioides Hall, Whiteaves, 538.
Pycnopegma n. gen., Ruaff, 386.
callosum n. sp., Rauff, 386.
pileum n. sp., Rauff, 386.
stromatoporoides n. sp., Rauff, 386.
Pyramidella bastropensis n. sp., Harris, 185.
Pyrgulifera Meek, White, 535.
meekii n. sp., White, 534.
stantoni n. sp., White, 535.
viviparus hicksii n. sp., White, 534.
Pyrula (Fusoficula) texana n. sp., Harris 185.
Quercus, Knowlton, 273.
obtusiloba, Dawson, G. M., 113.
Rafinesquina Hall, Winchell and Schuchert, 562.
alternata (Conrad Ms.) Emmons, Winchell and Schuchert, 562.
var. loxorhytis Meek, Winchell and Schuchert, 562.
deltoidea Conrad sp., Winchell and Schuchert, 562.
minnesotensis N. H. Winchell, Winchell Schuchert, 562.
var. inquassa Sardeson, Winchell and Schuchert, 562.
Raphistoma
lenticularis (Conrad), Keyes, 258.
subplana Shumard, Keyes, 258.
Rauffella Ulrich, Winchell and Schuchert, 561.
filosa Ulrich, Winchell and Schuchert, 561.
palmipes Ulrich, Winchell and Schuchert, 561.
Receptaculites Defrance, Winchell and Schuchert, 561.
oweni Hall, Winchell and Schuchert, 561.
oweni Hall, Keyes, 257.
Retzia mormoni (Marcou), Keyes, 258.
Rhinidictya Ulrich, Ulrich, 485.
exigua Ulrich, Ulrich, 485.
fidelis Ulrich, Ulrich, 485.
grandis n. sp., Ulrich, 485.
minima Ulrich, Ulrich, 485.
var. modesta n. var., Ulrich, 485.
mutabilis Ulrich. Ulrich, 485.
var. major, Ulrich, 485.
var. senilis n. var., Ulrich, 485.
neglecta n. sp., Ulrich, 485.
paupera Ulrich, Ulrich, 485.
pediculata n. sp., Ulrich, 485.
trentonensis Ulrich, Ulrich, 485.
Rhinidictyonidæ n. fam., Ulrich, 485.
Rhinobolus galtensis Billings, Whiteaves, 538.
sp. undet., Whiteaves, 538.
Rhodocrinus
coxanus Worthen, Keyes, 257.
wachsmuthi Hall, Keyes, 257.
whitei Hall, Keyes, 257.
wortheni (Hall), Keyes, 257.
Rhombopora lepidodendroides Meek, Keyes, 258.
Rhus
frigida n. sp., Knowlton, 270.
uddeni Knowlton, 272.