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BIBLIOGRAPHY

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NORTH AMERICAN GEOLOGY FOR 1886

BY

NELSON H. DARTON

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BY NELSON H. DARTON.

INTRODUCTION.

The scope of this work embraces papers or parts of papers relating to the geology of North America issued during the year 1886 or bearing that date. The publications and book lists of the following institutions were examined in its preparation:

American Association for the Advancement of Science, Proceedings, 1885 and 1886.
American Institute of Mining Engineers, Transactions.
American Journal of Science.
American Naturalist.
Appalachia, vol. 4, No. 3.
Boston Society of Natural History, Proceedings, April 1, 1885, to March 17, 1886.
Brookville Society of Natural History, Proceedings, Nos. 1 and 2.
Denison University, Bulletin, No. 1.
Elisha Mitchell Natural History Society, Journal, 1885-'86.
Engineering and Mining Journal, vol. 42.
Essex Institute, Bulletin, vol. 17, Nos. 4-6; vol. 18, Nos. 1-6.
Geological Society, Quarterly Journal.
Iowa Historical Record, October, 1885, January and July, 1886.
Johns Hopkins University, Circulars, Nos. 43-52.
Manitoba Historical and Scientific Society, No. 20.
Nature.
Neues Jahrbuch.
New Brunswick Natural History Society, Bulletin, No. 5.

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Philadelphia Academy of Sciences, Proceedings, January to September, 1886.
Popular Science Monthly.
Royal Society of Canada, Transactions, vol. 3.
Saint Louis Academy of Science, Proceedings, vol. 4, No. 4.
School of Mines Quarterly, vol. 7 and vol. 8, No. 1.
Science.
Science Observer, vol. 4.
Scientific American Supplement, vol. 22.
Sedalia Natural History Society, Bulletin, No. 1.
Staten Island Scientific Association, Proceedings, January to November, 1886.
Tenth Census: Report on Mining Industries of the United States.
Wisconsin Academy of Science, Transactions, vol. 6.
Yorkshire Geological and Polytechnic Society, Proceedings, 1885.

The proceedings of a number of small local societies and several trade journals were not examined. Reasonable care has been taken to avoid errors and omissions, but no doubt some will be found.

The index references given with the titles are solely for the purpose of facilitating search for papers of which only the title or principal subject is known.

I am indebted to the following gentlemen for suggestions and information: Mr. McGee, Mr. Gilbert, Mr. Marcou, Professor Chamberlin, and Mr. Pilling.

WASHINGTON, March 15, 1887.

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BIBLIOGRAPHY.

A.

Alabama, geologic survey report, Smith. iron and coal, Porter.
iron mines, Chauvenet.
Raccoon coal field, Gibson.
Tertiary, Aldrich, Langdon, Smith.
Warrior coal field, McAlley.

Alaska, Quaternary, Allen.

Describes the fossiliferous beds and states opinion as to their horizon and equivalency.

Describes present glaciers and some of the evidences of former ones.

Anticosti, fossils, Grant.

Archean, at Wallbridge Mine, Canada, Chapman.
of Lake of the Woods region, Lawson.
of New Jersey, Britton.
of Northwestern States, Irving.
Schistose structure, Lawson.

Arkansas, coal fields, Harvey.
minerals and rocks, Harvey.

Artesian wells, Chamberlin.

Ashburner (Charles A.). Borings for oil in Jackson and Abbott Townships, Potter County.
Gives the well records and discusses the horizon and dip of the oil sands.

Ashburner (C. A.)—Continued.
—Description of the Archbald pot-holes; also of the Buried Valley of Newport Creek near Nanticoke, with special reference to the "Nanticoke mine disaster" of December, 1885.
General statements about glaciation. Detailed description of the pot-holes and discussion of their cause. Discusses the thickness and distribution of drift near Nanticoke.

—Geologic distribution of natural gas in the United States.
Gives a general description of the geology of the oil bearing and associated strata in Pennsylvania, Ohio, and New York.

—Report on the Brandywine Summit kaolin bed, Delaware County.
Detailed description of the kaolin and associated beds and modes of mining and preparing the clay for market. Calls attention to the relation of kaolinization to bedding and cleavage planes and to the drainage of the district.

—Report on the Tipton Run coal openings, Blair County (coal beds in the Pocono formation, No. X).
Describes the outcrops and workings in the coal beds and discusses their structure and geologic relations to the containing and associated formations.

ASHBURNER (C. A.)—Continued.
Describes other Carboniferous limestone beds in Pennsylvania and the occurrence and horizon of the beds in the Wyoming Valley.

—Second report of progress in the anthracite coal regions.
General description of topography; structural geology, stratigraphic geology and mining, classification and composition of coals; report of progress in the various coal fields of the region; description of the geologic, mine, and columnar section sheet and on the basins and anticlines in the northern field; report on the Bernice coal basin, and report on Wyoming Valley limestone beds, also published in Wyoming Hist, and Geol. Soc. Proc. vol. 2, pp. 254-277.

Atlantic, age of basin, Dana, Newberry, Hull geology of, Dawson.

AUGHEY (Samuel). Annual report of the territorial geologist to the governor of Wyoming, 1886, pp. 120, 8°, Laramie, 1886.
Describes the condition of mines and some geologic features in the Silver Crown, Seminole, Ferris, Sweetwater, Owl Creek, Bridger, and Cummins City mining districts; the iron ore deposits and their geologic position; the petroleum district: its geology, structure, geologic history, genesis of its oil, climate, productions, &c.; and a list of minerals of the territory.

B.

BAILEY (L.W.). Explorations and surveys in portions of the counties of Carleton, Victoria, York, and Northumberland, N. B.
Describes the stratigraphic and structural features of the several formations and discusses their age &c. The paper is accompanied by a colored geologic map.

—Geology and geologists in New Brunswick.
Discusses Wadsworth's criticisms on the geologic work in New Brunswick and the structure and stratigraphic relations of the Cambrian.

BARCENA (Mariano). The fossil man of Peñon, Mexico.
Am. Nat. vol. 20, pp. 633-635.
Describes beds in which the remains occur and does not consider them modern travertine as supposed by Newberry.

BARRIS (W. H.). A defense of our local geology.

BECKER (George F.). Cretaceous metamorphic rocks of California.
Describes beds near Neocomian in age lying upon the Archean of the Coast Ranges and altered to crystalline and serpentine rocks, of which the petrographic character is described. Discusses modes and means of metamorphism. Reviewed in Nature, vol. 34, pp. 50-51.

BECKER (G. F.)—Continued.
—The Washoe rocks.
Reviews Hague and Iddings's criticisms and describes the mode of occurrence and petrography of the rocks in question. Discusses conditions of extrusion and crystallization and the extension of the various rock masses in the district.

BELL (Robert). The mineral resources of the Hudson Bay territories.
Describes the geology of the district.

—The mode of occurrence of apatite in Canada.
Describes the lithology of the apatite bearing rocks.

—Observations on the geology, zoology, and botany of Hudson Strait and Bay.
Describes some features of the crystalline, Silurian, Devonian, volcanic, and drift formations. Discusses source of volcanic rocks and evidence of glaciation.

BENTON (Edward R.). Notes on the samples of iron ore collected in Maryland.
Detailed description of some of the deposits.
—Notes on samples of iron ore collected in Northern New England.
Tenth Census: Report on the Mining Industries of the United States, pp. 79-82.
BENTON (E. R.)—Continued.

Describes some features of the formations associated with the ore beds.

— Notes on the samples of iron ore collected in Virginia.


Description of the geology and structure of the formations associated with some of the ore beds.


Describes the occurrence of Trenton fossils near Chatham and the stratigraphic relations of the rocks to others in the same general district.

Bonneville, Lake, GILBERT.

BOYD (C. R.). The economic geology of the Bristol and Big Stone gap section of Tennessee and Virginia.


Describes the geology and structure of the district in considerable detail.

BRAINERD (Alfred F.). Note on a deposit of fire sand in Clinton County, N. Y.


Describes the occurrence of the sand and its composition. It overlies Potsdam sandstone.

BRANNER (John C.). [Geologic map of Indiana, colored according to the scheme of the International Geologic Congress. 2 by 4 inches.]

Accompanied by a circular, in French, calling attention to inapplicability of the scheme of coloration for the representation of the subdivisions of the formations in Indiana.

— Glaciation of the Lackawanna Valley.


Gives the result of many observations of drift strike and notes some of variable directions. Discusses the effect of topography on the ice flow.

— The glaciation of parts of Wyoming and Lackawanna Valleys.


Describes and gives maps of the topography and discusses its relation to the ice flow. Describes the drift and discusses the mechanical effect of the glaciation. Discusses pot-holes, striæ, and preglacial and postglacial drainage.

BRANNER (J. C.)—Continued.

— The thickness of the ice in Northeastern Pennsylvania during the glacial epoch.


Finds glacial strike on top of "North Knob" of Elk Mountains, contrary to the statement of Lewis and Wright that this and other eminences of similar height were above the line of glaciation.

British Columbia, glacial shell-beds, LAMPLUGH.

BRITTON (N. L.). [Additional notes on the geology of Staten Island, New York.]


Describes the structure including the bed in which the leaves were found.

— [Notes on the occurrence of a schistose series of crystalline rocks in the midst of the Adirondacks.]


— [On the drift at the south end of tunnel at Tompkinsville, N. Y.]


Describes contact of morainal and stratified drift. Discusses coast subsidence and the terraces of the Hudson River.

— [Remarks on the floor of the Trias of New Jersey and the lithology of the tide water gneisses.]


Calls attention to the occurrence of slate and limestone on the northwestern border of the Trias and to the similarity of the gneisses of Central Park, New York, and Fairmount Park, Philadelphia.

— [Report on the study of the Archean rocks of New Jersey.]


After a historical résumé of former investigations there is given a description of the rocks,
BRITTON (N. L.) — Continued.

their distribution and structure, relation of stratified and unstratified deposits, the occurrence of magnetites and the contact phenomena with the Paleozoic rocks. The question of age is briefly discussed. The paper is accompanied by sections, with exaggerated vertical scales, showing the structure along a number of lines across the formation.

[Results of a cruise along the shores of Staten Island and New Jersey.]


BRITTON (N. L.) — Continued.

Calls attention to the exposures of drift and Cretaceous and to changes of coast line.

BRÖGGER (W. C.). On alderen af Olleneussoenen i Nordamerica.


Not seen.

Buffalo and Chicago, CLAYPOLE.

Buried Valley. See Quaternary.

C.

Canada—Continued.

Lake of Woods region, LAWSO.

landslide, Ontario, SPENCER.

Mistassini expedition, LOW.

Rocky Mountain district, Dawson, McCONNELL.

schistose structure, LAWSO.

Selkirk, shells in sand, McDougall. Wallbridge iron mines, CHAPMAN.

See New Brunswick and Nova Scotia.

Carboniferous, Alabama, Raccoon coal field, GIBSON.

Alabama, Warrior coal field, McCALLLEY.

anthracite of Pennsylvania, ASHBURNER.

Arkansas, HARVEY.

California, DILLER.

Colorado coal, HILLS.

mountain limestone, Washington Co., Pa., LINN.

Pittsburgh coal, D'INVILLIERS, LESLEY.

Wellersburg, Pa., fire clay, LESLEY, HARDEN.

Wyoming Valley, Pa., ASHBURNER.

CARLL (John F.). Preliminary report on oil and gas.


Discusses the horizon of the oil sands, the relations of gas to oil, theories of oil and gas, and the present status of knowledge in regard to the geology of oil.
CARTER (Oscar C. S.). Ores, minerals, and geology of Montgomery County, Pa., pp. 32 and map, imp. 8° [Philadelphia, 1886].

From History of Montgomery County. Description of deposits of copper, iron, and graphite, and of the more general geologic features as described by others. The paper is accompanied by a colored geologic map slightly differing in some respects from that published officially.

Central America, volcanic rocks, Hague.


CHAMBERLIN (T. C.). An inventory of our glacial drift.

Am. Ass. Adv. Sci. Proc. vol. 35, pp. 156-159. Describes outline of drift limit, points out varying character of margins of drift sheets, and states conclusions drawn therefrom as to different periods of formation and agencies of deposition. Discusses terminal, interlobe, and lateral moraines; till tumuli; mammillary and lenticular hills; “drumlins,” &c.; also, classes of assorted drift: Orange sands, osars, kames, &c.; valley drift; moraine headed gravel trains; loess tracts; and lake basin deposits. Refers to speculations respecting origin of glacial epoch.

—— [Report of division of Quaternary geology.]


—— The requisite and qualifying conditions of artesian wells.


CHANCE (H. M.). The anticlinal theory of natural gas.


CHAPMAN (E. J.)—Continued.

Describes the crystalline rocks of the district; discusses the nature of some of the beds and the time of extrusion of the red syenites, which are thought to have been introduced in molten condition.

CHAUVENET (W. M.). Notes on the samples of iron ore collected in Alabama.


—— Notes on the samples of iron ore collected in Kentucky.

Tenth Census: Report on the Mining Industries of the United States, pp. 492-520. Description of geologic features of some of the mines.

—— Notes on the samples of iron ore collected in Missouri.


Chesapeake Bay, geology at head of, McGee.

CHESTER (Frederick D.). Results from a study of the gabbros and associated amphibolites in Delaware.

Am. Ass. Adv. Sci. Proc. vol. 34, pp. 215-216. Supposes the gabbro to have been intruded between gneisses of the Philadelphia belt. Describes its petrography and distribution and also that of the associated amphibolites and gabbro-diortites. Discusses the cause and effect of foliation and of paramorphic changes.

Cincinnati, geology of, James.


U. S. Geol. Survey Bulletin No. 27, vol. 4, pp. 531-610. Gives analyses of fayalite from Yellowstone Park; serpentine from Newburyport, Mass.; hornblende-andesite from Bogusloff Island; eruptive rocks from New Mexico; dacite and rhyolite from Washoe, Nev.; sandstone from Ohio and from Stony Point, Mich.; limestone from Randolph County, Va., and coals and
CLARKE (F. W.)—Continued.
minerals from various localities. The analyses were made by Clarke, Gooch, Chatard, Whitfield, and Riggs.


CLAYPOLE (E. W.). Buffalo and Chicago, or "What might have been."
[Read to the American Association for the Advancement of Science, 1880.]
Am. Nat. vol. 20, pp. 850-862.
Discusses the effect of slight causes upon the drainage of the great lakes and the glacial outlet near Chicago. Thinks that the subsidence of the St. Lawrence region was sufficient to necessitate the present drainage, but that it was more probably due to a glacial ice dam in the Straits of Mackinaw during the retreat of the glacier.

— The old gorge at Niagara.
Science, vol. 8, p. 236.
Discusses early drainage of the district and announces discovery of ledges of limestone in the valley from the whirlpool.

Clinton group, Alabama, Georgia, and Tennessee, PORTER.
of Ohio, FOERSTE.

Coal, Alabama, Georgia, and Tennessee, PORTER.
anthracite region of Pennsylvania, ASHBURNER.
Arkansas, HARVEY.
Colorado, HILLS.
field, Ohio, ORTON.
field, Pittsburgh, D'INVILLIERS, LESLEY.
field, Warrior, Alabama, McCALLEY.
Mexico, COPE.
Montana, DAVIS, ELDRIDGE.
of Northwest Canada, KINAHAN.
of the Northwest, PUMPELLY.
of the United States, PRIME.
Ohio, characteristics of, ORTON.
origin, LESQUEREUX.
Raccoon field, Alabama, GIBSON.
Rocky Mountains in Canada, DAWSON, MERRITT.
Sydney, N. S., ROUTLEDGE.
Tipton Run, Pa., ASHBURNER.
Washington Territory, WILLIS.

Colorado, cañon, PRESTWICH.
coal, HILLS.
conglomerate beds of Jefferson Co., CROSS.
extinct geyser basin, COMSTOCK.
observations in, vom RATH.
rhyolite, CROSS.
San Juan Mountains, COMSTOCK.
trip to Telluride, San Miguel Co., VAN DIEST.
veins and geology of Southwestern, COMSTOCK.

[Read to American Association, 1886.]
Briefly describes mounds and other evidences of former geyser action.

— Peculiarities of the drift of the Rocky Mountains.
Discussion of results of glacial action, characteristics of the drift, and relation of timber line to glaciation.

— The geology and vein structure of Southwestern Colorado.
After a description of the topography, the general geology of the district is described and the age and relations of the various formations are discussed, from the Archean to the volcanic and drift. The source of the volcanic rocks and the order and means of their extrusion and their relation to the veins are reviewed in detail and an account is given of the veins and their mineral contents. The paper is accompanied by a geologic map and two topographic maps.

— The veins of Southwestern Colorado.
[Read to American Association, 1886.]
Supposes the vein history of the San Juan district to have commenced at the close of the Cretaceous. Discusses briefly the sequence of lava flows, dislocations, and vein formation.

Connecticut, cutting of gorges in trap ridges, EMERSON.
iron ore mines, PUTNAM.
trap and sandstone at Tariffville, RICE.
Trias of, DAVIS.
CONTINENTS and ocean basins, LE CONTE.

COOK (George H.). Geological survey of New Jersey, annual report of the State geologist for the year 1885, pp. 228, 8°, Trenton, 1885.

Administrative report; introductory remarks to papers on geology by Britton and by F. J. H. Merrill; account of mining operations; paper on water supply from artesian and other bored wells in New Jersey; drainage; forestry; history of the geological surveys in New Jersey; and discussion of methods of topographic survey.

— Sketch of the geology of the Cretaceous and Tertiary formations of New Jersey.


Describes and shows the areal distribution, structure, and stratigraphy of the formations. Discusses the age of the post-Cretaceous formations of Southern New Jersey.

COPE (E. D.).] [On the recent earthquake.]


Discusses the cause and calls attention to a fault along the fall line of the Atlantic seacoast.


Describes the geology of the coal bearing Cretaceous beds and the associated trap rocks.

CORNING (Frederick G.). The gold deposits of the Tipuani River, Bolivia, S. A.


Describes the gravels and the rocks upon which they lie.

CRAIGIN (F. W.). Further notes on the Dakota gypsum of Kansas.


Discusses its stratigraphic position and genesis. Describes new localities.


Describes dike in Carboniferous of Elliott County. (See also paper on same by J. S. Diller.)

Cretaceous, California, BECKER, LE CONTE.

coal of Northwest Canada, KINAHAN.
coal of Rocky Mountains, MERRITT.
fauna of New Jersey, WHITFIELD.
flora of North America, NEWBERRY.
floras of the Northwest, DAWSON.
Montana, HAYDEN.
Nebraska, HICKS.
New Jersey, COOK.
Staten Island, N. Y., BRITTON.
Texas, HILL.

CROSBY (Wm. O.). Common minerals and rocks, pp. 205, 12°, Boston, 1836.

[Guides for Science Teaching.]

— Notes on joint structure.


Discusses previous views on joint structure. Describes joints in Miocene sediments on Potomac River and in felsite at Needham, Mass.

CROSS (Whitman). On the occurrence of topaz and garnet in lithophyses of rhyolite.

[Read to Colorado Scientific Society.]


Describes mode of occurrence and petrography of the rhyolite.

— and EAKINS (L. G.).

On ptilolite, a new mineral.


[Read before the Colorado Scientific Society, May, 1886.]

Incidentally describes some features of the conglomerate beds of Jefferson County, Colorado, and the andesite pebbles of which it is chiefly composed.

CROZIER (A. A.). Evidence of glacial action on the shores of Lake Superior.


Calls attention to glacial grooves and scratches about Peninsula Harbor and terrace on Verto Island in Nipigon Bay.
D.

Dakota, drift, Chamberlin.


Canadian Inst. Proc. vol. 22, pp. 69-70. Describes the metamorphosed Helderberg rocks at Bernardston, Mass., and Littleton, N. H.

Dana (James D.). A dissected volcanic mountain; some of its revelations.


--- On the Lower Silurian fossils from a limestone of the original Taconic of Emmons.

[Read to American Association, 1885.] Am. Jour. Sci. Ill, vol. 31, pp. 241-248. Briefly reviews Emmons's Taconic theories and calls attention to the danger of correlating formations by lithologic analogies. Describes the occurrence of fossils at Canaan in the "Sparry" limestones of Emmons, in the same general vicinity near the overlying slates, and also in detached masses of limestone. Traces the same limestone belt northward across Massachusetts into Vermont.

--- The history of Taconic investigation previous to the work of Professor Emmons.


--- The Taconic stratigraphy and fossils.

Am. Jour. Sci. Ill, vol. 32, pp. 236-239. Gives a brief résumé of the stratigraphy and structure of the Taconic district. Discusses the possibility of superposition by overthrust, with negative conclusion. Calls attention to increase of the amount of metamorphism eastward and to its effects upon organic remains.

[---] Geologic age of the North Atlantic oceanic basin and origin of Eastern American sediments.

Am. Jour. Sci. Ill, vol. 32, pp. 407-408. Describes the derivation of the American Paleozoic from the Archean border in opposition to Hull's idea of their origination from the district now covered by the Atlantic.

Darton (Nelson H.). [Notes on the formations associated with the Green Pond Mountain series and on the geology of Orange County, New York.]

Mineral Physiology and Physiography, by T. Sterry Hunt, p. 591. Calls attention to the occurrence of Upper Silurian limestones at Upper Longwood and Newfoundland, N. J., and to some points in the geology of Orange County.

--- On the area of Upper Silurian rocks near Cornwall Station, Eastern-Central Orange County, New York.

Am. Jour. Sci. Ill, vol. 31, pp. 209-216. Describes Lower Helderberg limestones and underlying conglomerate, forming an outlier far from the main mass of the formation; the Water Lime, Pentameros, and Delthyris Shale being recognized, the last by finely preserved fossils of many species, some peculiarities of which are described.

--- The Taconic controversy in a nutshell.

Science, vol. 7, pp. 78-79. Calls attention to the significance of his discovery, and that of Dale and others, of the occurrence of Trenton fossils in the slates of Orange County, N. Y.

Davenport, Iowa, geology, Barris.

Davis (William M.). The structure of the Triassic formation of the Connecticut Valley.


--- Relation of the coal of Montana to the older rocks.

DAVIS (W. M.) — Continued.
Detailed geologic description of an area of about 10,000 square miles in South-Central Montana. Lists of fossils by Whitfield and description of eruptive rocks by Lindgren.

DAWSON (George M.). Preliminary report on the physical and geological features of that portion of the Rocky Mountains between lat. 49° and 50° 30'.
Account of previous explorations and reports. Description of physiography, flora, and the distribution, stratigraphy, structure, and relations of the geologic formations. The paper is illustrated by plates from photographs, a colored map, and sections of the Cascade coal district and of a portion of the Rocky Mountains.

DAWSON (Sir William). Cretaceous floras of the Northwest.
Discusses horizon of the Kootanai and of the other groups and the climate and floral conditions at the time of their deposition.

Geology of the Atlantic Ocean.
[Address to British Association, September, 1886.]
Discusses the Appalachian flexures and the derivation of the materials of the formations of the Eastern United States.

Note on boulder drift and sea margins at Little Metis, Lower St. Lawrence.
Canadian Rec. Sci. vol. 2, pp. 36-38.
Describes the beaches and terraces and discusses their origin.

On the Mesozoic floras of the Rocky Mountain region of Canada.
Includes a brief description of the formations, their horizon, structure, and history, by G. M. Dawson. Discusses the geologic relation of the floras.

Delaware, gabbros &c., CHESTER.
Devonian, Chemung, section, Bradford County, Pa., LILLEY.
revision of Cayuga Lake section, N. Y., WILLIAMS.
Tully Limestone, WILLIAMS.

DILLER (J. S.). Notes on the geology of Northern California.
Describes the carboniferous limestones, the structure of the Sierra Nevada, and the general distribution of the metamorphic, volcanic, and cretaceous rocks. Discusses the age of the faulting of the Sierra Nevada, the age of the auriferous slates, and the relation of the Sierras, Coast, and Cascade Ranges.

— Notes on the peridotite of Elliott County, Kentucky.
Describes the petrographic nature of the dikes in the carboniferous sandstones and shales in Eastern Kentucky and discusses their relations to the strata, arriving at the conclusion that the peridotite has been intruded into its present position.

Dinocerata, MARSH.

D'INVIILLERS (E. V.). Preliminary report of work done in 1885 on the re-survey of the Pittsburgh coal region.
Lists of elevations, description of geologic structure and of the Pittsburgh and associated coal beds and rocks.

— The Cornwall iron ore mines, Lebanon County, Pa.
Describes the geology and structure of the district; the trap rocks and their relations to the shales and limestones. The paper is accompanied by a map and geologic sections.

— See, also, Lesley (J. F.) and D'Inville (E. V.).

District of Columbia, geology of, McGee.

Drift. See Quaternary.

DRUMMOND (A. T.). Our northwest prairies; their origin and their forests.
Describes some features of the drift deposits and discusses the effect of glacial action.

DWIGHT (William B.). Recent explorations in the Wappinger Valley limestone of Dutchess County, N. Y., No. 5. Discovery of fossiliferous Potsdam strata at Poughkeepsie, N. Y.
[Read to American Association.]

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Dwight (W. B.)—Continued.


Describes lithology and stratigraphy of the district in which Hudson River, Calciferous, Trenton, and Potsdam are associated. All are fossiliferous. Finds a fault bringing first and last in contact and traces it to the Hudson near Clinton Point post office. Gives a map of district and section showing relations at fault line.

Dwight (W. B.)—Continued.

The peculiar structure of Clark's clay beds near Newburgh, N. Y.


— See, also, Ford (S. F.) and Dwight (W. B.).


Earthquakes, Cope, Newberry, Powell.

Eldridge (George H.). Montana coal fields.

Tenth Census: Report on the Mining Industries of the United States, pp. 739–759. Detailed descriptions of the various coal beds and the structural and stratigraphic relations of the associated formations.


Emerson (B. K.). Holyoke trap range.

[Road to American Association, 1886.]


Emerson (B. K.)—Continued.

Describes structure, volcanic phenomena, and petrography of the district.

Preliminary note on the succession of the crystalline rocks and their various degrees of metamorphism in the Connecticut River region.


“A comparison of the Bernardston fossiliferous section with the successive bands of the same series eastward where the metamorphism gradually increases.”

The age and cause of the gorges cut through the trap ridges by the Connecticut and its tributaries.


“The gorges were cut by the preglacial drainage and the streams were restored to their old course by the position of their deltas.”

Emmons (S. F.). The genesis of certain ore deposits.


Erosion, King.

Falding (F. J.). Notes on Canadian fluor-apatite or fluor-phosphate of lime.


Describes some features of the rocks in which the mineral occurs.

Fault and fall line of Atlantic coastal plain, Cope.

Fire clay, Wellersburg, Pa., Lesley, Harden.

Florida, Nummellite limestone, Heilprin.

Florida—Continued.

West coast geology, Heilprin.

Geology of, Kost.


Describes structural and stratigraphic relations of the Clinton and Niagara at many localities and along several section lines.
FORD (S. W.) and DWIGHT (W. B.). Preliminary report upon the fossils obtained in 1885 from metamorphic limestones of the Taconic series of Emmons, at Canaan, N. Y.


Description of the limestone outcrop from which the fossils were obtained.

FRAZER (Persifor). Sketch of the geology of York County, Pennsylvania.


Gives a brief description of the formations and discusses their stratigraphic and structural relations and their equivalency and horizon.

FRAZER (P.)—Continued.

Revisited the portion of "Wadsworth and Whitney's Azoic system as applied to Southeastern Pennsylvania. The paper is accompanied by a map colored in accordance with the proposed scheme of the International Congress.

— The work of the International Congress of Geologists and of its committees, pp. 100 and pl. 80, 1886.

FREEMAN (H. C.). The geologic distribution of natural gas.


Discusses occurrence of gas and geologic relations of La Salle County and adjacent parts of Illinois and adjoining States.

G.

Gas, anticlinal theory of, CHANCE, WHITEBURNER.

Geologic distribution, FREEMAN.

in Ohio, ORTON.

See, also, Oil.


Occasional references to well known American geologic features.

Geological surveys, GILBERT.

Georgia, iron ore and coal, PORTER.


Describes topography, stratigraphy, and structure of the district.

GILBERT (Grove Karl), An account of some new geologic wrinkles.

[Read to American Association, 1886.]


Describes small, postglacial anticlines in horizontal limestones of Western New York and discusses their cause.


Appleton's Annual Cyclopedia for 1885, pp. 401-408.

Bull.—44—2 (359)
GILPIN (E.)—Continued.
Describes the various formations and their relation and structure. The paper is accompanied by a geologic map.
— The Nova Scotia gold mines.
Discusses the age and genesis of the gold bearing rocks and describes their structure and relations to associated formations. The paper is accompanied by a geologic map of the southern half of Nova Scotia.

Glaciers, RUSSELL, ALLEN.

GRANT (C. E.). Notes on Pleistocene fossils from Anticosti.
Describes some features of the clay beds in which the fossils occur and calls attention to an apparent rising of the island.

GRATAÇAP (L. P.). Fish remains and tracks in the Triassic rocks at Weehawken, N. J.
Incidentally describes the shales and sandstones at the trap contact.

H.

HAGUE (Arnold) and IDDINGS (Joseph P.). Notes on the volcanic rocks of the Republic of Salvador, Central America.
Describes some interesting rocks, including basalt, pyroxene-andesite, hornblende-pyroxene-andesite, hornblende-mica-andesite, dacite, and possibly rhyolite. Discusses their relation to rocks of the Sierra Nevada and Great Basin of the United States.

Description of the clay bed and its geologic relations and structure.

Incidentally describes some features of the coal fields of Northern Arkansas.
— The minerals and rocks of Arkansas, pp. 32, 8°, Philadelphia, 1886.
Gives a general review of Arkansas geology and references to localities of rocks.

HAYDEN (Ferdinand Vandeveer). [Report on geologic studies in Montana.]
Notes outcrops of Cretaceous and Laramie in district studied.

HEILPRIN (Angelo). Explorations on the western coast of Florida and in the Okeechobee wilderness, with special reference to the geology and zoology, pp. 127 and pls. 8°, Philadelphia, 1886.
Pages 1-64 and plates not yet issued.

HEILPRIN (A.)—Continued.
— Notes on the Tertiary geology and paleontology of the Southern United States.
Recognizes, from fossils, beds of Claibornian horizon in San Augustine County, Texas; the Nummulitic near Gainesville, Fla.; and the Lower Eocene in Kentucky near Paducah.

HICKS (L. E.). Some typical well sections in Nebraska.
Graphic sections from the Brownville, Lincoln, and St. Helena wells, with explanatory notes.
— The Dakota group south of the Platte River in Nebraska.
Describes the stratigraphy, structure, fossils, and topography of the group and details of its unconformable deposition on the Permian. Carboniferous.

— The Lincoln salt basin.
Considers the salt basin the remnant of a Cretaceous sea border.

— The Permian in Nebraska.
Considers the calcareous beds in the valley of Blue River, Gage County, of Permian age. They may be unconformable to the under-

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HICKS (L. E.)—Continued.

HILGARD (E. W.). Dr. Otto Meyer and the Southwestern Tertiary.
Science, vol. 7, p. 11.
Discusses Meyer’s theory that the Grand Gulf group overlies the Vicksburg group.

HILL (Frank A.). Description of the Wyoming Buried Valley between Pittston and Kingston.
Description of drift deposits and evidence from bore holes.

HILL (Robert T.). Salient geologic features of Travis County, Texas.
Austin Statesman, December 15, 1886.
Describes topography and the subdivisions of the Cretaceous of the district.

Describes thin seam of impure bituminous coal in Middle Carboniferous.

HITCHCOCK (C. H.). Geological map of the United States and part of Canada. Compiled to illustrate the scheme of coloration and nomenclature recommended by the International Geological Congress.
On the map there are left uncolored areas in California, Nevada, Idaho, and Utah. With some exceptions, the information on McGees map is incorporated. In the explanation, previous maps are described and attention is called to the differences between them. The sources of information are given, as well as reasons for changes in the present map.

HONEYMAN (D.). Geology of Cornwallis or McNab’s Island, Halifax Harbor.
Roy. Soc. Canada Trans. vol. 3, sec. 4, p. 27.
Describes the drift deposit.

HOOKER (W. A.). Notes on mining in Oaxaca.
Briefly describes some of the geologic features of the district.

Fels zum Moor, July, 1886.

HOVEY (H. C.). Niagara River, gorge and falls.
Gives a summary of the discussion on the subject before the American Association and discusses some of the evidence.

HUNTER (James Lewis). Lithographic stone from Tennessee.
Gives analyses.

Hudson Bay district, BELL.

HULL (Edward). The geological age of the North Atlantic Ocean.
Nature, vol. 34, p. 496.
Discusses the source of the material of some of the American Paleozoic formations.

Besides reprints of former papers, discusses the genetic history of crystalline rocks, the history of the pre-Cambrian rocks, and the Taconic question. Discusses recent information in regard to the rocks at the head of the Bay of Fundy, the Lake Superior district (pp. 579, 611, and 621), the Cambrian of Utah (p. 623) and of the Grand Cañon (p. 624), Texas (p. 624) and of the Taconic region (pp. 627, 629, 643, 645, and 647). On p. 591 has notes by Darton on the Green-Pond Mountain series and associated formations.

I.

Idaho, Pliocene sands, MERRILL.

IDDINGS (Joseph P.). The columnar structure in the igneous rock on Orange Mountain, New Jersey.
[Read to Philosophical Society of Washington.]

IDDINGS (J. P.)—Continued.
Describes exposure in which very perfect, large columns are capped by smaller ones with
IDDINGS (J. P.)—Continued.

radial structure, the plate showing the relations. Concludes that both belong to the same flow. Discusses cause of columnar structure. Describes microscopic character of the rock and considers the sheet a lava flow rather than intrusive.

See, also, Hague (Arnold).

Illinois, Quaternary, Worthen. gas, Freeman.

Indiana, geologic map, Branner.

Iowa, drift, Chamberlin. Davenport, geology, Barris. movement of glaciers, Irish.


Iron—Continued.


IRVING (R. D.). Origin of the ferruginous schists and iron ores of the Lake Superior region.


Preliminary paper on an investigation of the Archean formations of the Northwestern States.

Fifth Annual Report of the U. S. Geological Survey, 1883-'84, pp. 175-242 and pl. Gives a general account of the problems to be attacked, a description of areas of Huronian and supposed Huronian age, and a preliminary geologic map. Describes the petrography and discusses the evidence of enlargements of mineral fragments in certain detrital rocks of the region, and metamorphism in the Huronian.

Tornebohm on the formation of quartzite by enlargement of the quartz fragments of sandstone.


J.

JAMES (Joseph F.). The geology of Cincinnati.


Joint structure, Crosby.


Not seen.

JULIEN (A. A.). [Remarks on the thin bedded gneiss border of the Adirondack region.]

K.

**Kansas**, notes on gypsum deposits, **Cra- gin**.

**Kaolin**, Brandywine Summit, Delaware County, Pa., **Ashburner**.<br>Chester and Delaware County, Pa., **Lesley**.

**Kentucky**, iron mines, **Chauvenet**.<br>Lower Eocene, **Heilprin**.<br>trap rocks of Eastern, **Crandall, Diller**.


**KING** (F. H.). Internal chemical and mechanical erosion a factor in continent and mountain building.<br>Am. Nat. vol. 20, pp. 53-57.<br>Discusses the possibilities of underground chemical solution decreasing the strength and amount of solid matter in continents and the results.


**KÜCH** (R.). Petrographische Mittheilungen aus den südamericanischen Anden.<br>Neues Jahrbuch, Band I, pp. 35-48, 1886.<br>On rhombic pyroxene in andesites and its determination; describes quartz-pyroxene-andesite of Cumbal and dacite-pearlite from Loma de Ales and gives chemical analyses.

L.

**Lake Bonneville**, **Gilbert**.<br>**Lake Lahontan**, **Russell**.<br>**Lake shores**, topography, **Gilbert**.<br>**Lake Superior**, glacial action on shores, **Crosier**.<br>**Lake Superior** copper mines, **Wheeler**.<br>**LAMPLUGH** (G. W.). On glacial shell beds in British Columbia.<br>Geol. Soc. Quart. Jour. vol. 42, pp. 276-286.<br>Describes beds of Vancouver Island and in valley of Fraser River. Discusses time of deposition.<br>On ice grooved rock surfaces near Victoria, Vancouver Island; with notes on the glacial phenomena of the neighboring region and on the Muir glacier of Alaska.<br>Yorkshire Geol. and Poly. Soc. Proc. vol. 9, n. s. pp. 57-70.


**LAWSON** (A. C.). On the geology of the Lake of the Woods region, with special reference to the Keewatin (Huronian?) belt of the Archean rocks.<br>Annual Report of Geol. Survey of Canada vol. 1, n. s. CC, p. 141.<br>Issued separately in 1885.<br>— Some instances of gneissic foliation and schistose cleavage in dikes and their bearing upon the problem of the origin of the Archean rocks.<br>Canadian Inst. Proc. vol. 32, pp. 115-128.<br>Discusses foliation and metamorphism. Describes and figures instances of foliation in dikes at various West Canadian localities.

**LE CONTE** (Joseph). A post-Tertiary elevation of the Sierra Nevada shown by the river beds.<br>[Presented to the National Academy of Sciences.]<br>Am. Jour. Sci. III, vol. 32, pp. 167-181.<br>Discusses the effect of orographic movements on drainage. Calls attention to some features of the history of Colorado and Mississippi Rivers. Describes river beds of parts of California. Discusses some structural features of the Great Basin, the relation of the post-Tertiary movements to the great lava flood and to the great fissures and normal faults of the West, the contemporaneous elevation of the west side of South America and subsidence of the...
LE CONTE (J.)—Continued.
mid-Pacific bottom, and the cause of the move-
ments. In conclusion, makes an estimate of
the amount of elevation and erosion.
--- Compend of geology, 12°, New York,
1886.
--- On the permanence of continents and
ocean basins, with special reference to
the formation and development of the
North American continent.
Discusses relation of land and sea areas in
Archean and in lower Silurian times and the
source of sediments of the formations.

LESLEY (J. P.). Annual report of the
gеological survey of Pennsylvania for
1886, pp. 769, 18 pl. and atlas of maps,
8°, Harrisburg, 1886.
Administrative report and history of the
survey. Geological papers by Carll, Lesque-
reux, D'lnvilliers, Lesley, Ashburner, Lien,
Linton, Harden, and Hill, and paper on the
geodetic survey of the State by Merriman.

--- Dr. Orton's Ohio gas and oil report.
Discusses the formation of petroleum, cav-
ernous limestones, underground drainage and
erosion, and the cause and age of the Cincin-
nati uplift. Describes some features of differ-
ence between the geology of Pennsylvania and
Ohio.
--- Some general considerations of the
pressure, quantity, composition, and
fuel value of rock gas or the natural gas of
the oil regions of Pennsylvania.
Annual Report of the Geological Survey of
Pa. for the year 1886, pp. 657-689.
Discusses movement of fragmental material,
of rocks due to underground erosion and po-
rosity, the resulting pressure and its relation
to the pressure under which oil and gas are
found. Calls attention to areas of the State
that are barren of oil and gas and to those likely
to yield them.

--- Some general considerations respecting
the origin and distribution of the
Delaware and Chester kaolin deposits.
for 1886, pp. 571-591 and map.
Discusses strike and linear extent of crystal-
l ine rocks of the district. Calls attention to
parallelism of strike of kaolin and limestones,
some of which are thought to be altered Lower
Silurian. Advances the hypothesis that de-
composition of gneisses &c. is greatly increased
by solutions from adjacent limestones &c., and
that this has been the cause of the deep decom-
position at the Hoosac tunnel, in parts of the
Southern Atlantic States, and elsewhere. Dis-
cusses the origin of kaolin, of the cretaceous
clays of the coastal plain, and the relation of
rock decay to structure, texture, and composi-
tion.
--- The coal beds and fire clays of the
Wellsburg basin in Somerset County.
for 1886, pp. 227-229.
Describes the geology and structure of the
district and discusses the horizon of some of
the beds.
--- The geology of the Pittsburgh coal
region.
Discusses the coal beds of Western Penn-
sylvania and westward; discusses their former
extent, the gap between the Carboniferous and
Trias in Pennsylvania, the horizon and ex-
tension of various Carboniferous beds, the De-
vonian beds and oil sands, and the structure
of bituminous district.
--- and D'INVILLIERS (E.V.). Re-
port on Cornwall iron ore mines,
Lebanon County.
for 1886, pp. 491-570 and map.
Describes the geology in detail. Discusses
the means and mode of intrusion of the trap,
the relation of the ore beds and Mesozoic, the
genesis of the ore, and the age and relations of
the associated slates. In a supplementary
note Lesley calls attention to the similarity of
Cornwall and Dillsburg deposits. The paper
is illustrated by heliotypes of outcrops and of
two relief models, and by maps.

LESQUEREUX (Leo). On the vege-
table origin of coal.
for 1886, pp. 95-121.
Discussion of theories on the subject.

LEWIS (H. Carvill). Some examples of
pressure fluxion in Pennsylvania.
States his opinion that the belt of Laurentian
rocks of Southeastern Pennsylvania are of
eruptive origin, consisting of highly metamor-
phosed syenites, acid gabbros, trap granulites,
&c.
--- Comparative studies upon the glaci-
ation of North America, Great Britain,
and Ireland.
[Read to British Association, Sept. 1886.]
35, pp. 89.
Refers to some well known phenomena of
American glaciation.

LINDGREN (Waldemar). Eruptive rocks [of Montana coal districts].
General descriptions of the occurrence of the eruptive rocks of South-Central Montana and of their lithologic characters.

LINTON (Edward). See LINN (Alonzo).

LOW (A. P.). On the Mistassini expedition.
Describes and maps distribution of Laurentian, Huronian, Cambrian, and superficial formations, giving an account of their general stratigraphy and structural relations.

Lower Silurian. See Silurian, Lower.

McGEE (W. J.)—Continued.
Describes the composition and distribution of the Columbia and the underlying Potomac formations and some features of the crystalline rocks.

Maine, geology of Cobscook Bay, SHALER.

MARCOU (Jules). On two plates of stratigraphical sections of the Taconic ranges, by James Hall.
Calls attention to the extensive distribution of the sections referred to.

MARSH (O. C.). The gigantic mammals of the order Dinocerata.
Describes the Eocene deposits of Wyoming in which the remains are found and gives a brief review of the Tertiary geology of the West.

MARTIN (D. S.). [Remarks on the tide water gneisses.]
Calls attention to the lithologic differences between the gneisses of the highlands of New Jersey and New York and those of Manhattan Island, Philadelphia, &c.
Maryland, Chesapeake Bay, head of, McGee.
  gabbros &c. near Baltimore, Williams.
  iron mines, Benton.
Massachusetts, cutting of gorges through trap ridges, Emerson.
  Holyoke trap, Emerson.
  iron mines, Putnam.
  metamorphism of crystalline rocks, Emerson.
  Trias, Davis.
  Upper Silurian, Dale, Emerson.
Matthew (G. F.). [Sketch of geology of Frye's Island.]
  States that he had recognized the same succession of Silurian strata as is found on the Mascarene shore of Passamaquoddy Bay and that the bolt of red conglomerate extending from Black's Harbor toward Eastport is Devonian.
  Describes topography and the relation and structure of the glacial and preglacial clays, sands, &c. Discusses the age and mode of deposition of the beds, condition of Long Island Sound during the glacial period, and subsidence of the coast line. The paper is accompanied by a map of the island and plate of sections.
  [Observations on the recent formations of the Atlantic Coast of New Jersey.]
  Describes salt marshes, beaches, terraces, and alluvial deposits in general; discusses the subsidence of the coast, the formation of marshes, and change of form of the beaches due to tide and wind action.
  On some dynamic effects of the ice sheet.
  [Read to American Association, 1886.]
Merrill (George F.). Notes on the composition of certain "Pliocene sandstones" from Montana and Idaho.

Merrill (G. P.)—Continued.
  Finds them to be composed in greater part of fragmental volcanic products. Describes other similar rocks from Kansas and Colorado.
Merritt (W. H.). The Cascade anthracite coal fields of the Rocky Mountains, Canada.
  Describes and figures stratigraphy, structure, and relation to associated formations of Cretaceous coal beds of Bow River Valley.
Mexico, fossil man, Barcena.
  coal deposits, Cope.
  mining in Oaxaca, Hooker.
  Describes an unsuccessful attempt to find Grand Gulf and Tertiary beds in contact. Describes the relation of the greensands south of Enterprise and the relations near Jackson. Concludes that the Grand Gulf group is older than the marine Tertiary, was dry land when the latter was deposited, and was not a marine deposit. Calls attention to an extensive marine greensand in Eastern Mississippi at a horizon immediately below the Claiborne.
Michigan, Archean, Irving.
  iron mines, Putnam.
Minnesota, Archean, Irving.
  deep wells, Winchell.
  geologic survey report, Winchell.
  iron ore districts, Willis.
  Lower Silurian, Ulrich.
  revision of Cambrian, Winchell.
Mississippi, Tertiary, Aldrich, Langdon, Hilgard, Meyer.
Missouri, iron mines, Chauvenet.
Mistassini expedition, Low.
Monro (Alex.). On the physical features and geology of Chignecto Isthmus.
  Describes some topographic feature and superficial formations; calls attention to subsidence of the land.
Montana, Cretaceous and Laramie, Hayden.
  Pliocene sands, Merrill, Peale.
  coals and geology, Davis.
  coals, Eldridge.
  eruptive rocks, Lindgren.
Nebraska, Dakota group, Hicks.
  drift, Chamberlin.
  Lincoln salt basin, Hicks.
  Permian in, Hicks.
  Quaternary volcanic sand, Todd.
  well sections, Hicks.

Nevada, argentiferous lead mines, Six.
  Lake Lahontan, Russell.
  Washoe rocks, Becker.

Newberry (John S.). Earthquakes.
  Columbia Coll. School of Mines Quarterly,
  vol. 8, pp. 1-19.
  Incidentally discusses earthquakes and volcanoes as measures of thickness of the earth's crust.

North America in the ice period.
  Describes in general the glacial features of North America and discusses the iceberg theory and glacial climate.

Notes on the geology and botany of the country bordering on the Northern Pacific Railroad.
  Besides mentioning many geologic features along the railroad, describes drift of Yellowstone Park and the Upper Missouri, the geology of the Belt Mountain district, the present and former glaciers of the Cascade Range, and the geology of the Puget Sound basin.

On the American Trias.
  Discusses the equivalency of American and European beds. States his opinion of the probable Archean age of the crystalline rocks forming the eastern border of the Trias in New Jersey and Pennsylvania.

[Review of Hull on the "Geological age of the Atlantic Ocean."]
  Opposes the statements in regard to the derivation of the materials of the American Paleozoic.

The Cretaceous flora of North America.
  Gives a table showing relative positions of the plant bearing members of the Cretaceous of North America and Europe.

New Brunswick, Cambrian, Bailey.
  Chignecto Isthmus, Monro.
  Frye's Island, Matthew.

New Brunswick—Continued.
  geologic studies, Bailey.
  geology of part of, Eells.
  surface geology, Chalmers.

New England iron mines, Putnam, Benton.
  Upper Silurian, Dale.
  See, also, Massachusetts.

New Hampshire, Upper Silurian, Dale.

New Jersey, Archean, Britton.
  coast formations, Cook, Merrill.
  Cretaceous fauna, Whiffen.
  Cretaceous and Tertiary, Cook, Britton.
  fish remains, Ghatacap.
  geologic report for 1885, Cook.
  iron mines, Putnam.
  Orange trap columns, Iddings.
  Upper Silurian, Darton.

New York, fire sand of Clinton County, Brainerd.
  fossiliferous limestone of Columbia County, Bishop.
  fossils at Canaan, Dana, Dwight, Ford.
  geologic succession in Ontario County, Clarke.
  geologic wrinkles, Gilbert.
  iron mines, Putnam.
  Long Island, geology, Merrill.
  Lower Helderberg, Cayuga County, Williams.
  Lower Helderberg, Cornwall Station, Darton.
  Niagara Falls recession, Woodward, Gilbert.
  Niagara River, gorge and falls, Hovey, Claypole, Pohlmam.
  Onondaga salt group at Buffalo, Pohlmam.
  Orange County, geology, Darton.
  peridotites near Peekskill, Williams.
  place of Niagara Falls in geologic history, Gilbert.
  Potsdam near Poughkeepsie, Dwight.
  Quaternary deformation, Gilbert, Merrill.
  revision of Devonian section at Cayuga Lake, Williams.
  salt mine, Wright.
New York—Continued.

schistose rocks of Adirondacks, BRITTON, JULIEN.
Staten Island, geology, BRITTON. structure of clay near Newburgh, DWIGHT.
Tilly Foster Mine, geology, RUTTMAN.
Trenton fossils of Orange County, DARTON.
Tully limestone, WILLIAMS.
Washington County, Cambrian age of slates at Granville, WALCOTT.
westward extension of the Lower Helderberg, WILLIAMS.

Niagara Falls. See New York.

North America, age of Olenellus zones, BROGGER.
North Carolina, iron mines, WILLIS.
Northern Pacific Railroad, geology along, NEWBERRY.

Nova Scotia, Cornwallis or McNab Island, HONEYMAN.
geologic formations, ELLS.
geology of Cape Breton Island, GILPIN.
gold mines, GILPIN.
Sydney coal field, ROUTLEDGE.

Ohio, geology of Cincinnati, JAMES. Clinton group, FOERSTE.
coal field, ORTON.
coals, characteristics of, ORTON.
deep well, ORTON.
iron mines, WILLIS. oil and gas, ORTON.
Orton's oil and gas report, LESLEY.

Oil and gas, of Ohio, ORTON.
Orton's report on, LESLEY.
borings in Pennsylvania, ASHBURNER.
Pennsylvania, CARLL, HOUTHUMB.
pressure, quantity, &c. of Pennsylvania, LESLEY.
Wyoming, AUGHEY.

Orange sands. See Quaternary.

ORTON (E.)—Continued.
flammable gas, pp. 76, 8o, 2 maps, Columbus, 1886.
Discusses the mode of occurrence and origin of oil and gas; gives a general account of the geology of Ohio and a map; describes the oil fields and the occurrence of oil and gas in the Trenton, in the Berea grit, in the Ohio shales, and in the other formations.

— Petroleum and natural gas in Ohio.
Describes some geologic features of the district and the rocks passed through in drilling. The paper is accompanied by a geologic map of Ohio.

— The recently discovered sources of natural gas and petroleum in Northwestern Ohio.
Describes the geology of the district and the age of the beds passed through in drilling. Calls attention to the relation of the new oil district to the Cincinnati uplift.

— The record of the deep well of the Cleveland Rolling Mill Company, Cleveland, Ohio.
Gives the record of a well begun in Belford shales and extending down into the Trenton Limestone. Discusses the identity of intermediate beds.

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PACKARD (A. S.). Geological extinction and some of its apparent causes.

PANTON (J. Hoges). Notes on the geology of some islands in Lake Winni-
ppeg.
Describes the crystalline rocks, the Silurian formations and fauna, the drift, and evidences of glaciation.

Paraguay, stones from, POHLMANN.

PEALE (A. C.). Lacustrine deposits of Montana.
Describes the general features of the deposits and calls attention to Merrill's discovery that they are in part composed of volcanic dust.

Pennsylvania, anthracite coal region, ASHBURNER.
Archbald pot-holes, ASHBURNER.
Bradford County, Chemung section, LILLEY.
Chester and Delaware kaolin, LESLEY.
Cornwall iron mines, LESLEY, D'INVILLIERS, WILLIS.
gas, ASHBURNER, CARLL, CHANCE, WHITE.
glaciation, BRANNER.
Determined from a well boring 1,345 feet in depth, which passed through gypsiferous beds down to 725 feet, then through soft, red shales holding a bed of sandstone near their top.
The Niagara gorge.
Discusses details of the ancient drainage of the Niagara Falls district and the origin and work of the Niagara River.

POHLMANN (Julius). The thickness of the Onondaga salt group at Buffalo.
Determines from a well boring 1,345 feet in depth, which passed through gypsiferous beds down to 725 feet, then through soft, red shales holding a bed of sandstone near their top.
The Niagara gorge.

POHLMANN (Robert). Gesteine ans Paraguay.
Neues Jahrbuch, Band I, pp. 244-248, 1886.

PORTER (John B.). The iron ores and coals of Alabama, Georgia, and Tennessee.
BIBLIOGRAPHY OF GEOLOGY FOR 1886.

PORTER (J. B.)—Continued.
Describes occurrence of iron ores and coals
and the structure and geology of the region.

POWELL (J. W.). The cause of earthquakes.
Gives instances of formation of sedimentary deposits.
Explains faults and flexures. Discusses
changes of shore lines, internal heat of the earth, crustal stresses, earthquakes known to
have been produced by faulting, relation of volcanic
crises to earthquakes, relation of geology to seismo
crises, and the condition of the interior of the earth
and of its crust.

PRESTWICH (Joseph). Geology, chemical, physical, and stratigraphical.
Vol. 1, Chemical and physical, 244-477 pp. 8°, Oxford, 1886.
Thinks that the Cañon of the Colorado may
be due to a fissure widened by erosion. Quotes
descriptions of various instances of geologic
phenomena in the United States, especially in
the West.

PRIME (Frederick, Jr.). The coals of the United States.
Brief general description of the location and
character of the coal districts.

PUMPELLY (Raphael). Bituminous coals and lignites of the Northwest.
Tenth Census: Report on the Mining Industries of the United States, pp. 600-655 and map.
General description and notice of deposits.
Geographical and geological distribution of the iron ores of the United States.
Tenth Census: Report on the Mining Industries of the United States, pp. 3-36 and plates.

PUMPELLY (R.)—Continued.
General geologic description of the various ore regions and some features of their structure.

PUTNAM (Bayard T.). Notes on the samples of iron ore collected in Connecticut and Massachusetts.
Describes some features of the formations in
which the ore occurs.
Notes on the samples of iron ore collected in Michigan and Northern Wisconsin.
General description of the geology of the ore districts.
Notes on samples of iron ore collected in New Jersey.
Describes some features of the formations in
which the ore occurs.
Notes on the samples of iron ore collected in New York.
Tenth Census: Report on the Mining Industries of the United States, pp. 89-144.
Description of the geologic relations and structural features of the mines.
Notes on the iron ores of Pennsylvania.
Occasional notice of geologic features of formations in which the ores occur.
Notes on the samples of iron ore collected west of the one hundredth meridian.
Description of the ore beds and the associat ed formations in Colorado, Wyoming, Utah, California, and Oregon.

Quaternary, Alaska, Allen.
along Northern Pacific Railroad, Newberry.
Archibald pot-holes, Pa., Ashburner.
British Columbia, Lamplugh.
Buried Valley of Newport Creek, Pa., Ashburner, Hill.

Quaternary—Continued.
clay structure near Newburgh, Dwight.
Cornwallis Island, Halifax, Honeyman.
drift, Cooper, Salisbury.
drift inventory, Chamberlin.

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Quaternary—Continued.
drift of Lower St. Lawrence, Dawson.
dynamic effects of ice sheet, Merrill.
elevation of Sierra Nevada, Le Conte.
Florida, west coast, Heilprin.
glacial action, shore of Lake Superior, Crosier.
glaciation of America and Europe, Lewis.
glaciation of Wyoming and Lackawanna Valley, Pa., Branner.
Gray's Ferry road, near Philadelphia, Pa., Smith.
Great Basin, Gilbert.
Ice of Northeastern Pennsylvania, Branner.

Quaternary—Continued.
Illinois, WORTHEN.
Lake Bonneville, Gilbert.
Lake Lahontan, Russell.
Long Island, New York, Merrill.
movement of glaciers in Iowa, Irish.
New Jersey coast, Cook, Merrill.
Niagara Falls, Claypole, Hovey, Gilbert, Pohlman, Woodward.
North America in ice period, Newberry.
Northwest prairies, Drummond.
on islands of Lake Winnipeg, Panton.
Rocky Mountain drift, Comstock.
Selkirk, Canada, McDougall.
Staten Island, N. Y., Britton.
volcanic deposits of Nebraska, Todd.

R.

Vorträge und Mittheilungen, 1886.
Not seen.
— Geologische Wahrnehmungen in Californien längs der Central-Pacific-Eisenbahn und in dem Goldegbiete von Dutch Flat, Placer Co.
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